ТЕКСТИЛ И ОБЛЕКЛО

10
2025
година
LXXVII
от 1949 г.

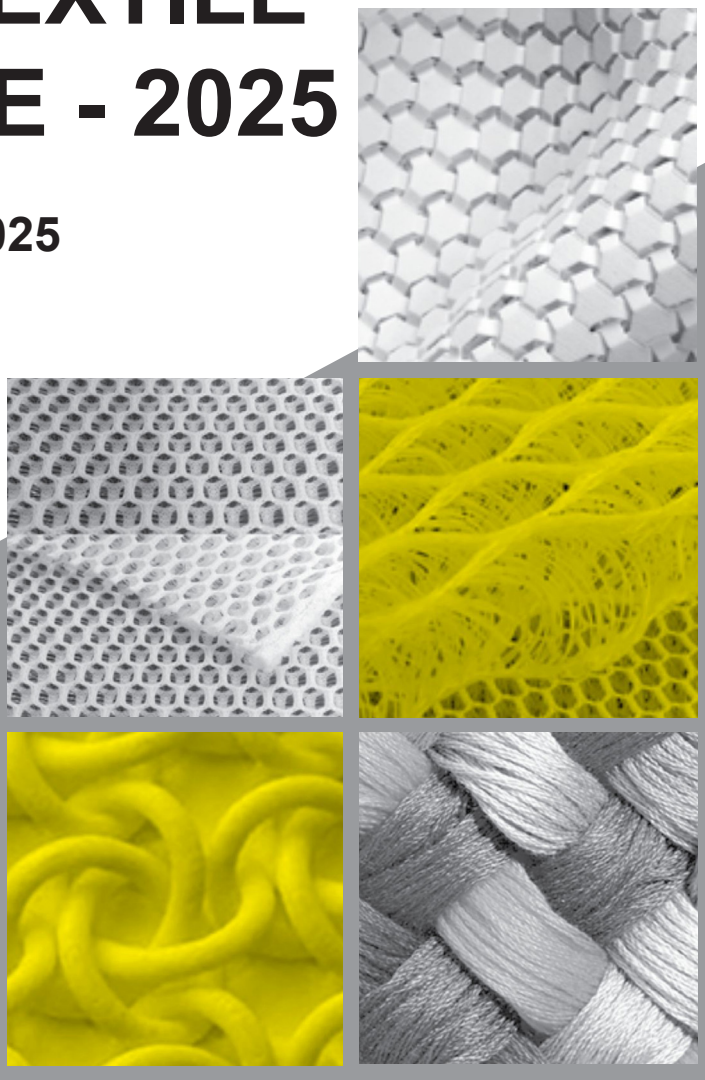
TEXTILE AND GARMENT MAGAZINE

Scientific Engineering
Union of Textiles, Garment
and Leathers
www.tok.fnts.bg

BOOK OF EXTENDED ABSTRACTS

NATIONAL TEXTILE CONFERENCE - 2025

XXVIIbgNTC2025



ISSN 1310-912X (Print)
ISSN 2603-302X (Online)
www.bgtextilepublisher.org
https://doi.org/10.53230/tgm.1310-912X.2025.1000
COBISS.BG-ID – 74291208
https://randii.nacid.bg/register/search/1987

НАУЧНО-ТЕХНИЧЕСКИ СЪЮЗ
ПО ТЕКСТИЛ, ОБЛЕКЛО И КОЖИ

ОРГАНИЗИРА

XXVII НАЦИОНАЛНА ТЕКСТИЛНА КОНФЕРЕНЦИЯ 2025 "ТРАДИЦИИ И ИНОВАЦИИ В ТЕКСТИЛА И ОБЛЕКЛОТО"

С ДОМАКИНСТВОТО НА ЮЗУ "Неофит Рилски" - Благоевград фонд "Научни изследвания" и в сътрудничество с катедрите по текстил и дизайн в Университетски център Бачиново - Благоевград

ЮГОЗАПАДЕН УНИВЕРСИТЕТ "НЕОФИТ РИЛСКИ"

ФОНД НАУЧНИ ИЗСЛЕДВАНИЯ

16-18 октомври 2025 г., Благоевград

Тематични направления:

- нови влакнести суровини, химична обработка и изделия (нанотехники в текстила);
- технология на текстилните материали: предачество, тъкачество и трикотаж;
- технология на шевното производство;
- текстилно изкуство, мода, композиция и представяне на текстилни изделия;
- машинна поддръжка на текстилна техника;
- управление и маркетинг в съвременното текстилно производство;
- съвременна дидактика и методика на текстилното обучение.

ХТМУ София

New Bulgarian University

Тракийски университет Стара Загора

Варненски свободен университет Черноризец Храбър

1896 Национална художествена академия

Институт по отбрана "Професор Цветан Лазаров"

Национален музей на текстилната индустрия Сливен

Професионална гимназия по текстил и облекло "Добри Желязков"

Национална художествена гимназия "Димитър Добрович" Сливен

PICANOL PIRIN-TEX

www.tok.fnts.bg

ТЕКСТИЛ И ОБЛЕКЛО

НСТ по текстил, облекло и кожи

www.tok.fnts.bg

SPECIAL ISSUE 10/2025

BOOK OF EXTENDED ABSTRACTS

NATIONAL TEXTILE CONFERENCE - 2025

Traditions and Innovations in Textiles and Clothing

Present abstracts collection was issued with the kind support of National SCIENTIFIC RESEARCH FUND under grant No. KP-06-MNF/23 dated August 13th 2025

Address:
Bulgaria,1000 Sofia, 108 G. S. Rakovski str., room 407, tel. +359 2 980 30 45
e-mail: textilejournal.editor@fnts.bg
www.bgtextilepublisher.org

Bank account:
Scientific Engineering Union of Textile, Garment and Leathers
VAT identification number: BG 121111930
Account IBAN: BG43 UNCR 9660 1010 6722 00

ISSN 1310-912X (Print)
ISSN 2603-302X (Online)
https://doi.org/10.53230/tgm.1310-912X.2025.1000
COBISS.BG-ID – 74291208
https://randii.nacid.bg/register/search/1987

Textile and Garment Magazine
ISSUE 10/2025

INFORMATION FOR AUTHORS

RULES FOR DEPOSITING AND PUBLISHING ARTICLES

Submission of a manuscript should be addressed to the Editorial Office via e-mail (textilejournal.editor@fnts.bg), the paper should be written in Bulgarian from Bulgarian authors and in English (working language) for foreigners.

Copyright Transfer Agreement must be signed and returned to our Editorial Office by mail, fax or e-mail as soon as possible, after the preliminary acceptance of the manuscript. By signing this Agreement, the authors warrant that the entire work is original and unpublished, it is submitted only to this journal and all the text, data, Figures and Tables included in this work are original and unpublished and have not been previously published or submitted elsewhere in any form. Please note that the reviewing process begins as soon as we receive this document. In the case when the paper has already been presented at a conference, it can be published in our magazine only if it has not been published in generally available conference materials; in such case, it is necessary to give an appropriate statement placed in Editorial notes at the end of the article.

General style and layout

Volume of a manuscript submitted should not exceed 12 standard journal pages in single column (3600 characters per page), including tables and figures. Format is MS Office Word (normal layout). The editors reserve the right to shorten the article if necessary as well as to alter the title.

Title of a manuscript should not exceed 120 characters.

Full names and surnames of the authors, as well as **full names of the authors' affiliation** – faculty, department, university, institute, company, town and country should be clearly given. Corresponding author should be indicated, and their e-mail address provided.

Abstract of a manuscript should be in English and no longer than one page.

Key-words should be within 4-6 items.

For papers submitted in English (any other working language), the authors are requested to submit a copy with a title, abstract and key words in Bulgarian.

Figures and illustrations with a title and legend should be numbered consecutively (with Arabic numerals) and must be referred in the text. Figures should be integrated in the text with format **JPG at 300 dpi minimum**, and in editable form.

Tables with a title and optional legend should be numbered consecutively and must be referred in the text.

Acknowledgements may be included and should be placed after Conclusions and before References.

Footnotes should be avoided.

References (bibliography) should be cited consecutively in order of appearance in the text, using numbers in square brackets, according to the Vancouver system.

XXVII NATIONAL TEXTILE CONFERENCE WITH INTERNATIONAL PARTICIPATION

"Traditions and Innovations in Textiles and Clothing"

In the period 16-18 October 2025, the XXVII National Conference with International Participation "Traditions and Innovations in Textiles and Garment" was held at the University Centre "Bachinovo" of the South-West University "Neofit Rilski". The forum is organized annually by the Scientific Engineering Union of Textiles, Garment and Leathers with the cooperation of the departments of textiles and design in higher education institutions in Bulgaria.

The leading organization of the event this year was the Department of Mechanical Engineering, leading training in the specialty "Design and Technologies for Clothing and Textiles" at the Faculty of Technology of the South-West University "Neofit Rilski".

The scientific forum, which was held in person, was attended by over 80 students, doctoral students, specialists, lecturers and scientists from higher education institutions in our country and abroad, from vocational high schools in design, textiles and garment, from the Institute of Polymers of the Bulgarian Academy of Sciences, the Institute of Defense "Prof. Tsvetan Lazarov", from higher education institutions in SR Vietnam, North Macedonia, Türkiye, Serbia, Tunisia, Germany and Albania. Students, doctoral students and scientists from the Hanoi University of Science and Technology, the Technical University of Dresden, the School of Artistic Weaving in the city of Pen d'Agenais, France and others participated online.

The conference was opened by the Dean of the Faculty of Technology, Prof. Dr. Eng. Snezhina Andonova. In her welcoming speech, she emphasized that it is an honour and a pleasure for the entire teaching staff of the faculty to work in a team with the Scientific Engineering Union of Textiles, Garment and Leathers for another year.

The scientific event is also held with the support of the Scientific Research Fund under a project КП-06-МНФ/23/13.08.2025 with an eligible candidate SWU "Neofit Rilski" at the initiative of SEUTGL. The significance of this traditional scientific forum for all specialists in the field of design, textiles and garment in our country is due to the support of the sponsors of the conference "E. Miroglio" EAD – Sliven, "Pirintex" EOOD - Gotse Delchev, "Lemprier Wool" EOOD – Sliven, as well as the hosts of the event.

The work of the conference began with a round table on the topic "Human Resources for the Textile Profession" moderated by Assoc. Prof. Ivelin Rahnev, Chair of SEUTGL. Key thematic statements were made by Mr. Ivaylo Stefanov - Chief Expert in the Directorate of Economic Policy at the Ministry of Economy and Industry, and Eng. Fani Todorova - State Expert in the Directorate of Vocational Education and Training at the Ministry of Education and Science.

The scientific sessions presented reports related to new fibre raw materials and modern chemical technologies in textiles; antimicrobial textiles and other innovative technologies in textile and sewing production; contemporary textile art, fashion, composition; management, marketing and sustainable development in contemporary sewing and textile production, as well as current methods and forms of training in the field of textiles and garment.

The educational part of the conference began with a fashion show of collections, organized by the

specialty “Design and Technologies for Clothing and Textiles” at the Faculty of Technology of the South-West University “Neofit Rilski”. In the review that has become traditional for the conference, and as the final part of the 16th National Youth Competition “Best Thesis and Course Project in the Field of Textiles and Garment 2025”, graduates from the Departments of Fine Arts and Mechanical Engineering of the South-West University “Neofit Rilski”, the Department of Art and Design of the Bulgarian National University – Sofia, the PGO “Princess Maria Luisa” – Sofia and the Innovative Secondary School “Methodi Draginov” – Draginovo village presented their collections.

50 scientific reports were presented at the conference, the extended summaries of which were published in issue No. 10/2025 of the Textile and Garment magazine. The full text of the articles is included in the journal’s publishing program in 2025 and 2026.

The scientific reports were developed in the university units of UCTM – Sofia, NBU – Sofia, SWU – Blagoevgrad, LBAP of the Institute of Textile Technology at BAS – Sofia and the Institute of Textile Technology “Prof. Tsvetan Lazarov” – Sofia.

Within the scientific sessions of the conference, reports were presented from a seminar on the topic “General concepts, operations and processes in textile technology” under project 2025-1-BG01-KA210-ADU-000363229 of the Erasmus+ program “Training workshop for primary textile techniques” of the NTS on TOK, as coordinator, and HRDC – Sofia as national agency.

The conference included a social program with an official dinner and numerous discussions during coffee breaks and autumn walks along the alleys of Bachinovo Park near Blagoevgrad.

Blagoevgrad, 18.10.2025
NTS on TOK

РЕПУБЛИКА БЪЛГАРИЯ

Министър на икономиката и индустрията

ДО
ДОЦ. ИВЕЛИН РАХНЕВ
ПРЕДСЕДАТЕЛ НА
НАУЧНО-ТЕХНИЧЕСКИ СЪЮЗ
ПО ТЕКСТИЛ, ОБЛЕКЛО И КОЖИ

Уважаеми г-н Рахнев,

Приемете моите най-сърдечни поздравления по повод 27-ото издание на Националната текстилна конференция.

Текстилната промишленост е традиционен и устойчиво развиващ се сектор с важно значение за българската икономика и износ. С близо 100 000 заети и около 5 000 работещи предприятия, индустрията има ключова роля за регионалното развитие и утвърждава България като надежден и предпочитан партньор на европейския пазар.

Днес пред бранша стоят предизвикателства, свързани с необходимостта от технологична модернизация и внедряване на иновации. Министерството на икономиката и индустрията работи последователно за насърчаване на тези процеси чрез политики и инициативи, насочени към повишаване на конкурентоспособността и устойчивото развитие на сектора.

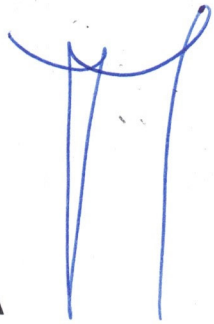
Най-голямото богатство на индустрията обаче са нейните хора – българските учени, инженери и професионалисти, които със своя труд и отдаденост допринасят за международния авторитет на българския текстилен сектор.

гр. София 1052, ул. "Славянска" №8
Тел: 02 940 7001
Факс: 02 987 21 90, 02 981 99 70
e-mail: e-docs@mi.government.bg

Вярвам, че днешната конференция ще бъде вдъхновяваща платформа за обмен на идеи, споделяне на добри практики и създаване на нови възможности за развитие и пазарна реализация.

Пожелавам на всички участници успешно и ползотворно събитие, професионални успехи и много вдъхновение!

С уважение,



НЕВЕНА ЛАЗАРОВА

ЗА Министър на икономиката и индустрията

Scientific Engineering Union of Textile, Garment and Leathers
PRESENTERS LIST
27th National Textile Conference 2025 in the UC Bachinovo at SWU Neofit Rilski - Blagoevgrad, 16-18.10.2025

№	Presenter	Report Tituli / Acronym	date	hour	Session chair
1	A. Sezai Sarac	Advanced Polyacrylonitrile Composite Nanofibers for Smart Textile Applications: Integrating Magnetic Ferrite Nanoparticles	16/10/2025	16:15	prof. Ivo Grabchev
2	Tatjana Spahiu	HIGH SPEED (4D) BODY SCANNING FOR LOWER EXTREMITIES – ADVANTAGES OF SCANNING AND DATA PROCESSING DIFFICULTIES		16:30	
3	Saber Ben Abdessalem	A novel approach for ergonomic evaluation of compression legging		16:45	
4	CHU Dieu Huong	Research on the pile fabric structure parameters using loop model		17:00	prof. A. S. Sarac
5	Иво Грабчев	ANALYSIS OF TEXTILE BLENDS BY CHEMICAL, MECHANICAL AND INSTRUMENTAL METHODS		17:15	
6	CHU Dieu Huong	Research on bio-treatment conditions on cottonised pineapple fibers, attributed to textile sustainable development		17:30	
7	Ruzica Stevkovska Stojanovska	RELATION OF STYLE AND CONSTRUCTION ON GARMENT DRAPING		17:45	
8	Мария Спасова	Novel Polymeric Materials as Biocontrol Agents	17/10/2025	8:15	prof. Goran Demboski
9	Милка Александрова	Древното текстилно-декоративно изкуство на Азия		8:30	
10	Николета Стоянова	DEVELOPMENT OF PHB/CHITOSAN BIOHYBRID FIBROUS MATERIALS FOR ECO-FRIENDLY BIOCONTROL APPLICATIONS		8:45	
11	Мария Рангелова Колева	APPLICATION OF CoC SYSTEM FOR GARMENT SUSTAINABLE CONCEPTION		9:00	
12	Мария Росенова Събева	ADVANCEMENTS AND TECHNIQUES IN TEXTILE WOUND DRESSINGS		9:30	
13	Марин Маринов	Жакардово тъкани емблеми за униформени облекла и спортни екипи		9:45	
14	Ташка Иванова Колева	Аеродинамична обработка на сурови вискозни платове за подобряване на тяхната драперуемост, Термо-механична обработка в мокрите процеси при облагородяване на сурови платове		10:00	доц. Мария Спасова
15	Ангел Младенов	KINEMATIC CHAIN OF AN APPARATUS FOR BRAIDING AND WINDING HOLLOW CORDS		10:30	
16	Васил Чобанов			10:45	
17	Нелина Стойчева	Модна колекция - „Movemento”		11:00	prof. Saber Ben Abdessalem
18	Елка Цанкова Джуракова	НИШКИТЕ НА ПАМЕТТА – БИТ И КУЛТУРА В СЕЛО ДРАГИНОВО		11:30	
19	Анастасия Дичева	Колекцията "Семиотика на духа"		11:45	
20	Ивелин Рахнев	Change in technical parameters of merino wool after pre-use mechanical recycling	17/10/2025	12:00	prof. Snezhina Andonova
21	Хамид Бенведи	Класификация на ръчните операции в първичните текстилни техники		13:00	
22	Умме Капанък			13:15	
23	Десислава Грабчева	MECHANICAL AND INSTRUMENTAL METHODS		13:30	
24	Милена Вельова	Сравнителен анализ на подлепени шевове с PU и Gore-seam ленти при мембранирани тъкани.		13:45	
25	Милена Перчинкова	THE AUTHENTICITY OF BULGARIAN FOLKLORE FROM A MODERN VIEW		14:15	prof. Desislava Grabcheva
26	Калоян Теодоров Георгиев	BRIDGE TOWARD FUTURE SUCCESSES		14:30	
27	Петя Генчева			14:45	
28	Росица Рангелова	THE CONTRIBUTION OF SPORTSWEAR TO THE DEVELOPMENT OF FASHION		15:00	

29	Ивайла Цветомирова Цанкова	ARTISTIC PATHS IN OUR SCHOOL CLUB „INSPIRATION"		15:30	
30	Таня Рандева Неделчева	Auditing development of in textile enterprises with the due diligence approach		15:45	
31	Даниела Йорданова Атанасова	INFLUENCE OF HEAT TREATMENT ON THE SURFACE AND ANTIBACTERIAL PROPERTIES OF COTTON FABRIC MODIFIED WITH CHITOSAN		16:00	
32	Даниела Ангелова Атанасова	INFLUENCE OF HEAT TREATMENT ON THE SURFACE AND ANTIBACTERIAL PROPERTIES OF COTTON FABRIC MODIFIED WITH CHITOSAN		16:30	
33	Десислава Павлова Стопанска	COMPARATIVE ANALYSIS OF CAD/CAM – SISTEMS FOR GARMENT CONSTRUCTION		16:45	
34	Милена Начева			17:00	
35	Рая Стоянова			17:15	
36	Цветанка Й. Христова	ИЗСЛЕДВАНЕ ИЗКУСТВЕНО СТАРЕЕНЕ ЧРЕЗ ДЪЛГОТРАЙНО ЕКСПОНИРАНЕ НА КОМБИНАЦИЯ ОТ UV ОБЛЪЧВАНЕ, ПОВИШЕНА ТЕМПЕРАТУРА И ВЛАГА НА ВОДОУСТОЙЧИВИ ОБЛЕКЛА С ПОДЛЕПЕНИ ШЕВОВЕ	17/10/2025	17:30	
37	Дарина Желева	ECOLOGICAL PROCESSING OF COW LEATHER WITH NATURAL PRODUCTS FOR BOUTIQUE ITEMS		17:45	
38	Петя Цекова (постер)	ENCAPSULATION OF BACILLUS SUBTILIS IN ELECTROSPUN POLY(3-HYDROXYBUTYRATE) MATERIALS COATED WITH CELLULOSE DERIVATIVES FOR SUSTAINABLE AGRICULTURAL APPLICATIONS		17:30	Associate prof. Darina Zheleva
39	Илияна Кирилова Руйкова	ECOLOGICAL PROCESSING OF COW LEATHER WITH NATURAL PRODUCTS FOR BOUTIQUE ITEMS	18/10/2025	17:45	
40	Даниела Ангелова-Атанасова	дублира се		18:00	
41	Десислава Ст. Ангелова			9:45	
42	Десислав Беров	ИЗСЛЕДВАНЕ ИЗКУСТВЕНО СТАРЕЕНЕ ЧРЕЗ ДЪЛГОТРАЙНО ЕКСПОНИРАНЕ НА КОМБИНАЦИЯ ОТ UV ОБЛЪЧВАНЕ, ПОВИШЕНА ТЕМПЕРАТУРА И ВЛАГА НА ВОДОУСТОЙЧИВИ ОБЛЕКЛА С ПОДЛЕПЕНИ ШЕВОВЕ		10:00	
43	Владимир Кръстев (Постер)	ECOLOGICAL PROCESSING OF COW LEATHER WITH NATURAL PRODUCTS FOR BOUTIQUE ITEMS		10:15	
44	Незабравка Попова-Недялкова	EXPERIMENTAL STUDIES ON THE EXTRACTION AND DYEING WITH RUBIA TINCTORUM			
45	Незабравка Попова-Недялкова	DIGITAL METHODS FOR DOCUMENTING, PRESERVING, AND TRANSMITTING TRADITIONAL KNOWLEDGE IN THE FIELD OF NATURAL TEXTILE DYEING			
46	Незабравка Попова-Недялкова	SUSTAINABILITY AND DIGITAL TECHNOLOGIES IN APPAREL DESIGN		10:30	
47	Ива Драгостинова	TEXTILE TECHNOLOGIES. EXPLORING FUTURE OPPORTUNITIES IN ARCHITECTURE AND DESIGN		11:00	
48	Dragan Djordjevic	APPLICATION OF SURFACTANTS IN THE PRETREATMENT OF RAW TEXTILE FABRICS		11:15	
49	Neşe SARAC	Exhibition "Fusion of Forms: Painting of Nanofibers"			
50	Suzana Djordjevic	SUSTAINABILITY IN HAND WEAVING: ASSESSING ENVIRONMENTAL IMPACTS AND ETHICAL PRACTICES		11:30	
51	Nasko Nachev (poster)	Design of Innovative Polymeric Materials as Biocontrol			

Сливен, Рахнев 02.12.2025 г.

SCIENTIFIC COMMITTEE

of the 27th National Textile Conference with international participation, Blagoevgrad, Bulgaria
October 16th to 18th 2025

INVITED LECTURERS

1. Prof. Ivo GRABCHEV, DSc, University of Sofia
2. Prof. Andreas CHARALAMBUS, PhD, TU – Sofia
3. Prof. Emil KUKOV, PhD, South-West University – Blagoevgrad
4. Prof. Margarita NEZNAKOMOVA, PhD, Technical University – Sofia
5. Prof. Maya BOGDANOVA, National Academy of Arts (NAA) – Sofia

FOREIGN MEMBERS

6. Prof. Jean–Yves DREAN, DSc, Université de Haute-Alsace -ENSISA-LPMT, Mulhouse, France
7. Prof. Dr. A. Sezai SARAC, Istanbul Technical University, Turkey
8. Prof. Dr. Yordan KYOSEV, Prof. Dr. Ing. habil, Technical University of Dresden, Germany
9.Prof. Goran DEMBOSKI, PhD, University "Ss. Cyril and Methodius" – Skopje, RN Macedonia
10. Assoc. Prof. CHU Dieu Huong, PhD, Hanoi University of Science and Technology – STLF, SR Vietnam
11. Prof. Saber Ben ABDESSALEM, PhD, Ecole Nationale d'Ingénieurs de Monastir, Monastir, Tunisie
12. Prof. Dr. Dragan DJORDJEVIC, Faculty of Leskovac, Serbia

RESPONSIBLE REVIEWERS OF THE SCIENTIFIC PROGRAM

13. Prof. Snezhina ANDONOVA, PhD, South-West University – Blagoevgrad, Chair of the Conference
14. Prof. Desislava Staneva GRABCHEVA, PhD, UCTM – Sofia
15. Prof. Radostina ANGELOVA, DSc, TU – Sofia
16. Assoc. Prof. Maria SPASOVA, PhD, IP - BSA – Sofia
17. Assoc. Prof. Petya Gencheva-Nedyalkova, PhD, DIMOD – Sofia
18. Assoc. Prof. Tatyana Koleva Hristova-POPOVSKA, PhD, South-West University – Blagoevgrad
19. Assoc. Prof. Kapka MANASSIEVA, PhD, VFU – Varna
20. Assoc. Prof. Stela BALTOVA, PhD, International Business School – Botevgrad
21. Assoc. Prof. Krassimir DRUMEV, PhD, TU – Gabrovo
22. Assoc. Prof. Ivelin RAHNEV, PhD, E. Miroglio EAD – Sliven
23. Assist. Prof. Nezabravka Popova-NEDYALKOVA, PhD, NBU – Sofia
24. Assist. Prof. Nikolay BOJILOV, PhD, NHA – Sofia

Sofia, May 2025
On behalf of the Scientific engineering union of Textile, Garment and Leathers:

Assoc. Prof. Ivelin RAHNEV, PhD Chair

ORGANIZING COMMITTEE

of the 27th National Textile Conference with international participation, Blagoevgrad, Bulgaria, October 16 to 18 2025

1. Assoc. Prof. Raya STOYANOVA, PhD, SWU – Blagoevgrad

2. Assistant Prof Umme KAPANYK, PhD, SWU – Blagoevgrad

3. Assistant Prof. Yordanka ANGELOVA, PhD, SWU – Blagoevgrad

4. Eng. Angel Atanasov MLADENOV, Municipality – Blagoevgrad

5. Eng. Maria Rangelova KOLEVA, HVSG Maria Luisa – Sofia

6. Eng. Milena Lyubomirova VELIOVA, HVSD Elisaveta Vazova – Sofia

7. Eng. Milena PERCHINKOVA, SWU – Blagoevgrad

8. Eng. Marin MARINOV, Iskra OOD – Parvomay

9. Eng. Tashka KOLEVA, HVSTG D. Zhelyazkov – Sliven

10. 10. Dr. Eng. Krasa KOSTOVA, DI prof. Cvetan Lazarov MD – Sofia

Sofia, May 2025
On behalf of the Scientific engineering union of Textile, Garment, and Leathers:

Assoc. Prof. Ivelin RAHNEV, PhD
Chair

DAILY SCHEDULE

XXVII NATIONAL TEXTILE CONFERENCE 2025,
"Traditions and Innovations in Textile and Garment",October 16-18 2025, University venter Bachinovo at SWU Neofit Rilski , Blagoevgrad, Bulgaria

		1. First Day: 16.10.2025	**Hall**
1.1.	12:00	Accommodation in UC Bachinovo	***reception***
1.2.	12:30 – 13:00	Registration in NTC25	conference hall
1.3.	13:00 - 14:30	Visit to the models review of NY Competition 2025	conference hall
1.4.	*14:30 – 14:45*	*Coffee-break with poster session*	*central foyer*
1.5.	14:45 – 16:00	Workshop „Textile profession Staffing"	***central foyer***
1.6.	*16:00– 16:15*	*Coffee-break with poster session*	*central foyer*
1.7.	16:15 – 17:15	2 presentations x 30 minutes, 2 plenary lectures	conference hall
1.8.	*17:15– 17:30*	*Coffee-break with poster session*	*central foyer*
1.9.	17:30 – 18:30	2 presentations x 30 minutes, 2 plenary lectures	conference hall
1.10.	*18:30– 18:45*	*Coffee-break with poster session*	*central foyer*
1.11.	18:45 – 19:15	1 presentation1 x 30 minutes, 1 plenary lecture	conference hall
1.12	***19:15 – 21:00***	***Welcome cocktail of the NTC25***	***restaurant***
		2. Second Day: 17.10.2025	
2.1.	*08:00 – 08:15*	*Registration in NTC25*	conference hall
2.2.	08:15 – 09:45	6 presentations x 15 minutes, 5 reports	conference hall
2.3.	*09:45 – 10:00*	*Coffee-break with poster session*	conference hall
2.4.	10:00 – 11:00	4 presentations x 15 minutes, 4 reports	conference hall
2.5.	*11:00 – 11:15*	*Coffee-break with poster session*	conference hall
2.6.	11:15 – 12:15	3 presentations x 15 minutes, 3 reports	conference hall
2.7.	***12:15 – 13:00***	***Working lunch***	***restaurant***
2.8.	13:00 – 14:00	4 presentations x 15 minutes, 4 reports	conference hall
2.9.	*14:00 – 14:15*	*Coffee-break with youth's exposition*	conference hall
2.10.	14:15 – 15:15	4 presentations x 15 minutes, 4 reports	conference hall
2.11.	*15:15 – 15:30*	*Coffee-break with youth's exposition*	conference hall
2.12.	15:30 – 16:30	4 presentations x 15 minutes, 4 reports	conference hall
2.13.	*16:30 – 16:45*	*Coffee-break with youth's exposition*	conference hall
2.14.	16:45 – 17:45	4 presentations x 15 minutes, 4 reports	conference hall
2.15.	17:45 – 19:15	Visit to the youth's exposition	conference hall
2.16	***19:30 – 22:00***	***Gala dinner***	***restaurant***
		3. Third Day: 18.10.2025	
3.1.	08:00 – 08:15	*Registration in NTC25*	conference hall
3.2.	08:15 – 09:30	5 presentations x 15 minutes, 4 reports	conference hall
3.3.	*09:30 – 09:45*	*Coffee-break with youth's exposition*	conference hall
3.4.	09:45 – 10:45	4 presentations x 15 minutes, 4 reports	conference hall
3.5.	*10:45 – 11:00*	*Coffee-break with youth's exposition*	conference hall
3.6.	11:00 – 12:00	4 presentations x 15 minutes, 3 reports	conference hall
3.7.	***12:00 – 12:30***	***Working lunch***	***restaurant***
3.8.	12:30 – 13:15	Poster session and youth's exposition	conference hall
3.8.	12:30 – 13:15	Award ceremony of the youth competition – 2025	***central foyer***
3.9.	***14:00 – 14:15***	***Closing the conference***	***central foyer***

Total duration of the work program – 20 hours (5:15+9:00+5:45)
UC Bachinovo, http://bazabachinovo.swu.bg/en/index.html, 2700 Blagoevgrad, Bulgaria
Sofia May 2025

On behalf of SEUTGL:
Assoc. Professor Ivelin Rahnev, PhD

Form 01.04: Conference Invitation

Scientific Association:

Technical University of Sofia

University of Chemical Technology and Metallurgy of Sofia

National Academy of Art – Sofia

Technical University of Gabrovo

Trakia University, FTT – Yambol

South-West University of Blagoevgrad

New Bulgarian University of Sofia

Bulgarian Academy of Science, Laboratory of Bio Active Polymers

Organising Association:

Federation of the Scientific Engineering Unions

Regional SEU of TGL of Plovdiv

Regional SEU of Gabrovo

Dobri Zhelyazkov Professional High School of Textile and Clothing of Sliven

Dimitar Dobrovich National High School of Fine Arts of Sliven

Museum of the Textile Industry in Sliven

Sponsors:

E. Miroglio EAD – Sliven

Picanol nv – Ypr, Belgium

PIRIN TEX EOOD – Gotse Delchev

The main organizer:
Scientific Engineering Union of Textile, Garment and Leather, Bulgaria

Co-organiser:
South-West University "Neofit Rilski" Blagoevgrad

Address of correspondence:
Rakovski 108, 1000, Sofia, Bulgaria
Phone: +359 2 980 30 45
Technical editor: Associate Professor Maria SPASOVA, PhD

E-mail: *textilejournal.editor@fnts.bg*

Fees:

- 120 BGN for individuals;
- 240 BGN for business participants.

The fee covers:

- Cocktail and Official Dinner;
- Coffee breaks;
- Participations in the conference sessions;
- Publication of the presented papers in «Textile and Garment magazine »
- **ISSN 1310-912X** (print),
- **ISSN 2603-302X** (Online), the journal of the Scientific Engineering Union of Textile, Garment and Leathers.

Bank account:
UniCredit Bulbank, Bulgaria
IBAN: BG43 UNCR 9660 1010 6722 00,
BIC: UNCRBGSF
VAT: BG121111930

SCIENTIFIC ENGINEERING UNION OF TEXTILE, GARMENT AND LEATHER, BULGARIA

With the household of

South-West University "Neofit Rilski" Blagoevgrad, Department of Mechanical Engineering, leading training in the specialty "Design and Technology for Garment and Textiles"

And
National Fund "Research"

in collaboration with the departments of textile and design

organize

XXVII NATIONAL TEXTILE CONFERENCE 2025

"Traditions and Innovations in Textile and Garment"

October 16-18 2025

University Centre "Bachinovo"
Blagoevgrad
Bulgaria

Main Topics:

- Fibres and Yarns; Chemical Technologies; Nanotechnologies
- Textile Technologies: Spinning, Weaving, and Knitting
- Apparel Technology
- Textile art and Fashion Design
- Textile Machinery and Equipment
- Textile Management, Marketing and Sustainability
- Innovations in Textile Education

Instructions for authors

Templates are available online at:
www.tok.fnts.bg

- **Abstract:**
  - In English
  - The abstract should to be prepared according to the abstract template and should be restricted to maximum 1 page
  - The abstracts will be published in «Textile and Garment Magazine» issue 10/2025

- **Presentation:**
  - Maximum 14 slides
  - The presentation should to be prepared with MS Office – Power Point
  - The presentation should to be no longer than 15 min.

- **Poster:**
  - In English or Bulgarian
  - Format A2

- **Paper:**
  - In English or Bulgarian
  - The paper should to be prepared according to the paper template and should be restricted to maximum 12 pages
  - The papers will be published in « Textile and Garment magazine », ISSN 1310-912X (print), ISSN 2603-302X (Online), issues from 11'2025 to 9'2026

DEADLINES

- Abstracts submission – **September 26th 2025**
- Papers submission – **November 30th 2025**
- Registration – **October 16th 2025**

Languages: Bulgarian and English

XXVII National Textile Conference 2025

16-18 October 2025, Blagoevgrad, Bulgaria

South-West University "Neofit Rilski"
University Centre "Bachinovo"
2700 Blagoevgrad, Bulgaria

Registration Form

Name .....
Surname .....

Institution .....
.....

Address:.....
.....
e-mail, phone:.....
.....
The Title of the Paper:
.....
.....
.....
.....
The Topic of the Paper:
.....
Oral Presentation ☐

Poster Presentation ☐

The registration form should be send to
textilejournal.editor@fnts.bg

СЪДЪРЖАНИЕ

Topic №1, Fibres and Yarns; Chemical Technologies; Nanotechnologies

Topic №2, Textile Technologies: Spinning, Weaving, and Knitting

Topic №3, Apparel Technology

Topic №4, Textile art and Fashion Design

Topic №5, Textile Machinery and Equipment

Topic №6, Textile Management, Marketing and Sustainability

Topic №7, Innovations in Textile Education

Topic №1
Fibres and Yarns; Chemical Technologies; Nanotechnologies

UDC 678
Industry of High Molecular Substances. Rubber industry. Plastic industry

https://doi.org/10.53230/tgm.1310-912X.2025.1001.01

ADVANCED POLYACRYLONITRILE COMPOSITE NANOFIBERS FOR SMART TEXTILE APPLICATIONS: INTEGRATING MAGNETIC FERRITE NANOPARTICLES

A.Sezai Sarac
Istanbul Technical University, Polymer Science & Technology, Maslak, Istanbul, Turkey
sarac@itu.edu.tr

This study investigates the synthesis and characterization of novel polyacrylonitrile (PAN) composite nanofibers incorporating various magnetic ferrite nanoparticles, including γ-Fe2O3, MnZn, Fe2O4 and CoFe2O4 using electrospinning technique. These electrospun materials are engineered to leverage their unique electronic and magnetic properties for diverse applications in biomedicine, energy, and textiles1. Our comprehensive analysis, including thermomechanical, morphological, and spectroscopic methods, revealed a key property: a substantial increase in the storage modulus at high temperatures and in some cases under an applied magnetic field, confirming their magnetic responsiveness.

Advanced characterization techniques, such as High-Resolution Scanning Electron Microscopy (HRSEM), X-ray Diffraction (XRD), and Electrochemical Impedance Spectroscopy (EIS), were employed to understand the intricate interactions between the ferrite nanoparticles and the polymer matrix. SEM imaging and Energy-Dispersive X-ray (EDX) mapping confirmed the uniform dispersion of nanoparticles within the PAN nanofibers. Furthermore, EIS data, interpreted with an equivalent circuit model, indicated that the nitrile (CN) groups of PAN play a vital role in anchoring the magnetic nanoparticles via hydrogen bonding and coordination. Notably, the embedded nanoparticles also influenced the polymer's structural integrity by hindering cross-linking while enhancing inter-chain interactions. The demonstrated magnetic field responsiveness and well-dispersed nanoparticles position these composite nanofibers as prime candidates for innovation in smart textiles, wearable electronics, and functional fabrics.

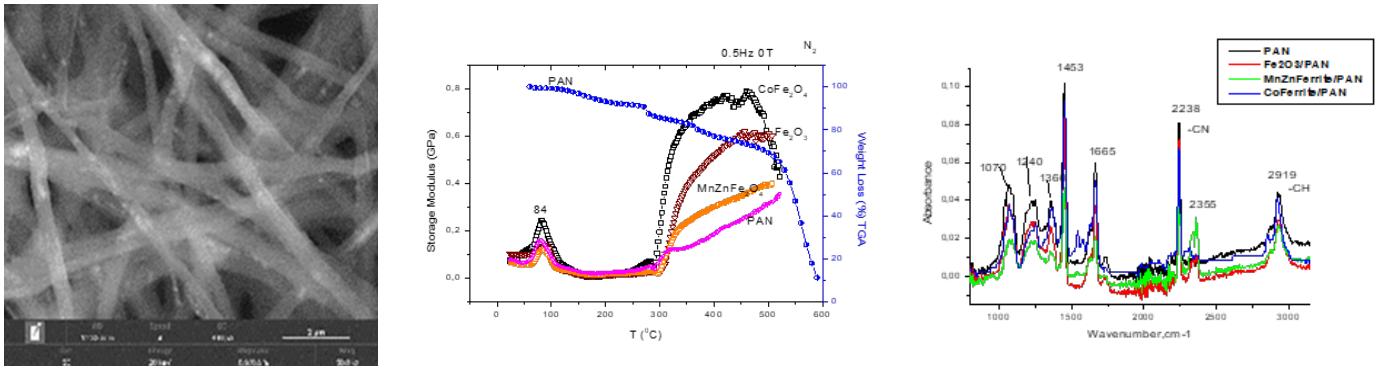


Fig.1.*SEM (γ-Fe2O3/PAN),Thermomechanical(DMA),& FTIR results of nanofibers*

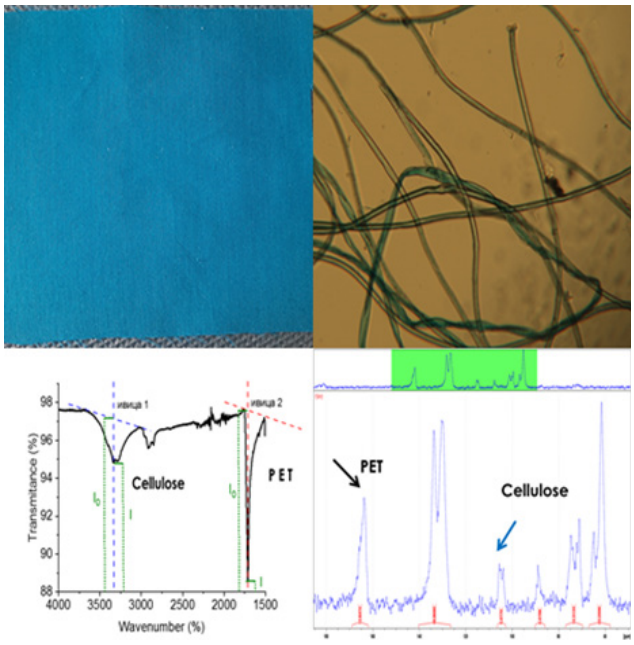
References

[1] B. Sarac, V.Soprunyuk, G. Herwig, S. Gumrukcu, E. Kaplan, E. Yüce, W. Schranz, J. Eckert, L. Boesel and A. S. Sarac, Nanoscale Adv., 2024,6, 6184-6195, https://doi.org/10.1039/D4NA00631C
[2] B.Sarac, V. Soprunyuk, E. Yüce, S. Gumrukcu, W. Schranz and A. S. Sarac, Mater. Adv., 2025, Mater. Adv., 2025,6, 5475-5485, https://doi.org/10.1039/D5MA00349K

https://doi.org/10.53230/tgm.1310-912X.2025.1001.02

ANALYSIS OF TEXTILE BLENDS BY CHEMICAL, MECHANICAL AND INSTRUMENTAL METHODS

D. Yancheva[1], D. Atanasova[1], D. Staneva[1], I. Grabchev[2]
[1]University of Chemical Technology and Metallyrgy, Department of Textile, Leather and Fuels, 1797 Sofia, Bulgaria
[2]Sofia University St. Kliment Ohridski,Faculty of Medicine, 1407 Sofia, Bulgaria
desiiy@abv.bg



The variety of natural and chemical fibers enables the production of textile materials with specific properties and many applications. To meet consumer requirements, the mixing of different fibers is being increasingly employed. Therefore, identifying the composition of textile materials is necessary for production, trade, and preservation of cultural heritage, and is an essential stage in the successful implementation of the principles of the circular economy. There are various methods for proving the type of fibers. They can be classified as: chemical, mechanical, and instrumental. Through combustion and microscopic analysis, we can quickly obtain information about the qualitative composition of materials. However, to determine the quantitative composition, other methods must be used. Depending on the specific sample, mechanical counting of fibers or dissolution in various solvents can be applied. The use of Infrared Spectroscopy allows rapid non-destructive analysis of samples. Another helpful method is solid-state nuclear magnetic resonance (NMR), which can be applied for both qualitative and quantitative analysis of small samples, eliminating the need for complex sample preparation.

In this study, the qualitative and quantitative composition of four fabrics of unknown composition was determined using the methods indicated. Using combustion and microscopic observation, it was found that sample 1 is composed entirely of cotton fibers, while sample 2 is made up of polyester fibers only, a finding confirmed by IR and NMR spectroscopy. In the case of sample 3, combustion and microscopic analysis provide only initial information indicating a mixed composition of both cotton and chemical fibers. To determine the type of fibers and their quantitative composition, the dissolution method was applied to one of the sample components, and IR and NMR spectroscopy were also used. The composition of sample 4 is also a mixture of two types of fibers, which, however, are of different colors and can be clearly distinguished; therefore, BDS EN ISO 1833-1:2020, BDS, Annexe B “Method for quantitative analysis by manual separation” was applied.

Keywords: *fiber identification, chemical and mechanical test, microscopy, spectroscopy*

Acknowledgements: D. Atanasova gratefully acknowledges the additional funding provided by the Program “For Women in Science” 2024, granted by L’Oreal and UNESCO. The IR and NMR analyses were done as part of Project BG-RRP-2.004-0008, financed by the European Union Next Generation EU through the National Recovery and Resilience Plan of the Republic of Bulgaria.

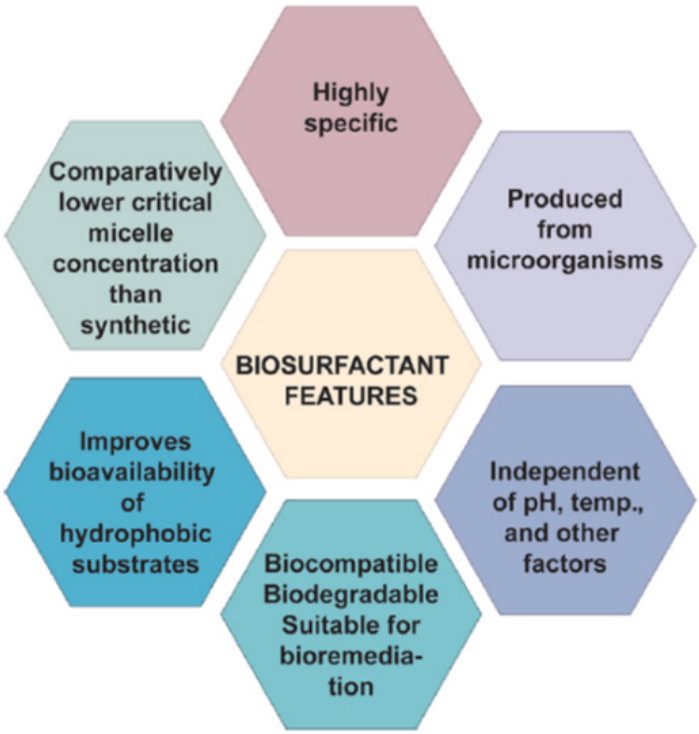
https://doi.org/10.53230/tgm.1310-912X.2025.1001.03

APPLICATION OF SURFACTANTS IN THE PRETREATMENT OF RAW TEXTILE FABRICS

Dragan Đorđević
University of Niš, Faculty of Technology in Leskovac, Bulevar oslobođenja 124, Leskovac, Serbia
drdrag64@yahoo.com

The pre-treatment of raw textile fabrics is a critical phase in textile processing, aimed at removing impurities and enhancing fabric wettability, absorbency, and dye affinity. Surfactants play a pivotal role in this stage by facilitating the efficient removal of natural and processing-related contaminants such as waxes, oils, pectins, and sizing agents.

This study examines the application of various classes of surfactants – anionic, cationic, nonionic, and amphoteric – in the pre-treatment of different textile substrates. The mechanisms of surfactant action, including emulsification, wetting, and detergency, are analysed to evaluate their impact on process efficiency and fabric quality. Comparative assessments highlight the influence of surfactant type and concentration on parameters such as fabric whiteness, absorbency, and tensile strength.



The research further discusses environmental implications and the potential of biodegradable surfactants as sustainable alternatives to conventional agents. Overall, the findings underscore the significance of optimizing surfactant selection and process conditions to achieve effective, eco-friendly textile pre-treatment outcomes.

Keywords: *surfactants, raw textile, application, processing, biosurfactants.*

https://doi.org/10.53230/tgm.1310-912X.2025.1001.04

NOVEL POLYMERIC MATERIALS AS BIOCONTROL AGENTS

M. Spasova[1], M. Naydenov[2], O. Stoilova[1]
[1]Laboratory of Bioactive Polymers, Institute of Polymers, Bulgarian Academy of Sciences,
Akad. G. Bonchev St., bl. 103A, BG-1113 Sofia, Bulgaria
[2]Department of Microbiology, Agricultural University, BG-4000 Plovdiv, Bulgaria
mspasova@polymer.bas.bg

Introduction Numerous pathogens may cause plant diseases, which are a global problem and generate considerable losses in agriculture. Chemical pesticides remain the primary control method, but their overuse has caused significant environmental and health concerns. Eco-friendly agricultural practices and materials are urgently needed. Developing novel biocontrol agent materials could greatly reduce dependence on conventional pesticides. Nanotechnology offers innovative solutions, as polymer fibers with micro- and nanoscale diameters exhibit unique properties such as high specific surface area and porous structures, and can be produced efficiently using electrospinning techniques. Encapsulation of biocontrol agents via electrospinning provides considerable advantages for agricultural applications. In this study, we developed innovative biohybrid materials as biocontrol formulations using electrospinning, electrospraying, and/or dip-coating techniques.

Experimental part Microbial species including Bacillus, Trichoderma, and various yeasts were encapsulated in biopolymer fibrous matrices composed of poly(3-hydroxybutyrate) (PHB), poly(L-lactide) (PLA), cellulose derivatives [1], and chitosan [2,3]. Results and Discussion Scanning electron microscopy (SEM) was used to analyse the morphology of the biohybrid materials and encapsulated microorganisms, while ATR-FTIR spectroscopy confirmed their surface chemical composition. Mechanical properties of the materials were also evaluated. Viability tests demonstrated that the polymer carriers supported normal growth of the bioagents and preserved their viability during long-term storage. Conclusion These results highlight the potential of electrospun biohybrid polymer materials as effective biocontrol formulations, offering promising applications for plant protection and growth promotion in sustainable agriculture.

Keywords: *electrospinning, electrospraying, dip-coating, biopolymers, biocontrol agents*

Acknowledgements: This research was funded under the Grant BG-RRP-2.011-0005-C01 with financial support from the European Union-NextGenerationEU, Investment C2.I2 “Increasing the innovation capacity of the Bulgarian Academy of Sciences in the field of green and digital technologies”. Part of the research equipment of Distributed Research Infrastructure INFRAMAT, part of the Bulgarian National Roadmap for Research Infrastructures, supported by the Bulgarian Ministry of Education and Science was partially used in this study.

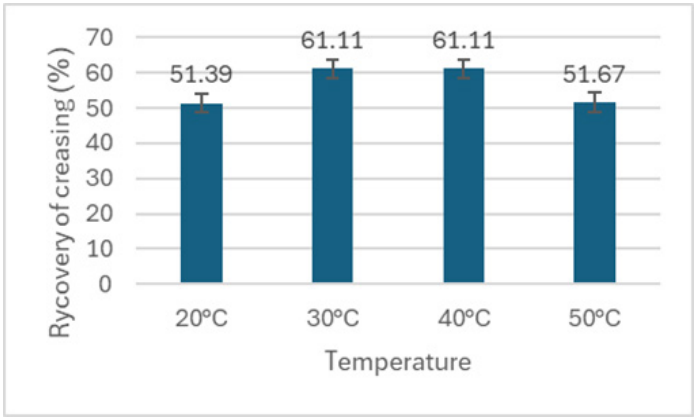
References:

[1] V. Krastev, N. Stoyanova, I. Valcheva, D. Draganova, M. Naydenov, M. Spasova, O. Stoilova, Polysaccharides 2024, 5, 698–714. https://doi.org/10.3390/polysaccharides5040044
[2] P. Tsekova, N. Nachev, I. Valcheva, D. Draganova, M. Naydenov, M. Spasova, O. Stoilova, Polymers 2024, 16, 2749, 1-15. https://doi.org/10.3390/polym16192749
[3] N. Stoyanova, N. Nachev, M. Naydenov, I. Valcheva, M. Spasova, O. Stoilova, Polymers 2025, 17, 692. https://doi.org/10.3390/polym17050692

https://doi.org/10.53230/tgm.1310-912X.2025.1001.05

RESEARCH ON BIO-TREATMENT CONDITIONS OF COTTONISED PINEAPPLE FIBERS, ATTRIBUTED TO TEXTILE SUSTAINABLE DEVELOPMENT

Chu Dieu Huong, Tran Thi Ha Chi
Hanoi University of Science and Technology, Hanoi, SR Vietnam
huong.chudieu@hust.edu.vn



Natural fibers are currently a global trend in the development of a sustainable textile industry. Pineapple leaves are an abundant agricultural waste source that can be processed into green raw materials for textiles. As other natural fibers pineapple fibre exhibit some good mechanical properties and have been applicated in industry [1, 2]. The conventional treatment of pineapple fibers generally involves two steps: mechanical processing and chemical treatment, which result in disadvantages such as Fiber loss, poor fiber quality, and environmental pollution [3-5]. Moreover, the fibre mechanical properties may be decreased after the treatment. To eliminate these disadvantages, this paper investigated the treatment process of raw pineapple leaf fibers using pectinase enzyme with different durations (2 h, 4 h, 6 h, 8 h), concentrations (2%, 3%, 4%, 5%), and treatment temperatures (20, 30, 40, 50 °C) in an acidic medium of pH 5. The fiber physico-mechanical properties such as flexural rigidity were determined by ISO 9073- 7:2024, recovery from creasing was measured by ISO 2313-2:2021.

The results showed that pectinase treatment reduced flexural rigidity, making the fibers more flexible, and improved crease resistance, particularly optimized at a treatment duration of 4–6 h, concentration of 3–4%, and temperature of 30–40 °C.

The Fourier transform infrared spectroscopy (FTIR) of treatment pineapple fibre showed only a very little decrease at the peak 1200 cm-1-1000 cm-1 (C-O vibration) that demonstrated the small change in fibre structure after treatment. The study demonstrated that pectinase enzyme affected fiber properties, and the treatment conditions (time, temperature, enzyme concentration) could be selected to obtain pineapple leaf fibers with properties suitable for specific applications.

Keywords: *Pineapple fibre, pectinase enzyme, sustainable textile industry.*

References:

[1] Santosh Sadashiv Todkar, Suresh Abasaheb Patil. Review on mechanical properties evaluation of pineapple leaf fibre (PALF) reinforced polymer composites. Vol 174, 106927, 2019. https://doi.org/10.1016/j.compositesb.2019.106927

[2] Angika Kushwaha, Kavita Chaudhary, C Prakash. A study on the mechanical properties off pineapple, bamboo, and cotton woven fabrics. Vol 14, 16307-16318 2023. https://doi.org/10.1007/s13399-023-03841-6

[3] Shiyu Liaoa, Jianming Chenb, and Xungai Wang. An update on pineapple leaf fibers. Vol 22, NO. 1, 2509129, 2025 https://doi.org/10.1080/15440478.2025.2509129

[4]Mwaikambo, L. Y., and M. P. Ansell. 2006. "Mechanical Properties of Alkali Treated Plant Fibres and Their Potential asReinforcement Materials. I. Hemp Fibres." Journal of Materials Science 41 (8): 2483–2496, 2006. https://doi.org/10.1007/s10853-006-5098-x

[5]Oh, S. Y., D. I. Yoo, Y. Shin, H. C. Kim, H. Y. Kim, Y. S. Chung, W. H. Park, and J. H. Youk. 2005. "Crystalline Structure Analysis of Cellulose Treated with Sodium Hydroxide and Carbon Dioxide by Means of X-Ray Diffraction and FTIRSpectroscopy." Carbohydrate Research 340 (15): 2376–2391. https://doi.org/10.1016/j.carres.2005.08.007

https://doi.org/10.53230/tgm.1310-912X.2025.1001.06

ECOLOGICAL PROCESSING OF COW LEATHER WITH NATURAL PRODUCTS FOR BOUTIQUE ITEMS

Darina Zheleva[1], M. Stoev[2]
[1] UCTM, Department of Textile, Leather and Fuels,
8 Kl. Ohridski bul., 1756 Sofia, Bulgaria, E-mail: darinajeleva@abv.bg
[2] Dept. of Chemistry, Faculty of Mathematics and Natural Sciences,
South-West University "Neofit Rilski", Blagoevgrad, Bulgaria

The aim of the current work is additional ecological processing of naturally tanned cow leather for boutique products - belts. The tasks set are as follows: natural dyeing of vegetable-tanned cow leather; lubricating the collagen fibers with a natural product of animal and plant origin; improving the antibacterial properties; hydrophobic protection of the leather; finishing of a leather product.

The technological stages in the production of boutique handcraft belts and the use of natural products for the finishing processes are presented. The production of the belts from design, cutting, sewing, gluing, stamping, is entirely handcraft. The material selected is vegetable-tanned cow leather. A method of additional tanning is applied, i.e. re-tanning with natural tanning agents containing tannins (natural oak bark, African tea, walnut leaves). The result is a stronger leather, naturally dyed in light pastel tones.

Natural biodegradable components (i.e. linseed oil, beeswax) are used to fix the dye to the leather substrate and for hydrophobic protection. Hoof oil is used to lubricate the collagen fibers and to impart softness, elasticity and hydrophobicity. Herbal extracts are used to impart antibacterial properties as an alternative to synthetic chemistry (i.e. clove, oregano, rosemary, mint, thyme, lavender). The products made are ecological, handckaft and boutique.

Keywords: *natural leather, boutique belts, processing, environmental approaches*

https://doi.org/10.53230/tgm.1310-912X.2025.1001.07

DEVELOPMENT OF PHB/CHITOSAN BIOHYBRID FIBROUS MATERIALS FOR ECO-FRIENDLY BIOCONTROL APPLICATIONS

Nikoleta Stoyanova, Mariya Spasova, Olya Stoilova
Laboratory of Bioactive Polymers, Institute of Polymers,
Bulgarian Academy of Sciences,1113 Sofia, Bulgaria;
nstoyanova@polymer.bas.bg

Introduction: Modern agriculture faces the challenge of balancing crop productivity with environmental sustainability. Eco-friendly alternatives to chemical pesticides are urgently needed. Bacillus subtilis is an effective biocontrol agent, but its application is limited by low stability under field conditions. Poly(3-hydroxybutyrate) (PHB) combined with chitosans can enhance encapsulation, bacterial viability, and controlled release. This study compares two PHB-based approaches: (i) dip-coating with chitosan solutions [1], and (ii) simultaneous electrospinning/electrospraying of COS/B. subtilis [2]. Experimental part: PHB (Mw 330,000 g/mol) was obtained from Biomer (Germany). COS (3,000–5,000 g/mol) was purchased from Kitto Life Co. (Korea). Low- (50,000–190,000 g/mol) and high-molecular-weight chitosan (~600,000 g/mol) were supplied by Sigma-Aldrich (USA). B. subtilis and phytopathogenic fungi were obtained from Biodinamika Ltd. (Bulgaria). PHB fibers (14% w/v) were fabricated and functionalized either by dip-coating with chitosans (COS, low- or high-MW) or simultaneous electrospraying of COS/B. subtilis. Morphological, structural, and surface analyses were performed by SEM, ATR-FTIR, and water contact angle measurements. Mechanical properties were evaluated, and microbiological assays assessed bacterial viability after incorporation and 90-day storage, as well as antifungal activity against Alternaria and Fusarium. Results: PHB/COS mats prepared by electrospinning/electrospraying showed uniform bacterial distribution, enhanced hydrophilicity, and sustained bacterial proliferation. Embedded

B. subtilis inhibited Alternaria and Fusarium growth. Chitosan-coated mats improved tensile strength and maintained long-term spore viability, strongly suppressing Alternaria. Discussion: Both methods preserved fibrous PHB while improving mechanical strength and wettability. Chitosan molecular weight influenced viscosity and film formation in dip-coating, whereas COS electrospraying yielded thin, uniform layers. Both approaches ensured bacterial viability and antifungal activity, but electrospinning/electrospraying proved more scalable and efficient. Conclusion: PHB/chitosan-based fibrous biohybrids represent an efficient, sustainable platform for encapsulation and delivery of Bacillus subtilis. Both dip-coating and simultaneous electrospinning/electrospraying approaches ensured long-term bacterial viability and effective antifungal activity, highlighting the potential of natural polymer-based carriers as next-generation eco-friendly formulations for sustainable agriculture.

Keywords: *electrospinning, encapsulation, biohybrids, Bacillus subtilis, plant protection.*

Acknowledgements: This research was funded under the Grant BG-RRP-2.011-0005-C01 with financial support from the European Union-NextGenerationEU, Investment C2.I2 “Increasing the innovation capacity of the Bulgarian Academy of Sciences in the field of green and digital technologies”.

References:

[1]. Krastev V., Stoyanova N., Valcheva I., Draganova D., Naydenov M., Spasova M., Stoilova, O, Polysaccharides 5, 698-714, 2024.
[2]. Stoyanova N., Nachev N., Naydenov M., Valcheva I., Spasova M., Stoilova, O. Polymers 17, 1-14, 2025.

https://doi.org/10.53230/tgm.1310-912X.2025.1001.08

SUSTAINABLE CARBON-BASED ADSORBENT FOR TEXTILE DYE REMOVAL: VALORIZATION OF COCOA HUSK WASTE

Daniela Angelova, Georgi Georgiev
University of Chemical Technology and Metallurgy, 8 Kliment Ohridski,
Sofia 1797, Bulgaria
daniela_angelova@uctm.edu

The extensive use of synthetic dyes in the textile industry represents a major environmental concern. These compounds are often toxic, resistant to biodegradation, and capable of persisting in aquatic ecosystems, where they reduce light penetration, disrupt microbial balance, and may accumulate in the food chain. Developing effective and sustainable wastewater treatment technologies is therefore an urgent scientific and engineering challenge.

A promising strategy involves the design of efficient sorbents derived from inexpensive and readily available raw materials. Natural products are particularly attractive due to their biodegradability, environmental compatibility, and low cost. In this study, a carbon-based material was synthesized via thermochemical treatment of cocoa husks. Its morphological and surface characteristics were analyzed using BET, SEM-EDS, and Raman spectroscopy. SEM images revealed a heterogeneous surface with irregularly distributed pores, resulting from thermochemical activation, while Raman spectra indicated a high degree of oxidation and an amorphous structure.

The obtained carbon sorbent exhibited a well-developed porous network dominated by mesopores and a high specific surface area (1661 m^2/g, determined by the BET method). Importantly, adsorption experiments demonstrated its high efficiency toward reactive dyes, achieving over 90% removal of Drimaren Red from contaminated water. These results highlight the material's strong potential as an eco-friendly adsorbent for wastewater purification and its applicability in the remediation of dye-polluted effluents from the textile industry.

Keywords: *textile dyes, Drimaren Red, activated carbon; cocoa husks, adsorption, wastewater treatment*

The authors acknowledge the support through Project No 403-05 "Biosorbent from cocoa husks – sustainable solution for wastewater purification".

https://doi.org/10.53230/tgm.1310-912X.2025.1001.09

INFLUENCE OF HEAT TREATMENT ON THE SURFACE AND ANTIBACTERIAL PROPERTIES OF COTTON FABRIC MODIFIED WITH CHITOSAN

Daniela ATANASOVA[1], Desislava STANEVA[1], Ivo GRABCHEV[2]
[1]University of Chemical Technology and Metallurgy, 1756 Sofia, Bulgaria
[2]Sofia University "St. Kliment Ohridski", Faculty of Medicine, 1407 Sofia, Bulgaria
e-mail: d.atanasova1@abv.bg

Introduction

Cotton fabrics have good mechanical properties, a large surface area, and biodegradability, and are widely used for medical and biomedical purposes. Their main disadvantage for medical applications is their porous hydrophilic structure, which creates favorable conditions for moisture retention and the growth of microorganisms on the surface of the cellulose fibers. This disadvantage can be overcome by modifying cotton fabric with biopolymers such as chitosan, which has proven antibacterial properties. It is suitable for the production of a polymer coating on textile material due to its biodegradability and biocompatibility.

Experimental part

The present study aims to compare the properties of cellulose fibers treated with chitosan crosslinked with citric acid at room temperature and after moderate heat treatment (80°C, 180 min). The resulting materials were characterized using gravimetric, colorimetric, and thermogravimetric analysis. The relationship between the components was investigated by infrared spectroscopy, and the surface morphology (contact angle) and antimicrobial activity of the composite materials against Pseudomonas aeruginosa and Bacillus cereus were also investigated.

Results and discussion

Cotton fabric was surface-modified with chitosan, cross-linked with citric acid at room temperature and by heat treatment. The results show that the modification improves the properties of the cellulose fibers, especially those obtained at moderate temperature (CHHT), which show a higher gel fraction, greater material weight, high hydrophobicity, and thermal stability compared to the sample treated at room temperature (CHRT). Infrared spectroscopy analysis shows that in the cotton fabric coating, the interactions between chitosan and citric acid are ionic at room temperature and covalently bonded with heat. The newly obtained materials (CHRT and CHHT) exhibit antimicrobial activity, with CHHT being more effective, probably due to its increased hydrophobicity. This highlights the potential of the treatment method, especially at moderate temperatures, as a promising approach in the development of functional textile materials in the field of hygiene and biomedical applications.

Keywords: *cotton fabric, chitosan, modification, hydrophobicity, antibacterial properties*

Acknowledgments: This research is supported by the Bulgarian Ministry of Education and Science under the National Program "Young Scientists and Postdoctoral Students-2".

https://doi.org/10.53230/tgm.1310-912X.2025.1001.10

ADVANCEMENTS AND TECHNIQUES IN TEXTILE WOUND DRESSINGS

Maria Sabeva[1], Darina Zheleva[1]
[1]University of Chemical Technology and Metallurgy
mariasabeva.r@gmail.com

The process of wound healing is an extensive part of post-operative care. A textile material needs to be breathable, antimicrobial and antimycotic and to stimulate cell proliferation to be considered as appropriate for the purposes of wound dressing. The field of wound management has progressed immensely over the last few decades, with cotton textile-based dressings giving way to the development of advanced functional materials.

Recent advancements in biomaterial and textile production have proven critical in improving post-operative and chronic condition wound healing. The integration between textile engineering and biomedical science has significantly improved the properties of wound dressings and their versatility – drug delivery, moisture control, infection prevention and real-time monitoring are just a fraction of the numerous purposes a textile wound dressing can serve.

Different fabrication techniques have different advantages that make them more compatible with surface level or deeper wounds. Electrospinning is widely used to produce nanofibers mimicking the extracellular matrix, knitting can produce a mechanically stable and flexible material. Some non-woven adhesive dressings are chosen for their ability to be easily and securely fixed to the wound site.

Different drug delivery options have recently become of significant interest to scientists. Microencapsulation, micro- and nano-emulsions, and liposomes for drug release are just a small part of the healthcare improving advancements in medical textile fabrication techniques.

Keywords: *medical textiles; wound dressing; biomaterials; drug delivery.*

https://doi.org/10.53230/tgm.1310-912X.2025.1001.11

DESIGN OF INNOVATIVE POLYMERIC MATERIALS AS BIOCONTROL AGENTS FOR SUSTAINABLE AGRICULTURE

Nasko Nachev, Mariya Spasova, Olya Stoilova
Laboratory of Bioactive Polymers, Institute of Polymers, Bulgarian Academy of Sciences
Akad. G. Bonchev St., bl. 103A, BG-1113 Sofia, Bulgaria
nachev_n@polymer.bas.bg

Introduction

Plant diseases caused by a wide range of phytopathogens – particularly fungi such as Fusarium, Phaeomoniel la, Verticillium, Botrytis, and Rhizoctonia – pose a significant threat to global agriculture, resulting in substantial crop losses and economic challenges. Fungi constitute the primary group of plant pathogens, causing numerous destructive diseases in crops. Current reliance on chemical pesticides offers short-term control but results in long-term environmental contamination and health risks to non-target organisms, including humans. This unsustainable cycle necessitates the development of effective, eco-friendly alternatives. Nanotechnology offers promising solutions, with electrospinning standing out as a versatile and efficient technique for producing micro- and nanoscale polymer fibers. These fibers have a large surface area and porous structure, making them ideal for encapsulating and protecting sensitive biological agents for use in eco-agriculture.

Experimental part

The following materials were used: Poly(L-lactide) (PLLA), chitosan oligomer (COS), low molecular weight chitosan (CS-LMW), and high molecular weight chitosan (CS-HMW). The beneficial microorganism Trichoderma asperellum was used as the biocontrol agent, and the pathogenic fungi Phaeomoniella chlamydospora and Phaeoacremonium aleophilum were used for antifungal testing. Dichloromethane, ethanol, and glacial acetic acid of analytical grade were used as received.

Results and Discussion

The electrospinning of PLLA produced fibers with a uniform and defect-free morphology. Subsequent coating of these fibrous mats with chitosan suspensions containing T. asperellum spores was effective, with the chitosan oligomer facilitating the most homogeneous distribution of spores across the material. Contact angle measurements revealed that the initially hydrophobic PLLA mat encountered a notable shift towards hydrophilicity after applying of the chitosan coating. Furthermore, the integration of the chitosan film notably enhanced the mechanical strength of the hybrid materials compared to the neat PLLA mat. The microbiological assessment was essential in confirming the bioactivity of the obtained materials. The PLLA mat coated with the oligochitosan and T. asperellum spores exhibited enhanced efficacy, demonstrating a strong antagonistic effect that resulted in the effective suppression of the targeted pathogenic fungal growth. Conclusions Novel hybrid biomaterials based on PLLA, chitosan, and T. asperellum spores were successfully developed. The spores were effectively incorporated into electrospun fibers resulting in biohybrid materials with strong biocontrol potential. These results demonstrate the promise of such materials as sustainable alternatives to chemical pesticides in crop protection.

Keywords: *electrospinning; chitosan; PLLA; plant diseases; eco-agriculture; biocontrol agents.*

Acknowledgments

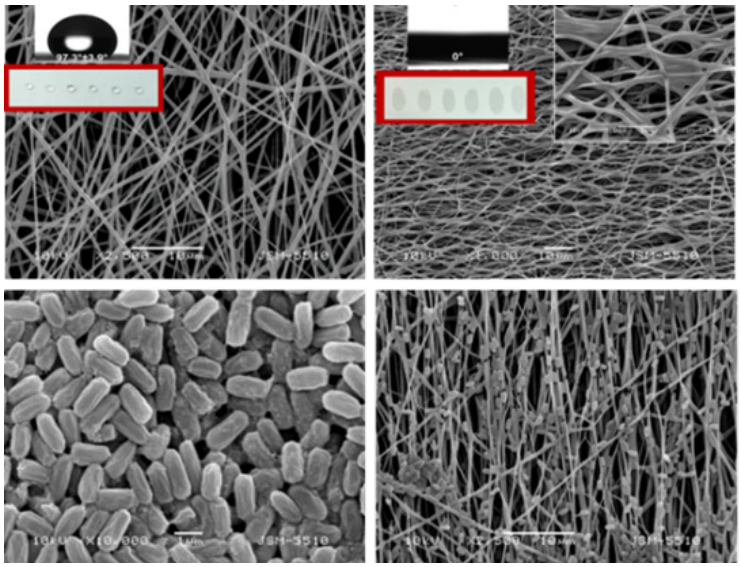
This research was funded under the Grant BG-RRP-2.011-0005-C01 with financial support from the European Union-NextGenerationEU, Investment C2.I2 “Increasing the innovation capacity of the Bulgarian Academy of Sciences in the field of green and digital technologies”.

https://doi.org/10.53230/tgm.1310-912X.2025.1001.12

ENCAPSULATION OF BACILLUS SUBTILIS IN ELECTROSPUN POLY(3-HYDROXYBUTYRATE) MATERIALS COATED WITH CELLULOSE DERIVATIVES FOR SUSTAINABLE AGRICULTURAL APPLICATIONS

P. Tsekova[1], D. Draganova[2], M. Spasova[1], O. Stoilova[1]
[1]Laboratory of Bioactive Polymers, Institute of Polymers, Bulgarian Academy of Sciences, Akad. G. Bonchev St., bl. 103A, 1113 Sofia, Bulgaria
[2]Biodinamika Ltd., 4000 Plovdiv, Bulgaria
cekovapetya@polymer.bas.bg

Introduction
A current trend in sustainable agriculture is the use of beneficial microorganisms to promote plant growth and biologically control phytopathogens. Innovative biocontrol agents can accelerate the reduction of pesticide dependence, ensuring environmentally friendly and sustainable farming practices. Encapsulation of selected bioagents into precisely designed polymeric carriers represents a rational approach to developing biohybrid materials for use as biocontrol formulations.



Experimental part
Poly(3-hydroxybutyrate) (PHB) was supplied by Biomer (Germany). Sodium carboxymethyl cellulose (CMC) and 2-hydroxyethyl cellulose (HEC) were obtained from Sigma-Aldrich (Germany). Bacillus subtilis strains were provided by the microbial collection of Biodinamika Ltd. (Bulgaria).

Results
Novel eco-friendly hybrid materials based on electrospun PHB coated with cellulose derivatives and B. subtilis were successfully fabricated using a combination of electrospinning and dip-coating techniques [1]. The influence of the type and molecular weight of cellulose derivatives on solution viscosity, film formation, mechanical properties, and bacterial incorporation and growth was investigated. Scanning electron microscopy revealed the morphology of fibers, films, and incorporated bacterial cells.

Conclusions
The dip-coating process enhanced the mechanical strength of fibrous PHB materials, preserved bacterial viability, and enabled long-term storage and controlled release. The developed hybrid materials, based on electrospun PHB coated with cellulose derivatives and encapsulated Bacillus subtilis, show strong potential as sustainable biocontrol systems for plant protection and growth promotion in eco-agriculture.

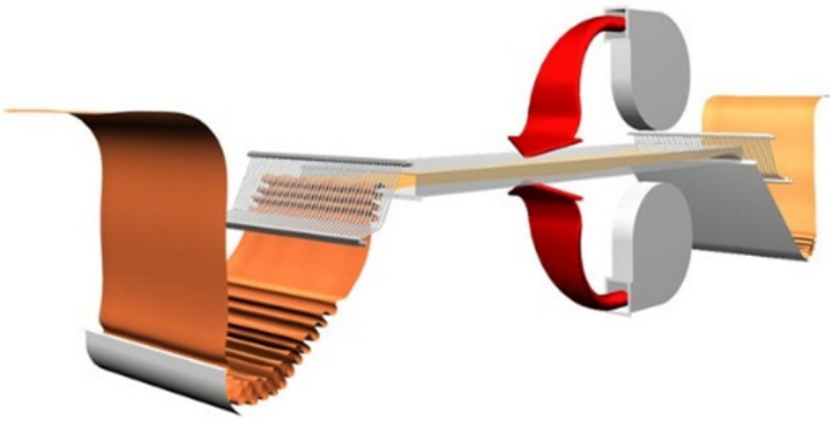
Keywords: *electrospinning; dip-coating; poly(3-hydroxybutyrate); cellulose derivatives; Bacillus subtilis.*

Acknowledgments: This research was funded under the Grant BG-RRP-2.011-0005-C01 with financial support from the European Union-NextGenerationEU, Investment C2.I2 “Increasing the innovation capacity of the Bulgarian Academy of Sciences in the field of green and digital technologies”.ferences
[1] P. Tsekova, N. Nachev, I. Valcheva, D. Draganova, M. Naydenov, M. Spasova, O. Stoilova, Polymers, 2024, 16, 2749.

https://doi.org/10.53230/tgm.1310-912X.2025.1001.13

AERODYNAMIC TREATMENT OF RAW VISCOSE FABRICS TO IMPROVE THEIR DRAPEABILITY

Tashka Ivanova Koleva[1], Plamen Litov[2]
[1]PGTO Dobri Zhelyazkov Stoil Voyvoda sq. 1, 8800 Sliven, Bulgaria
[2]E. Miroglio EAD, Industrial district, 8800 Sliven, Bulgaria
tashka.iv.koleva@edu.mon.bg



In the initial stages of the ennoblement of woollen fabrics, an age-old technique has been preserved - the felting process.
The felting is based on the porous cork substance in the inner part and the scaly surface of the wool fibres.

Under the influence of weak alkaline solutions, hot water and intense mechanical pressure, the keratin plates open, the cork substance swells and the plates of neighbouring fibres interlock into an inseparable mass.

As a result, the wool fabric becomes uniform and stable.

Consumer expectations from cellulose fabrics, especially viscose, are exactly in the opposite direction. Inherent properties of outerwear are softness and smoothness to the touch, flexibility and agility under load, as well as overall high drapeability as a general quality indicator.

These properties are achieved with minimal adhesion between the threads and fibres, without changing the torsion structure of the threads or the cross-linking and density of the woven fabric.
Such freedom and independence of textile elements requires a passive agent, such as air.

An aggregate for air ennoblement of cellulose woven fabrics, mainly viscose rayon, has been built in a con structive and functional manner.

Stitched like an endless rope, the fabric moves cyclically in the technological channel.

The source of movement is pulling cylinders. The fabric falls into a conical chute, where it folds and meets the transverse grid with force.

In addition, high-velocity air jets emerge from multiple radially arranged nozzles with microscopic cross-sections.

This results in the specified separation of the contact between the fibres and filaments and achieves the expected properties.

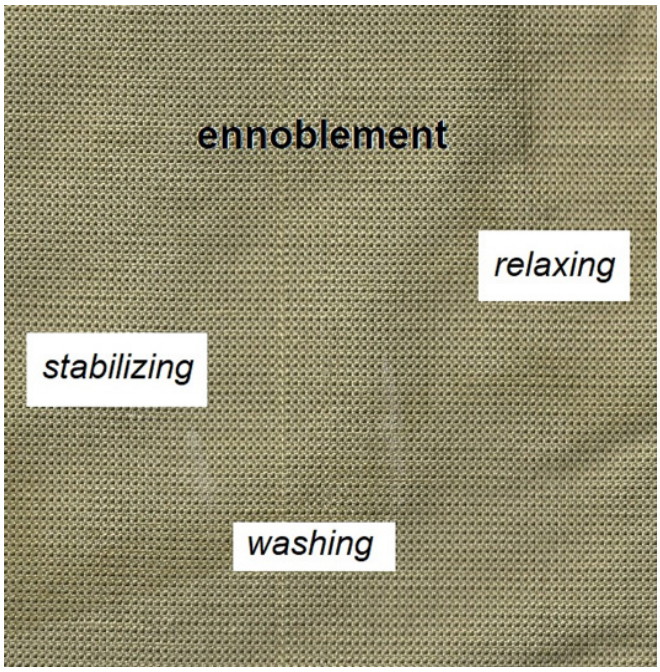
The subject of the article is the aerodynamic and mechanical processing of cellulose fabrics to acquire enhanced consumer properties of refinement.

Keywords: *textiles, fabrics, ennoblement, aerodynamic opening.*

https://doi.org/10.53230/tgm.1310-912X.2025.1001.14

THERMOMECHANICAL TREATMENT IN WET PROCESSES FOR FINISHING RAW FABRICS

Tashka Ivanova Koleva[1], Ivelin Rahnev[2]
[1]PGTO Dobri Zhelyazkov Stoil Voyvoda sq. 1, 8800 Sliven, Bulgaria
[2]E. Miroglio EAD, Industrial district, 8800 Sliven, Bulgaria
Ivelin.Rahnev@emiroglio.com



The transformation of the fibrous mass into fabric is a sequence of numerous effects. The main interactions between fibres, yarns, and fabrics are mechanical, primarily tensile loads. In the processing of textile materials, auxiliary agents are used, such as oiling – softening substances, antistatic agents, starch and the like. After the raw fabric is removed from the loom, a thin layer of dust and textile auxiliaries remains on the surface of the fibres, and inside there are residual stresses from the applied technological deformations. Raw fabrics are hard, coarse, and not suitable for direct consumption.

The finishing treatment, called ennoblement, aims to remove both internal stresses and external contaminants from the fabric. Fabric ennoblement consists of sequentially performed processes. The first process is the washing of the raw fabrics. It is carried out in an unfolded state, or with sewn fabrics as an endless rope with a cyclical passage through the washing tub. Fixing through moisture-heat treatment gives the fabrics their final structure and dimensions. The stenter machines on which thermal fixation is performed are an aggregate consisting of a spreader, an endless chain of clamps for gripping the fabric, drying chambers, and an apparatus for removing and winding the fabric. After thermal fixing, the fabric is no longer raw. The fabric is cleaned of residual substances, much of the internal stresses are relieved, and the structural positions of the threads and fibres are established, as well as the final dimensions. The final ennoblement process is dedicated to the final elimination of internal stresses in the fabrics. This is achieved through two forms of relaxation: natural and accelerated technological relaxation through steam and pressure. These treatments give the fabric a uniform, stress-free construction, and the only efforts that appear in the finished fabrics come from gravitational forces. The practical result of fabric refinement is assessed by feeling the drape-ability.

The subject of the article is the description of the machines and processes for the refinement of raw woven fabrics. The essential feature that distinguishes the processes for refining raw fabrics is the absence of chemical interactions between the fibres and the wet processing environment. The processes are based on physical effects on textile materials through mechanical deformations, heat and moisture. The purpose of the development is to separate the main finishing processes and update their implementation in modern textile technology.

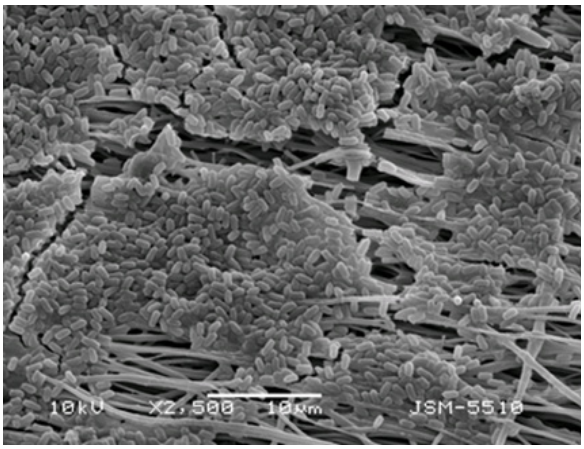
Keywords: *textiles, fabrics, ennoblement, drying, fixing, relaxing.*

https://doi.org/10.53230/tgm.1310-912X.2025.1001.15

NOVEL CHITOSAN-COATED ELECTROSPUN POLY(3-HYDROXYBUTYRATE) BIOHYBRID MATERIALS FOR SUPPORTING THE GROWTH AND LONG-TERM STORAGE OF BACILLUS SUBTILIS

Vladimir Krastev[1], D. Draganova[2], M. Naydenov[3], M. Spasova[1], O. Stoilova[1]
[1]Laboratory of Bioactive Polymers, Institute of Polymers, Bulgarian Academy of Sciences, Akad. G. Bonchev St., bl. 103A, BG-1113 Sofia, Bulgaria
[2]Biodinamika Ltd., BG-4000 Plovdiv, Bulgaria
[3]Department of Microbiology, Agricultural University, BG-4000 Plovdiv, Bulgaria
v_krastev@polymer.bas.bg

Introduction: Numerous bacterial species are capable of promoting plant growth and suppressing plant diseases. One such species, Bacillus subtilis, enhances plant development and provides effective protection against pathogens, making it highly suitable for various agricultural applications. Polymer-based carriers are increasingly explored as systems for encapsulating and stabilizing beneficial microorganisms, ensuring their viability and activity under variable enviro nmental conditions.



Experimental part: This study reports the successful incorporation of B. subtilis into hybrid biohybrid materials composed of electrospun poly(3-hydroxybutyrate) (PHB) fibers coated with a chitosan-based polysaccharide film [1].

Results and Discussion: The influence of chitosan molecular weight on the viscosity of the film-forming solutions was investigated, along with its effects on film morphology, mechanical properties, and bacterial viability and growth dynamics. Scanning electron microscopy (SEM) was used to analyze the morphology of B. subtilis cells, electrospun PHB fibers, and chitosan-coated PHB fibrous mats. Mechanical testing demonstrated that the chitosan coating improved the tensile strength of the hybrid materials, while microbiological analyses confirmed normal bacterial growth. Viability tests showed that the bacteria remained viable after incorporation and following 90 days of storage. Moreover, the developed biohybrid materials effectively suppressed the growth of the plant pathogenic fungus Alternaria. Conclusion These findings demonstrate the potential of the developed chitosan-coated PHB biohybrid materials to provide efficient and sustainable agricultural solutions. By reducing dependence on synthetic agrochemicals and enhancing environmental compatibility, these systems offer a promising platform for the long-term delivery of active biocontrol agents.

Keywords. *electrospinning; poly(3-hydroxybutyrate); dip-coating; chitosan; B. subtilis; biohybrids; sustainable agriculture.*

Acknowledgements: This research was funded under the Grant BG-RRP-2.011-0005-C01 with financial support from the European Union-NextGenerationEU, Investment C2.I2 “Increasing the innovation capacity of the Bulgarian Academy of Sciences in the field of green and digital technologies”.

References:

[1]. Krastev, V.; Stoyanova, N.; Valcheva, I.; Draganova, D.; Naydenov, M.; Spasova, M.; Stoilova, O. Polysaccharides, 5, 698-714, 2024.

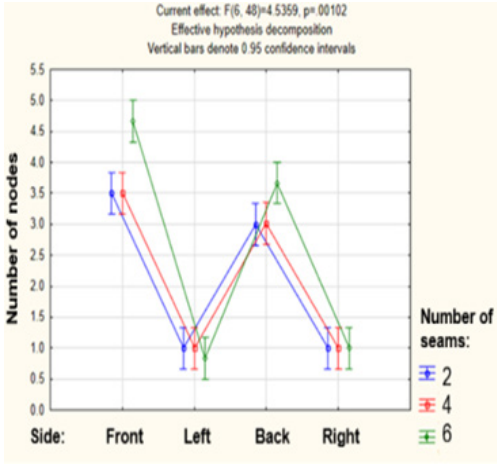
Topic №2
Textile Technologies: Spinning, Weaving, and Knitting

UDC 677
Textile Industry. Technology of textile materials

https://doi.org/10.53230/tgm.1310-912X.2025.1002.01

RELATION OF STYLE AND CONSTRUCTION ON GARMENT DRAPING

Ruzica Stevkovska Stojanovska, Goran Demboski
University "Ss. Cyril and Methodius", Faculty of Technology and Metallurgy,
Department of textile engineering, Skopje, North Macedonia
ruzicass@tmf.ukim.edu.mk



The textiles, as the basic material for garment production, play a crucial role in determining the garment's functional characteristics and appearance. Additionally, clothing drapeability is an important aesthetic property that relates to the 3D shaping of textiles under the action of their own weight. The studies show that when draping, the textile surface always acquires a different shape, since this property is regulated by many factors. Therefore, various attempts have been made over the years for the accurate prediction of this property. Among the latest findings, methods for image processing and analysis have proven to be precise and convenient for drape analysis. A piece of garment is mostly constructed by joining pattern pieces by sewing. Therefore, it is expected that when predicting the visual appearance of clothing, in addition to the draping coefficient, the seams and methods of pattern construction should be considered as well. In this regard, the paper explores the draping appearance of finished clothing depending on the style and garment construction. The garment styles were mounted on a dummy and photographed from the front, back, left, and right sides. Additionally, to obtain orthogonal drape geometry, including the number and shape of the nodes, the draping styles were photographed from above. Image analysis was used, and a method was developed to calculate draped area figures. All the styles were made of the same type of woven fabric: fibre composition 97% cotton and 3% elastane, satin wave, fabric weight of 190 g/m2, and a drape coefficient of 60%. For each investigated garment style, three sessions of mounting on a dummy and photographing were conducted. Orthogonal analysis of the geometry of the draped part from above includes the following steps:

- Selection of the entire draped part with the mannequin's waist;
- Selection of only the draped surface of the style;
- For additional verification and confirmation of the analysis, only the mannequin's waist is selected.

These figures, obtained by image analysis, generate results for draped areas (cm2), perimeter (cm), number of nodes (Nn), and circularity (CIRC).

Several conclusions were obtained:

- The draped area of the garments mounted on the mannequin varies by style. For all investigated styles, the largest draped area is at the back side, followed by the front, then the right and left sides. Also, the influence of the seams is statistically significant in combination with the garment sides and the style.
- The number of seams affects the orthogonal garment draped area. For both styles, the sample having 4 seams shows the highest values of the draped area.
- The investigation shows a statistically significant relationship between the number of nodes, the number of seams, the style, and the sides of the drape. For all investigated styles, an increase in the number of seams affects the increase in the number of nodes, due to an increase in bending stiffness.

Keywords: *drapeability, nodes, seams, styles, image analysis.*

https://doi.org/10.53230/tgm.1310-912X.2025.1002.02

RESEARCH ON THE PILE FABRIC STRUCTURE PARAMETERS USING LOOP MODEL

Chu Dieu Huong[1]
[1]Hanoi University of Science and Technology, School of Materials Science and Engineering
Department of Textiles-Footwear and Fashion,
1, Dai Co Viet Str., Hanoi, Vietnam
huong.chudieu@hust.edu.vn

With thick and porous structure, pile knitted fabric is very suitable for applications that require thermo-insulation as winter garment [1,2]. The fabric geometrical parameter such as wale space W, course height C, course density, wale density Pn (wales/100mm), loop length (mm) fabric thickness can be used to calculate the product parameters [3]. This paper investigated geometrical parameters of four pile single fabrics with four value of pile loop length of 7.58 mm; 7.88 mm; 8.03 mm and 8.37 mm with pile sinkers high of 2.2mm, 2.5 mm, 2.8 mm, 3.0 mm, the same as reported in research [3, 4]. In this research, for the pile knitted fabric we supposed the fabric thickness was always 2dtotal + d pile but the yarn diameter d was the significant for two kinds of yarn. Moreover, the thickness of the knitted fabric, as its secondary structural parameter, is the results of its primary structural parameters (loop length) and can be easily determined experimentally. The thickness of a knitted fabric is one of the most important parameters for its physiological properties.

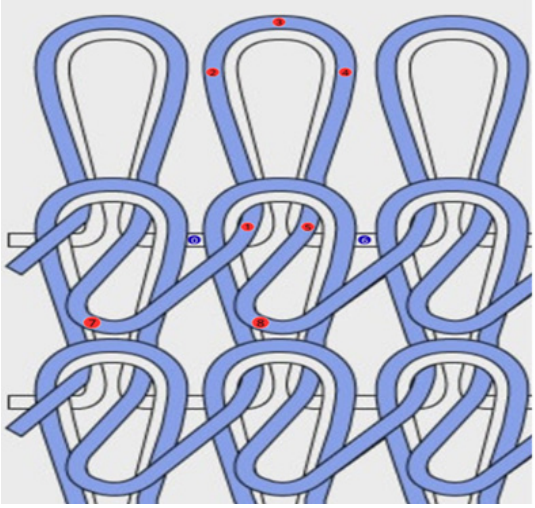


Figure 1: *Geometrical model of pile loop*

Based on the loop length formulary for single jersey fabric (5), the pile loop could be calculated as:

$l = 1.57W + 2C + \Pi d + 2$. Pile sinker high

The fabric parameters were theoretical calculated based on proposed geometrical pile model and was experimentally measured. The results showed that the differences between the theoretical and experimental parameters values were between 5% -15 % which suggested the pile loop model proposed can be improved to use for calculation of the pile fabric geometrical parameters for further application.

Keywords: *Loop structure, loop simulation, pile fabric, fabric geometrical parameters*

[1] R.A.M. Abd El-Hady, R.A.A. Abd El-Baky, S.A.S. Ali. Enhancing The Functional Performance Properties of Pile Weft Knitted Fabrics Used in Car Interiors. Journal of Engineering Research and Application. ISSN: 2248-9622 Vol. 8 Issue 9 (Part -IV) Sep 2018, pp 70-81. DOI: 10.9790/9622-0809047081.
[2] David Spenser. Knitting technology. 2001.
[3] Seval Uyanık, Belkıs Zervent Ünal, Nihat Çelik "Examining of the Effect of Fabric Structural Parameters on Dimensional and Aesthetic Properties in Pile Loop and Cut-Pile Loop Knit Fabrics", International Journal of Science and Research, Volume 4 Issue 9, pp 945, 946, September 2015.
[4] R.A.M. Abd El-Hady, R.A.A. Abd El-Baky. The Influence of Pile Weft Knitted Structures on The Functional Properties Of Winter Outerwear Fabrics. Journal of American Science. Vol. 11, Issue 9. 2015. 101-108 pp. ISSN: 1545-1003, http://www.jofamericanscience.org.
[5] Marie Havlová. Air permeability and structural parameters of single jersey knitted fabric. Fibers and Textiles Vol. 28, Issue 3. 2021. 20-27pp.

https://doi.org/10.53230/tgm.1310-912X.2025.1002.03

COMPARATIVE ANALYSIS OF SEAMS TAPPED WITH PU AND GORE-SEAM® TAPE IN MEMBRANED FABRICS

Milena L. Veliova[1], Krasa K. Kostova[2], Borislav G. Genov[3]

[1] South-West University"Neofit Rilski", Faculty of engineering, Department "Design and technology clothing and textile", 2700 Blagoevgrad, Bulgaria , 66 Ivan Mihaylov str. E-mail: milena_veliova@abv.bg

[2] Defense Institute "Professor Tzvetan Lazarov"-1592,Sofia, Bulgaria,2"ProfessorTzvetan Lazarov" Blvd. E-mail: k.kostova@di.mod.bg

[3]. Defense Institute "Professor Tzvetan Lazarov"-1592, Sofia, Bulgaria,2"ProfessorTzvetan Lazarov" Blvd. E-mail: b.genov@di.mod.bg

This study presents a comparative analysis of seam sealing in laminated fabrics using polyurethane (PU) tape and Gore-Seam® tape. The research aims to evaluate the performance of both sealing methods in terms of two key parameters - **water resistance** and **mechanical strength** of the seams, assessed before and after 30 washing cycles to simulate real usage conditions.

Traditional sewing with needle and thread remains a fundamental joining technique in the textile industry; however, it introduces needle holes that compromise the integrity and barrier properties of high-performance fabrics. This limitation is particularly critical in protective, medical, or military clothing, where leakage or reduced durability can pose safety risks.

Modern alternatives such as welding (by hot air, ultrasonic, or laser methods) and adhesive bonding with sealing tapes offer effective solutions for maintaining waterproofness and functional integrity. The results of the conducted tests demonstrate that both PU and Gore-Seam® tapes significantly improve the waterproof performance compared to conventional seams. Nevertheless, Gore-Seam® tape exhibits superior long-term water resistance and durability after multiple washing cycles, while PU tape provides higher elasticity and cost efficiency.

The findings highlight the importance of selecting the appropriate seam sealing technology depending on the intended use and required performance of the textile product, contributing to the optimization and innovation of functional apparel production.

Keywords: *seam sealing, PU tape, Gore-Seam®, laminated fabrics, waterproofness, mechanical strength, functional textiles.*

Referenses:

[1] Rogina-Car, B., & Kovačević, S. (2022). Stitching needle influence on woven fabric appearance and seam properties. Textile Research Journal, 92(1–2), 40–54. https://doi.org/10.1177/00405175211019133

[2] Mesegul, C., & Karabay, M. (2020). Effect of seam sealing methods on waterproof properties of multi-layered fabrics. Materials Science (Medžiagotyra), 26(1), 56–62. https://doi.org/10.5755/j01.ms.26.1.24147

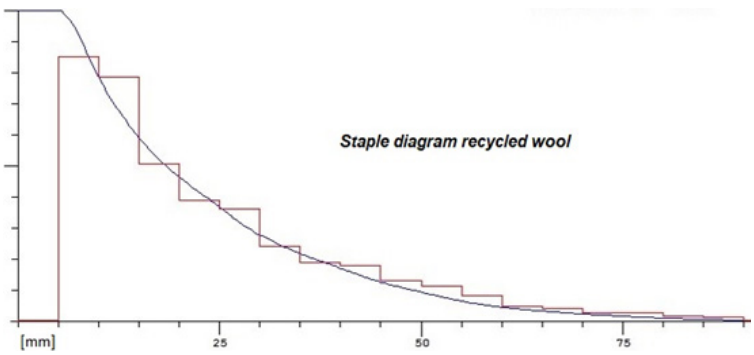
[3] Shi, Y., Li, J., Li, P., & Liu, Y. (2016). Ultrasonic welding plus thermo-adhesive tape sealing for waterproof functional seam in outdoor sportswear. International Journal of Clothing Science and Technology, 28(5), 631–642. https://doi.org/10.1108/IJCST-03-2015-0036

[4] Hussen, S., Hübner, M., Cherif, C., & Riede, M. (2022). Influence of ultrasonic welding on mechanical properties of multilayer hybrid textiles. Journal of Industrial Textiles, 51(7), 8705–8724. https://doi.org/10.1177/15280837211057579

https://doi.org/10.53230/tgm.1310-912X.2025.1002.04

REDUCTION IN STAPLE LENGTH OF MERINO WOOL AT PRE-CONSUMER RECYCLING

Ivelin Rahnev
E. Miroglio EAD, Industrial District, 8800 Sliven, Bulgaria
Ivelin.Rahnev@emiroglio.com



Due to its high price and indispensable physiological properties, such as water absorption and thermal insulation, regenerated wool has always been of interest for textile production. In previous times, the collecting and purchase of household wool waste constituted a centralized economic organization, the purpose of which was the utilization of textile waste and environmental protection.

It was only in 2017 that the Global Recycling Standard allowed for an evolutionary step towards the internationalization of recycling and the introduction of clear technological rules. Above all, the distinction between pre- and post-consumer waste standardized processing methods and eliminated the possibility of randomly introducing virgin fibres as recycled. A consequence of the definition of pre-consumer textile waste is the introduced recyclability criterion. This means that hard waste ranging from twisted fibrous sheafs to sewing products is included in the scope of the standard as recyclable. The thin slivers drawn into the aspiration of the ring spinning frame are not recyclable.

The subject of the article is the impact of mechanical recycling of wool waste before consumption. Mechanical recycling goes through four technological stages on autonomous machines. The collected materials are randomly cut into portions of 30 to 55 mm, after which they are crushed on a large-toothed drum card, then on a single-drum carding machine with a full-metal lining, and finally the carding to obtain a sliver mill is carried out on a double-drum card, lined and set up for woollen spinning.

Due to the mechanical nature of the processing, the surface and cross-section of the wool fibres are not changed. The main technological parameter that changes during the mechanical recycling of wool fibres is length. While raw merino wool with a fineness of 17 μm has an average length of 70 mm, recycled fibres from the same batch show only 25 mm of average length. In order to preserve the length of the fibres, the processing of the threads during the drawing process is gentle, and therefore there are yarn residues in the processed materials. This is due to the double the weighted average length of the fibres.

The application of recycled wool fibres is limited. With an effective modal length of 5 to 16 mm, they have the technological characteristics of a noils, waste product from the spinning of worsted slivers. The least effective method is to incorporate recycled fibres into insulation wadding. Of interest is the partial implementation of recycled wool into carding yarn blends for the production of medium yarns from Nm 9/1 to Nm 4/1. Such yarns can be used to produce knitted products for the winter or household textiles.

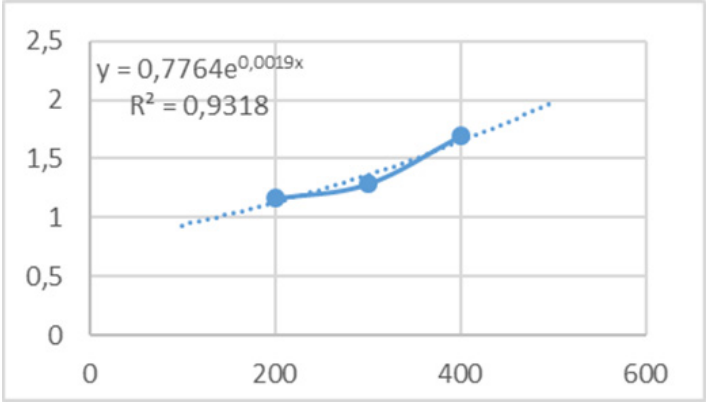
Keywords: *wool, staple length, textile recycling.*

https://doi.org/10.53230/tgm.1310-912X.2025.1002.05

STUDYING THE TREND OF FRICTION COEFFICIENTS IN RELATION TO NORMAL PRESSURE FOR FABRICS MADE FROM WOOL

Raya Stoyanova, Fatme Onbashieva
[1]South-West University "Neofit Rilski" 66 Ivan Mihaylov str. 2700, Blagoevgrad
rajkach@swu.bg

The article studies the coefficients of friction during sliding and at rest with a tendency to slide of wool-type fabrics - with different wool content, with different weave and with different thickness of the warp and weft threads. The aim of the study is to establish the trend of the graph of the coefficients of friction in relation to the pressure and in relation to the direction of testing - warp to warp and warp to weft for the two layers of frictional fabrics. The study shows that a logarithmic function - close to the linear or exponential - close to the linear function ideally describes the friction of wool-type fabrics. Out of a total of 16 graphs, 15 are ideally described by a logarithmic function, and 1 - by an exponential one, which can be summarized that the graphical dependence of the coefficients of friction for wool-type fabrics is logarithmic, as with increasing pressure, the coefficient of friction also increases.



Twelve out of sixteen graphs are logarithmic with a high confidence coefficient R2 > 0.99.

The values of the confidence coefficient R2, which are visible under the graphical equations in graphs Nos. 1 ÷ 16, characterize the approximation as a model with very good and ideal quality, with a confidence rate above 0.85.

In the experimental study, results were obtained for friction coefficients (at rest and during sliding) close to 1 and even greater than 1.

Coefficients of friction in fabrics are of great importance in the sewing industry, in textile weaving technologies, as well as in their subjective assessment when wearing a garment and when the body is in contact with woven surfaces (blankets, upholstery, etc.).

The user's subjective perception of fabric friction is important, but for textile technologies, it is essential to evaluate the quantitative parameters of fabric friction as well as the factors that influence it. The friction force in textile materials depends on a number of test factors - normal load, contact area, test speed, as well as the nature of the textile surface and the direction of friction.

In the scientific literature, there are numerous publications related to fabric friction and the determination of friction coefficients [1, 2, 3, 5, 6, 7]. The present work focuses on the coefficients of friction and the study of the prediction of the tendency of the coefficients of friction under different normal loads. The development is part of a larger study of the friction characteristics of fabrics made from wool.

The purpose of the present study is to predict the trend of the coefficients of friction in fabrics when the normal pressure changes and to determine the linear direction.

To fit the study's purposes, four different fabrics with wool content were produced by the company "E. Miroglio" EADSliven, Bulgaria, was selected.

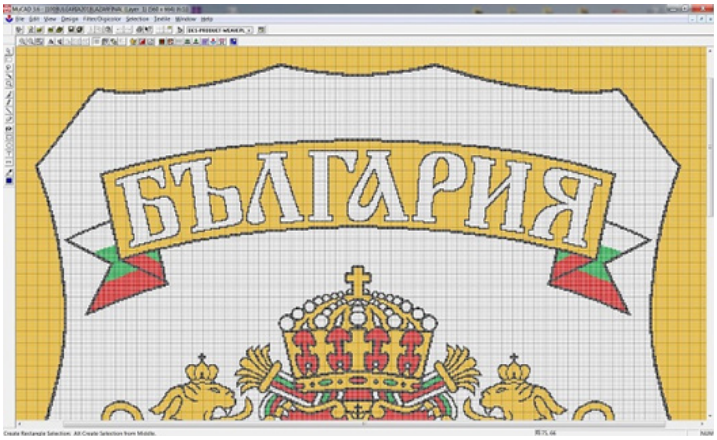
Keywords: *Wool type fabrics, friction, coefficients of friction*

https://doi.org/10.53230/tgm.1310-912X.2025.1002.06

NEW TECHNOLOGIES FOR MANUFACTURING JACQUARD WOVEN EMBLEMS

Marin Marinov
[1]Iskra OOD Parvomay, manufacturer of trimmings with over 60 years of tradition;
info@iskraltd.com

The entry of digital technologies into the field of textile production in the 20th century has taken an increasingly large share in the technological and production activities of companies in the industry.
The dynamic development of the market and Internet communication requires an increasingly rapid response from manufacturers in solving the tasks set. It is essential for consumers to be informed and competently choose sustainable and reliable textile products of high quality.



This article provides information about an innovative technology for designing and producing a wide variety of jacquard woven emblems for decorating uniforms and sports teams.

The introduction of CAD systems for creating new clothing designs and patterns on fabrics and knitwear makes the work of the technologist/designer easier and helps to quickly and accurately solve the tasks set by the client. They allow for the creation of a digital model-working project, which can be presented to the client before the actual sampling and production of the item.

The raw materials used in this technology are from the group of synthetic fibres - Polyester silks, dyed in a colour according to textile pantone or a reference sample on request.
The products produced using the described technology are safe for use and are certified according to OEKO TEX 100 section 4. They are widely used in the production of uniforms and sports teams, providing the customer with information about the manufacturer/brand, and in the case of textile labels, also about the composition of the fabric or knitwear from which the clothing is made.
Every customer wants to receive a reliable and durable product, but the goal is for the customer to be informed and to increase their consumer culture in order to make the right choice of the appropriate product.

Keywords: *digital technology, reliability, awareness, sustainability.*

https://doi.org/10.53230/tgm.1310-912X.2025.1002.07

STUDY OF THE ARTIFICIAL AGING OF WATERPROOF GARMENTS WITH TAPED SEAMS THROUGH PROLONGED EXPOSURE TO A COMBINATION OF UV RADIATION, ELEVATED TEMPERATURE, AND HUMIDITY

Milena L. Veliova[1], Nikolai I. Stoichev[2], Desislav P. Berov[3], Tsvetanka J. Hristova[4]
[1]South-West University "Neofit Rilski"
66 Ivan Mihaylov str.
2700, Blagoevgrad
[2]Defense institute "Professor Tzvetan Lazarov"
1592 Sofia, 2 Professor Tzvetan Lazarov Blvd
E-mail: n.stoichev@di.mod.bg
[3]Defense institute "Professor Tzvetan Lazarov"
1592 Sofia, 2 Professor Tzvetan Lazarov Blvd
E-mail: d.berov@di.mod.bg
[4]Defense institute "Professor Tzvetan Lazarov"
1592 Sofia, 2 Professor Tzvetan Lazarov Blvd.
E-mail: ts.hristova@di.mod.bg

Waterproof garments are functional clothing designed to protect the wearer [1] from adverse climatic conditions. The fabrics used for waterproof garments incorporate either hydrophobic coatings or microporous membranes integrated into their structure [2]. In the production of waterproof clothing, one of the key aspects is the sewing process. Garments made from such fabrics require a specialized sewing technique, as the conventional method of joining textile materials is not suitable. When the needle penetrates the fabric during sewing, it compromises its functionality due to the small holes that are formed [3].

To preserve the functionality of waterproof garments, alternative methods to traditional sewing are employed. However, due to the specific conditions under which waterproof garments are used, the seams remain a vulnerable area where waterproofness can be compromised. Over time, the materials are exposed to a combination of factors—UV radiation, temperature fluctuations, and moisture—that induce physico-mechanical and chemical aging [4]. To assess the durability of such products, it is necessary to apply accelerated artificial aging methods, which allow the simulation of these processes under laboratory conditions [5].

The objective of the present study is to review existing scientific research in the field of artificial aging of waterproof garments with taped seams and to analyse the changes in their properties after exposure to a combination of UV radiation, elevated temperature, and humidity.

Keywords: *protective clothing, waterproof garment, waterproof seam, functional clothing, seam*

Topic №3,
Apparel Technology

UDC 687
Tailoring (apparel) Industry


Технически факултет при ЮЗУ Неофит Рилски - Благоевград
Творчески пътеки в клуб „Вдъхновение"
Анелия Алексиева Истаткова
Елица Александрова Христова
Ивайла Цветомирова Цанкова
Инж. Мария Рангелова Колева
ПГО „Княгиня Мария Луиза"
27-та Национална Текстилна Конференция, 16-18 октомври 2025 Благоевград
НАУЧНО-ТЕХНИЧЕСКИ СЪЮЗ ПО ТЕКСТИЛ, ОБЛЕКЛО И КОЖИ
ОРГАНИЗИРА

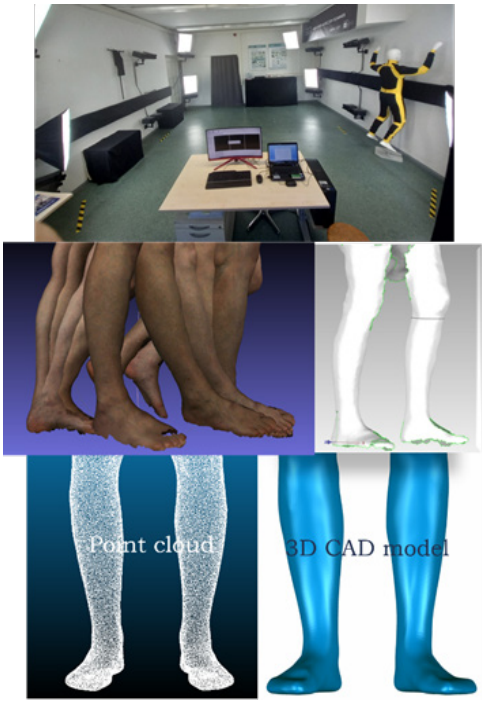
https://doi.org/10.53230/tgm.1310-912X.2025.1003.01

HIGH SPEED (4D) BODY SCANNING FOR LOWER EXTREMITIES – ADVANTAGES OF SCANNING AND DATA PROCESSING DIFFICULTIES

Tatjana Spahiu[1], Yordan Kyosev[2]
[1]Polytechnic University of Tirana, Albania
[2]TU Dresden, Institute of Textile Machinery and High Performance Material Technology (ITM), Chair of Development and Assembly of Textile Products
tspahiu@fim.edu.al, yordan.kyosev@tu-dresden.de

Introduction

The foot's geometry is in continuous change due to movement. These dynamic changes must be considered during product development such as footwear products. Lack dynamic dimensions can lead to problems related with fit and comfort. From a long time capturing the 3D shape of human body is realized through 3D scanning technology. But nowadays, the availability of 4D scanning systems includes capturing the human body in motion as MOVE4D high speed 3D (4D) scanning system allows the geometry of the human body to be captured in motion at high frequency. The work tries to present the use of 4D scanning system to capture human body in motion focused on legs part. Generated 3D models are analysed to evaluate the changes of foot and legs geometry to support the de-signing process of footwear products. Dynamic dimensions are an important requirement to develop footwear products that improve footwear fit and comfort, especially for people encountering these problems. The work demonstrates the advantages of the using of high speed and high accuracy device and at the same time reports on various technical, methodical and algorithmic tasks, which have to be solved in the future.



Experimental part

Lower extremities of humans are scanned with the MOVE4D system with 10 Frames per Second. The data is processed with the build in software and exported to PLY format as point clouds. The sport to homologues mesh as OBJ required scanning of the face in the current software, so meshing of the point cloud is performed with open source software.

Results

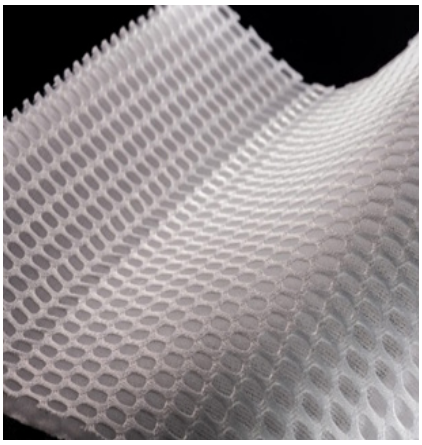
The very short scanning time (under 4ms) per frame eliminates errors from the motion of the human body and increase the accuracy of the scans. From other side the 12 cameras of the Move4D system have good visibility for the upper part of the body, but are not designed to obtain points from the bottom part of the foot when it is in contact with the floor. Nevertheless, the option to have different geometries during walking provides important information about the geometry changes of the legs during walking.

Keywords: *high speed, body scanning, 4D, foot, lower extremities, data processing.*

https://doi.org/10.53230/tgm.1310-912X.2025.1003.02

APPLICATION OF 3D TEXTILE IN FIREWORKS CLOTHING

Andrei Belchev[1], Umme Kapanak[2]
[1]South-West University „Neofit Rilski“, Faculty of Engineering, Department of Mechanical Engineering, Ivan Mikhailov Street, № 56, Blagoevgrad, Bulgaria
E-mail: andrei.belchev@abv.bg



„3D Textiles“ introduces us to the production of the latest fiber structures, their preparation and application. By examining the different types of fabrics, their structures and properties, new knitted and non-woven textile products are created in the textile industry. The presented 3D distance fabrics in firefighting equipment are an emerging class of advanced textile materials designed to improve thermal protection, comfort and breathability in protective clothing. 3D is a three-layer material that is made of:

• Top layer – knitted, woven or non-woven material, providing aesthetics and functionality;

• Bottom layer – provides stability and support;

• Spacer layer - vertical threads or monofilaments that keep the two outer layers separated.

The aim of this work is to develop protective clothing with improves thermal insulation properties.

To achieve the defined goal, the following tasks have been set:

- To introduce new textile materials and technical innovations to improve firefighter clothing;
- To protect different parts of the body;
- To achieve thermal insulation under pressure, movement and equipment.

The results obtained from the research are:

• 3D separation fabrics reduce the rate of thermal transfer compared to conventional non-woven thermal pads;

• Compression stability provides constant thermal insulation under pressure, movement or equipment;

• Facilitates movement.

Keywords: *3D txtile, protective clothing, textile materials, fabrics and knitwear*

References:

[1] Song G., S. Mandal, R. Rossi, Thermal Protective Clothing for Firefighters, 1st Edition - August, 2016, ISBN: 9780081012857

[2] Sparks E., Advances in Military Textiles and Personal Equipment, 1st Edition - July 13, 2012, ISBN: 9781845696993

https://doi.org/10.53230/tgm.1310-912X.2025.1003.03

THE AUTHENTICITY OF BULGARIAN FOLKLORE FROM A MODERN VIEW

Milena Perchinkova[1], Umme Kapanak[2]
[1]South-West University „Neofit Rilski“, Faculty of Engineering, Department of Mechanical Engineering, Ivan Mikhailov Street, № 56, Blagoevgrad, Bulgaria
Milena1422@abv.bg

Abstract

The richness of Bulgarian folklore is an inspiration for fashion. It preserves its authenticity in the development of contemporary models, which makes the dress the „connecting bridge “between the past and the present. The connection of generations and manual craftsmanship is combined with contemporary design.

The „Threads of Tradition “collection is a modern interpretation of Bulgarian identity. With natural textile materials, ethnic motifs and contemporary silhouettes, it shown that folklore is not just a thing of the past, but a living, inspiring force that is part of today ‘s fashion. The variety of colours are carries of Bulgarian symbolism, united through decorative elements, embroidery and edging.

The design of the models is tailored to comfort and functionality, while preserving the aesthetic proportions of the body.

Each model recreates the spirit of the Bulgarian folk costume, but without literal copying – the motifs are interpreted through the designer ‘s eyes in a contemporary version.

The collection combines fresh and youthful models, minimalist dresses, spectacular jewellery – hair tiaras, scarves, traditional embroidery, etc.

The designer of „Threads of Tradition “recreates the image of a woman, a bearer of tradition, rich symbolism, dignity and feminine beauty.

Keywords: *tradition, collection, embroidery, symbolism, folklore.*

References:

[1] Андонова, Сн., Технологични варианти за изработване на дамски рокли, Издателство на НТС ПО ТОК, 2020
[2] Велева, М., Български народни носии. София: Български художник, 1987.
[3] Иванова, Р., Орнаментиката в българското народно облекло, Пловдив, АМТИИ, 2010.
[4] Петров, Х., Н. Петров, Н. Панова, Конструиране на облеклото, Издателство „Техника“ София, 2006

Topic №4,
Textile art and Fashion Design

UDC 745/749
Applied Art. Art Crafts. Interior. Design

UDC 658.512.23
Artistic design (industrial design)


НАУЧНО-ТЕХНИЧЕСКИ СЪЮЗ
ПО ТЕКСТИЛ, ОБЛЕКЛО И КОЖИ
ОРГАНИЗИРА
XXVII НАЦИОНАЛНА ТЕКСТИЛНА
КОНФЕРЕНЦИЯ 2025
"ТРАДИЦИИ И ИНОВАЦИИ В ТЕКСТИЛА
И ОБЛЕКЛОТО"
16-18 октомври 2025 г., Благоевград
PIRIN-TEX

https://doi.org/10.53230/tgm.1310-912x.2025.1004.01

COMPARATIVE ANALYSIS OF CAD/CAM – SISTEMS FOR GARMENT CONSTRUCTION

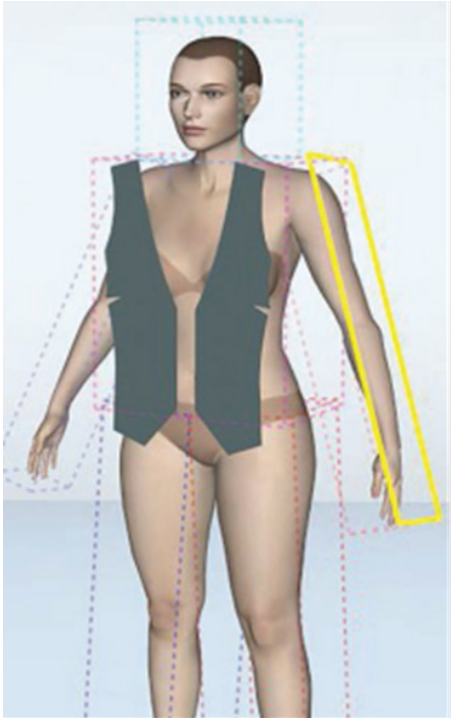
Desislava Pavlova Stopanska, Anna Pokrovnishka
South-West University ‘’Neofit Rilski’’, Faculty of Arts, Department of “Fine Art”,
Ivan Mihailov Street, № 66,
Blagoevgrad, Bulgaria
e-mail: dessysl@abv.bg, ani_art@abv.bg

Abstract: The contemporary apparel manufacturing industry is undergoing intensive digitalization, with CAD (Computer-Aided Design) and CAM (Computer-Aided Manufacturing) systems playing a key role. These technologies facilitate and automate the processes of design, grading, pattern cutting, and production, thereby enhancing precision, efficiency, and sustainability.

CAD systems enable digital pattern creation and 2D/3D visualization of garments, while CAM systems manage the actual production process through automated material placement and cutting. Leading platforms in the industry include Lectra Modaris, Gerber AccuMark, Tukatech, Optitex, CLO 3D, Investronika, and others—each offering distinct advantages depending on the scale and specific needs of production.

The study aims to compare the leading CAD/CAM systems based on criteria such as functionality, automation, accessibility, and visualization capabilities. The results emphasize that the choice of a CAD/CAM system depends largely on the enterprise’s scale and strategic objectives. The conclusion highlights that established systems remain dominant in mass production and continue to shape the direction toward a digital, sustainable, and creative fashion industry.

CAD/CAM technologies are at the core of the modern transformation of the fashion sector. They ensure high precision, resource optimization, and significant reduction in product development time. Although there is no universally superior system, each platform offers unique advantages that contribute to the digital evolution of fashion manufacturing.



Keywords: *fashion, design, technology, apparel, CAD/CAM systems, 3D*

References:

[1] Bowles, M., & Isaac, C. (2012). Digital textile design. Martins College of Art & Design, University of the Arts London.
[2] Grice, P. (2019). Digital pattern cutting for fashion with Lectra Modaris: From 2D pattern modification to 3D prototyping. Bloomsbury Visual Art: London, New York, Oxford, New Delhi, Sydney.
[3] Hristova, T. (2021). TVORCHESKI PODHODI ZA PRENOS NA IDEI OT IZOBRAZITELNOTO IZKUSTVO V MODATA, ISBN 978-954-00-0280-4, Universitetsko Izdatelstvo “Neofit Rilski”, Blagoevgrad.
[4] Popova-Nedyalkova, N. (2015). Rolyata na CAD/CAM sistemite v savremennoto individualizirano proizvodstvo. Sp. Tekstil i obleklo, Sofia, Issues 7–8.
[5] Papahristou, E., & Bilalis, N. (2017). 3D virtual prototyping traces new avenues for fashion design and product development: A qualitative study. Journal of Textile Science & Engineering, 7(2).
[6] Moore, J. G. (Ed.). (2020). Patternmaking history and theory. Bloomsbury Visual Arts.
[7] Rangelova, R (2024). Detskoto obleklo v Bulgaria-razvitie i problematika. ISBN 978-954-00-0380-1, Universitetsko Izdatelstvo “Neofit Rilski”, Blagoevgrad.

https://doi.org/10.53230/tgm.1310-912x.2025.1004.02

CREATIVE PATTERNMAKING AND DRAPING: REDEFINING PRIMARY TECHNIQUES AS DESIGN GENERATOR

Milena Ivanova Nacheva
New Bulgarian University, Department of Arts and Design, Fashion Program,
21 Montevideo St., 1618 Sofia, Republic of Bulgaria
mnacheva@nbu.bg

The paper examines patternmaking and draping as primary techniques for garment design, which can serve not only as a tool for the realization of a design product but also as a means for design development [1]. In the context of the contemporary fashion design process, patternmaking and draping are considered active participants in the creative process. When the common sequence of developing a design idea - concept → fashion sketch → construction - is inverted, and the primary instrument for the design's realization becomes patternmaking and/or draping, the idea itself emerges and evolves through the act of creating the pattern. At this stage, we can speak of creative patternmaking and draping [2]. The study presents various individual approaches to embodying an idea into a garment—from classical flat patternmaking to experimental draping with fabric and paper. It analyzes how designers use patternmaking not as a technical blueprint but as a tool for experimentation, creative exploration, and provocation. Examples from contemporary fashion practice and original projects demonstrate that patternmaking and draping can influence the development of a design idea in multiple ways, depending entirely on the particular creative process. Mastery of these primary techniques expands the boundaries of creative imagination. The research supports the thesis that, in contemporary fashion design, technical and artistic aspects intertwine, and that creative patternmaking and draping form the foundation for developing distinctive and sustainable design solutions.

Keywords: *primary techniques in textiles, patternmaking, draping, pattern, fashion design, creative process, garment*

References:

[1] Rissanen, T., 2007. Types of Fashion Design and Patternmaking Practice. Nordes conference. [Accessed 21.01.2023].
https://www.academia.edu/3762012/Types_of_Fashion_Design_and_Patternmaking_Practice
[2] Fisher, A., 2009. Basic fashion design 03: Construction. Lausanne: AVA Publishing SA
[3] https://www.instagram.com/p/CrNkDk1vvmM/
https://www.vogue.com/fashion-shows/spring-2023-ready-to-wear/alexander-mcqueen/slideshow/collection#5

https://doi.org/10.53230/tgm.1310-912x.2025.1004.03

EXPERIMENTAL STUDIES ON THE EXTRACTION AND DYEING WITH RUBIA TINCTORUM

Nezabravka Popova-Nedyalkova
New Bulgarian University, Department of Arts and Design, Fashion Program,
21 Montevideo St., 1618 Sofia, Republic of Bulgaria
nezi_ned@abv.bg

Abstract

This article examines the extraction and application of dyeing substances from Rubia tinctorum (dyer's madder) on different textile fibers in the context of sustainable natural dyeing. The aim is to investigate how key factors – solvent type, extraction temperature and duration, state of the dye material, dye-to-fiber ratio, as well as the use of tannin additives and metal salts (iron sulfate, copper sulfate) – influence the final color. A total of 50 experiments were conducted, combining various extraction and dyeing conditions.

The results confirm known patterns, such as the greater dye absorption in protein fibers and the predictable effects of metal salts, while also revealing discrepancies with commonly cited recommendations – for example, the stability of colors despite high-temperature extraction, or the limited enhancement of red hues following the addition of calcium carbonate. Attention is given to repeated extraction and dyeing, which demonstrates the stepwise release of various dye compounds, as well as to a comparison between Rubia tinctorum and Rubia cordifolia.

The study highlights the importance of a systematic experimental approach, applicable even outside formal laboratory settings, as a contribution to the advancement of sustainable practices in textile dyeing.

Keywords: *natural dyes, Rubia tinctorum, extraction, dyeing, anthraquinone dyes, textiles, experiment.*

PS Dear colleagues please do not delay to present your requests to participate in the conference. Specifying the average number of participants until October 8th 2025 will optimize the organization of scientific sessions.

https://doi.org/10.53230/tgm.1310-912x.2025.1004.04

TEXTILE TECHNOLOGIES. EXPLORING FUTURE OPPORTUNITIES IN ARCHITECTURE AND DESIGN

Ivanka Dobreva-Dragostinova
New Bulgarian University, Department of Arts and Design
21 Montevideo Str., 1618 Sofia, Bulgaria
E-mail iva_d_d@abv.bg

The development of textile technologies opens up new horizons for architecture and design, transforming traditional notions of materials, structure, and space. With the introduction of high-tech solutions for design, production, and assembly, textiles are becoming not only a means of aesthetic expression but also an active structural element. They can regulate light, heat, and acoustics, as well as provide interactivity and adaptability within the built environment.

The paper, through an interdisciplinary approach to production techniques and design processes, outlines practical applications, key challenges, and future research directions related to the integration of textile technologies into contemporary architectural and design thinking.

Keywords: *textile technologies, smart textiles, sustainability, textile facades*

https://doi.org/10.53230/tgm.1310-912x.2025.1004.05

THE ANCIENT TEXTILE AND DECORATIVE ART OF ASIA

Milka Grigorova Aleksandrova
South-West University "Neofit Rilski", Faculty of Arts, Fashion Department
66 Ivan Mihaylov Str., 2700 Blagoevgrad, Bulgaria
e-mail: milkaaleksandrova@gmail.com

The decorative textile art of Eastern peoples is a testimony to centuries of accumulated skills, colors, and symbolism. It unites practicality and spirituality, transforming everyday objects into carriers of cultural memory and aesthetic philosophy. In the fabrics are woven not only threads, but also rituals, beliefs, and the pursuit of harmony with nature. Ornaments, shapes, and colors reveal not just beauty, but also the idea of balance, humility, and interconnectedness between people and the world.

Of particular importance are the natural materials and dyes that for centuries have been the main sources for creating textiles – wool, silk, cotton, linen, as well as dyes from plants and minerals. They convey a sense of authenticity and purity, and today, in an age of global challenges, they are also an inspiration for artists and consumers who turn their attention to sustainable fashion. The return to natural materials and handcrafted mastery is not only an aesthetic choice but also an ethical gesture – a striving for responsible consumption and respect for the earth.

In contemporary fashion and design, ancient motifs and techniques find new life – serving as a source of inspiration for creativity and sustainability. They connect the past with the present, giving modern creations depth, symbolism, and meaning that transcend fleeting trendsThus, the ancient textile and decorative art of Asia remains alive and relevant – not only as a museum treasure but as a source of beauty, inspiration, and a new cultural ethic that teaches respect for tradition, nature, and the future.

Keywords: *Textile decorative art, Asian traditions, Natural materials, Symbolism in textiles, Sustainable fashion.*

References:

Grey silk kimono decorated with landscape Edo period (19th century) G. Manos Collection [Inv. no. 2048] Private archive, Museum Corfu

https://doi.org/10.53230/tgm.1310-912x.2025.1004.06

THE PROBLEM OF IMITATION IN FASHION - THE INFLUENCE OF MUSICIANS ON DRESSING STYLE

Mariya Onteva
Southwest University "Neofit Rilski", Faculty of Arts, Department of Fine Arts,
66 Ivan Mihaylov Str., Blagoevgrad, Bulgaria
mo_art@abv.bg

This article aims to examine the phenomenon of imitation in Bulgarian fashion after 2000. Emphasis is placed on musical performers as bearers of visual and cultural images and style models of imitation. The object of analysis is the influence of the public image of pop, pop-folk, and hip-hop artists, through stage clothing, on the fashion choices of young people. This study is based on the concept of imitation and the theory of fashion as a social phenomenon characterized by identity, belonging, and the pursuit of popularity. Examples of the visuality of popular Bulgarian performers are proposed, which influence clothing and style in mass taste. The mechanisms of transfer of cultural processes, trends, and phenomena from stage to mass style are traced.

The problem of imitation shows the process of global cultural dynamics in fashion from popular culture, demonstrating how musical performers shape fashion trends and provoke imitation among the audience.

Keywords: *imitation in fashion, style, visual image, musical performers.*

Bibliography:

[1] Stoykov, L. Almanah na balgarskata moda 2000. Izd. "Ot igla do konets". S., 1999, s. 4 - 28.
[2] Stoykov, L. Teoretichni problemi na modata. Izd. "Ot igla do konets". S., 2006.
[3] Barthes, R.(1983) The Fashion System. University of California Press.
[4] Kawamura, Y.(2005) Fashion-ology: An Introduction to Fashion Studies, Berg Publishers.

https://doi.org/10.53230/tgm.1310-912x.2025.1004.07

FUSION OF FORMS: PAINTING OF NANOFIBERS

Neş'e SARAÇ
GESAM (Member of Turkish Fine Art Work Owners Professional Association)
Faculty of Economics –Istanbul University (BSc,MSc)
Faculty of Fine Arts-Altınbaş University (MA)
sarac@itu.edu.tr

Graphical representation of devices and interactions in primary textile techniques.

Neşe Saraç's exhibition is about on nanofibers that form the basis of textiles.

SEM images of nanofibers became data for abstract paintings. Scientific research inspired her to creative an artistic drawing of carbon fibres.

There will be 13 works in the exhibition hall.

The development was carried out in implementation of a project under the Erasmus+ program: 2024-1-BG01-KA122-ADU-000232194 "European mobility for the restoration and preservation of artisanal hand-weaving of household fabrics" with the operating organization of the National Agency for Human Resources Development Centre in Sofia .

Keywords: *art graphics, textile primary devices*

https://doi.org/10.53230/tgm.1310-912x.2025.1004.08

THE CONTRIBUTION OF SPORTSWEAR TO THE DEVELOPMENT OF FASHION

Rositsa Rangelova
Department of Fine Arts, Faculty of Arts
Southwestern University "Neofit Rilski" Blagoevgrad
r.rangelova@swu.bg

Sportswear is one of the most popular items of clothing today. Its main place should be sports grounds, but it has long time since crossed this line. Combining sports and clothing is not easy. From a historical point of view, this union has gone through many stages of development. Modern sportswear has taken permanent positions both on the street and on the catwalks of haute couture . This is because it has made an indelible contribution to the development of fashion. First of all, from a purely utilitarian point of view, it should be noted that it has contributed to the practicality and convenience of using clothing. This is especially true in our modern society, for which the concept of comfort is leading in the choice of clothes.

On the other hand, sportswear has played a decisive role in the changing attitude towards modesty over the years. It defines the emphasis and exposure of the human body through clothing as something normal, completely excluding the feeling of eroticism.

Thanks to sportswear, fashion crosses social barriers and is established in all social categories, making it more democratic and versatile. From sportswear in the XIX-th century, which was mainly a privilege for the rich people, who socialized in private clubs and followed trends, reading Vogue, it became available to the broad public. At its dawn, many former athletes stood at the head of fashion brands that are popular to this day. Such are Emilio Pucci, René Lacoste and Ottavio Missoni, who, thanks to their sports careers, turned to sportswear. Other famous couturiers such as Gabrielle Chanel, Jeanne Lanvin, Jean Patou, Elsa Schiaparelli give impetus to this style in their collections. Andre Courrèges, Issey Miyake, Azzedine Alaïa, Thierry Mugler, Sonia Rykiel and Kenzo Takada are the modern great designers who designed clothes for sports or brought sportswear to the podium of haute couture. In the modern Bulgarian fashion industry we have an example of an athlete developing a brand in the field of sportswear and this is the world famous football player Hristo Stoichkov.

Bibliography:

[1] Alexandrova, M. Neoconceptualism i methavselena v syvremennata moda, 2024, ISBN 978-954-00-0379-5
[2] O'Hara D.: Enciclopedia na modata. Sofia, 1995.
[3] Hristova, T. Oblekloto – izbor I obraz na kulturna identichnost - V: Sociologija I ikonomika, 1, 2013, 84-90. ISSN 1314-3603

https://doi.org/10.53230/tgm.1310-912x.2025.1004.09

SEMIOTICS OF THE SPIRIT

Anastasiya Vasileva Dicheva
Department of Fine Arts, Faculty of Arts
Southwestern University "Neofit Rilski" Blagoevgrad
Anastasiya.dicheva@swu.bg

„Semiotics of the Spirit explores the relationship between memory, language, art, and time.

Inspired by the idea of time as a linguistic phenomenon in the film Arrival (2016) by Denis Villeneuve - its nonlinear experience, communication as a tool for transformation, the meeting between science and spirituality; The structuralist approach to the culture of Ferdinand de Saussure and Roland Bart, as well as the artistic practices of Alberto Buri, Stanislav Pamukchiev, Anselm Kiefer, and Mark Rothko. "Semiotics of the Spirit" is an attempt to translate philosophical discourses into material forms, the theme of the spirit's resilience, and the will to create and overcome.

„Semiotics of the Spirit is an exploration of the boundaries between the material and the immaterial, between memory and the future, between chaos and order, the perspectives of reality, as a string of structures woven from the threads of emotion and memory. The consciousness as a set of mind (structure) and creative intuition (emotion, the soul). A textile metaphor for human existence itself. Materials are symbols - metal, netting, tar black paint speak of destruction, restoration, and transformation. Flour, water, and wool refer to the primitive origin and ontology of ritual.

The combination of dense and ethereal fabrics, transparent and rich black details, and the interweaving of metal ropes, cracked textures, and stones symbolize time and its layers. The collection also includes personal references - as part of the conversation between past, present, and future, creating a visual dialogue between generations.

Inspired by the techno subculture and music of Ela Minus, she also seeks the balance between hedonism, freedom, activism, and political charge.

"Semiotics of the spirit" seeks a "language" that "says" what cannot be expressed only verbally – a narrative of destruction and overcoming, a dialogue between the material and the spiritual, a history of the will.

https://doi.org/10.53230/tgm.1310-912x.2025.1004.10

ARTISTIC PATHS IN OUR SCHOOL CLUB „INSPIRATION”

Ivayla Tsvetomirova Tsankova[1], Elitsa Aleksandrova Hristova[1], Anelia Aleksieva Istatkova[1], Maria Rangelova Koleva[2]
[1]Professional high school of clothing „Knqginq Maria Luisa”, specialty „Fashion desigh”, bul.Cherni vrah 37, Sofia, Bulgaria
[2]South-West University “Neofit Rilski” 66 Ivan Mihaylov str. 2700, Blagoevgrad
mariia_rk@abv.bg

Inspiration is the spark that silently shines in the depth and whispers: „Go”. It doesn’t take, but gives - charge, light and impulse, with which the ideas come to life with the ease of sun rays that caress our faces.

In club, Inspiration” we follow those rays and we let our hearts guide the artistic process. The paths, which we walk on are filled with the ambition to create projects that gently touch, wake up and put smiles especially on those who feel lost. The inspiration is the one who leads us, is our direction and our strength. Our ideas become reality and the happiness that they spread makes memories which are shared.

In this article we will guide you through our three biggest projects:

• **„Yin and Yang”** is a fashion collection that illustrates the balance of the soul, the conflict between our inner peace and the outside chaos of the everyday world.

• **„Christmas miracles”** combines traditions, techniques and the holiday spirit. This project is made for a special cause to spread warmth, happiness and magic in our homes.

• **„In search of Love”** is a fashion project, inspired by the tenderness and lightness that connect us invisibly. This is the inevitable thread of creation, which gives meaning.

Invite yourselves to travel with us on these artistic paths in a world where dreams are being followed, ideas are shining bright and every story leaves behind a light - inspiration and meaning.

Keywords: *inspiration, cause, team, sustainable principles*

https://doi.org/10.53230/tgm.1310-912x.2025.1004.11

DIGITAL DRAWING: CREATIVE APPROACHES AND INTERPRETATIONS IN POP ART

Iliyana Ruykova, Tatyana Hristova - Popovska
University South-West University "Neofit Rilski", Faculty of Arts, Department of Fine Arts,
Ivan Mihailov Street, № 66, Blagoevgrad, Bulgaria
iliyana.ruykova@swu.bg; tatiyna@swu.bg

The present report explores the role of digital drawing as a contemporary form of artistic expression, analyzing it within the context of Pop Art. A study has been conducted and a creative approach has been developed based on modern technologies and visualization techniques. An original author project is presented - a model of creative interpretation of a digital Pop Art work.

The objective of this study is to analyze new creative forms of visual representation in art (specifically within the Pop Art movement) through the prism of the digital environment. Methods have been identified for transforming and enriching contemporary visual language through digital drawing. The main stages of interaction between classical artistic methods and digital technologies in the creative process have been examined.
Based on the conducted research, a new artistic vision of the original images is presented through digital drawing, thereby offering new possibilities - freedom of expression, multiplication, and the use of various software applications for digital painting.

The author's interpretation of the artworks demonstrates how digital art can offer new visual concepts and generate contemporary meanings of familiar images. Today, digital drawing has a tangible presence in artistic practices and provides exceptional potential for innovation and new forms of cultural expression.
The study could be apply skills in practice of artists and designers, students of fine arts, and educators in the field of art theory and visual studies.

Keywords: *digital art, digital drawing, Pop Art, fashion illustration*

Bibliography:

[1] Honnef, K., Pop Art. TASCHEN, 2005.
[2] .Lippard, L., Pop Art. Thames and Hudson, London, 1966, 1967 and 1970.
[3] .Brambatti, M., Fashion Illustration & Design: Methods & Techniques for Achieving Professional Results. Barcelona, Spain: Promopress, 2017.
[4] Hristova, T. Tvorcheski podhodi za prenos na idei ot izobrazitelnoto izkustvo v modata. Universitetsko izdatelstvo „Neofit Rilski", Blagoevgrad, 2021. ISBN 978-954-00-0280-4

https://doi.org/10.53230/tgm.1310-912x.2025.1004.12

BRIDGE TOWARD FUTURE SUCCESSES

Kaloyan Teodorov Georgiev[1], Sofia Konstantinova Racheva[1], Maria Rangelova Koleva[2]
[1]Professional high school of clothing „Knqginq Maria Luisa", specialty „Fashion desigh", bul.Cherni vrah 37, Sofia, Bulgaria
[2]South-West University "Neofit Rilski" 66 Ivan Mihaylov str. 2700, Blagoevgrad
mariia_rk@abv.bg

This is a story for the way between two shores – for a river that gives, but also demands dedication and hard work. A story for the efforts which it takes to build a bridge, and sometimes to "swim against the current"– because the goal is head on to success.

This is a tale for the spent efforts, emotions and true joy. A story for the teachers, who are mentors and guides of faith, which inspires hope through direction, planning and consistency.

After long hard work – the bridge is built. On it everyone walks, because those are the examples for sustainable and working practices, in education. Exactly through them winners get created, which on their side create other ones. This is a true bridge – bridge toward success.

The faster we realise, that knowledge is given fully and without reserve, the faster we'll have successful and prosperous young people. The sustainability is coming from the dedication of the soul – a bridge, which is leading towards growth to those qualities, in which someone has believed in.

In this article you'll find out how we reached the other shore of the river and how we constructed our bridge. This story includes the victory of the contest „The river– life, emotion, element "– won with the full range of human emotions.

This is not just a bridge from stone and wood – this is a bridge of ideas, trust and shared faith. On it walk not only the students, but everyone, who is ready to learn, to get inspired and give their all. Every step on this bridge carries experience, every step opens a new horizon, every step proves, that dedication and persistence can transform challenges into successes.

Come to colour your soul and to get a touch of this magic!

Keywords: *bridge, success, sustainable practices*

https://doi.org/10.53230/tgm.1310-912x.2025.1004.13

FASHION THROUGH THE PRISM OF TIME

Asie Tatlicheva, Umme Kapanak
South-West University „Neofit Rilski“, Faculty of Engineering, Department of Mechanical Engineering, Ivan Mikhailov Street, № 56, Blagoevgrad, Bulgaria
E-mail: seytan85@abv.bg

A look fashion trends from the last decade emphasizes the individuality of unique silhouettes that combine both existing shapes and unusual combinations of colours and textures. Innovative methods and technologies are used to optimize and analyse body size and shape. The rapid development of the fashion industry leads to an acceleration of the innovation cycle and the need for unconventional design thinking. By integrating contemporary designs, reliability and style, designers are striving for more stylish, comfortable and convenient garments. It is this combination of creativity, technology and sustainability that is defining the future of the fashion industry. The modern designer must be both a creator and an innovator to meet the needs of a dynamic society.

The goal of this work is to achieve an optimal balance between aesthetic vision, constructive accuracy and practical applicability of a fashion collection inspired by the past.

To achieve the goal thus defined, the following tasks have been set:

- To conduct a study of fashion trends;
- To develop sketches and patterns of the selected models;
- To realize the fashion collection.

The results obtained are:

- Creation of garments with practical application;
- Achieving unity between idea, technology and final product;
- Realization of the fashion collection.

Keywords: *fashion trends, clothing, comfort, fashion collection*

References:

[1] Петров, Х., Р. Атанасова, Ръководство за лабораторни упражнения по технология на облеклото, София, 2012

[2] Indie, L., Iliewa, J., Dineva, P., Zlatev, Z., Sturza, A., A study of types of silhouettes in women’s clothing, Industria Textila, 76(1), pp. 19–30, 2025

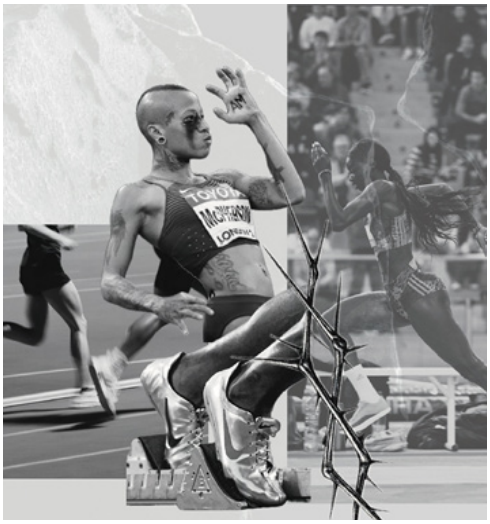
[3] Roy, R., Tiwari, M., Dalvi, L.A., A review on 3D body scanning for garment manufacturing: Past and future, Multi Industry Digitalization and Technological Governance in the AI Era, pp. 345–368, 2025

[4] Qu, Z., Liu, J., Yan, Y., Analysis of Fashion Handbag Dataset Based on ‘Form-Color-Texture-Structure’ Framework, Lecture Notes in Computer Science, 15795 LNCS, pp. 409–425, 2025

https://doi.org/10.53230/tgm.1310-912x.2025.1004.14

MOVEMENTO

Nelina Stoycheva
New Bulgarian University, Department of Arts and Design, Fashion Program,
Address: Ovcha Kupel 2 Residential Complex, 21 Montevideo Street, 1618 Sofia, Bulgaria
Nelinastoycheva7@gmail.com



I believe that every person goes through a metamorphosis in life. For me, stepping onto the athletics track – initially with the simple idea of losing weight – became an experience that transformed my entire world. The lessons I learned from the sport go far beyond the track itself: willpower, patience, and discipline. Athletics taught me that our thoughts – whether victorious or defeatist – shape the reality around us. The athlete who believes in victory and continues despite circumstances and emotions is, ultimately, the true winner.

The Movemento collection is inspired by this very journey of the athlete – physical, emotional, and mental. It examines athletics by exploring the movement and techniques of different disciplines. The research includes the origins of the ancient Olympic Games and the evolution of athletics into its contemporary forms, serving as the foundation for the collection's inspiration.

The aim of the study is the creation of a capsule women's collection that interprets the physical, emotional, and mental aspects of the athlete's journey. In the experimental phase, I tested various shapes, constructions, and materials inspired by the dynamics of disciplines such as running, long jump, high jump, and throwing events. An original textile technique was developed from filled yarn (60% polyester, 40% cotton), resembling marshmallow in structure and tactility. Through zigzag stitching, a textile was created and used for the construction of a dress and tops.

The collection combines cotton, polyester, and nylon, balancing aesthetics between sportswear and hand-crafted knitwear. The forms and constructions translate the movements of athletics – for instance, a "turtle" jacket that interprets the body in motion during the long jump.

The Movemento collection demonstrates that clothing can be more than a material object – it can become a storyteller of movement, willpower, and the overcoming of limits. Inspired by the athlete's journey, it captures the dynamics of physical effort and transforms it into a strong visual language that speaks for itself. Here, fashion becomes a space of freedom, where the body and the garment exist in continuous dialogue.

Keywords: *athletics; movement; freedom; transformation; mindset*

Topic №5, Textile Machinery and Equipment

UDC 677
Textile Industry. Technology of textile materials

https://doi.org/10.53230/tgm.1310-912x.2025.1005.01

APPLICATION OF MODERN CARPENTRY TECHNOLOGIES IN THE EQUIPMENT OF PRIMARY TEXTILE TECHNIQUES

Rossitsa Ruskova[1], Ivelin Rahnev[2]
[1]Profesional School of Woodworking Ivan Vazov, blvd. "Saedinenie" 44, Velingrad, Bulgaria
[2]E. Miroglio EAD, Industrial District, Sliven, Bulgaria
pgd_ivanvazovvg@abv.bg

The successful application of hand spinning and weaving in modern times can only be achieved by combining modern engineering techniques with optimally selected materials and in-depth materials science in carpentry. The basic principle for building a handloom follows the balance between durable construction, diverse weaving capabilities and overall ergonomics.
The essential problem consists in finding an optimal combination between the carpentry materials and the assemblies of the working bodies. Modern carpentry equipment has two purposes:

- Production of spare parts for maintenance of hand tools in a training workshop for primary textile techniques;
- Production of additional devices for servicing the main equipment.

Made from selected wood materials, they have different shapes and sizes, which are grouped as machine elements: rods, axes and shafts with a circular cross-section, beams and consoles with straight axes and a levelled surface, holes and assemblies with different cross-section profiles.

Compact technological equipment for modern woodworking in this case includes multifunctional milling machines, compasses and similar machines.

The subject of the article is a list of carpentry machines and products for completing a textile training workshop.

The conceptual design of the loom is based on the modularly upgraded functional groups and capabilities of the loom.

Heavy woods with a high relative density and strength are used to make the chassis. They provide stability in operation and longevity of the loom.

Light woods are suitable for moving parts operated by the hand, such as the shuttle, for example. The bearing assemblies of the moving parts such as the main and the traction cross ensure the durability of the loom and reduced human effort when driving.

In addition, it is necessary to distinguish the different types of assemblies (fixed and movable) and select the appropriate machine elements.

The collected and arranged technological information leads to optimal constructive solutions.

The tasks are mainly related to the research and collection of technical data on the construction materials within the framework of the conceptual design and the applicable techniques for making and assembling the loom.

Present work carries out planned activities by project No. 2025-1-BG01-KA210-ADU-000363229 under the Erasmus+ program with the operating organization of the National Agency for Human Resources Development Centre in Sofia.

Keywords: *textile techniques, auxiliary means, carpentry technology*

https://doi.org/10.53230/tgm.1310-912x.2025.1005.02

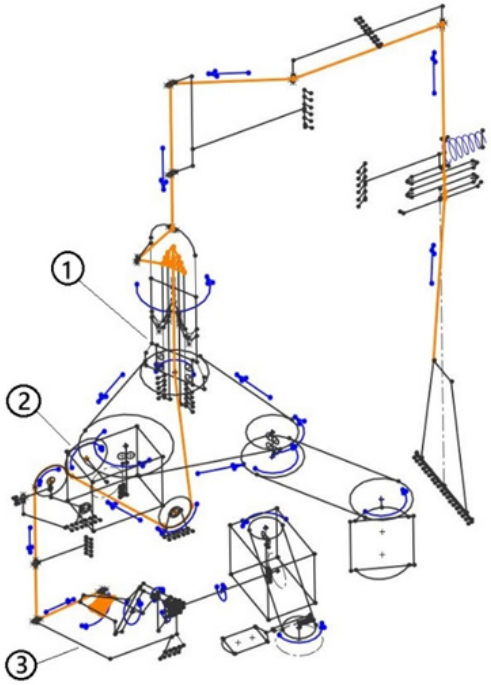
KINEMATIC CHAIN OF AN APPARATUS FOR BRAIDING AND WINDING HOLLOW CORDS

Angel Atanasov Mladenov[1], Vladimir Vakov[1] and Ivelin Rahnev[2]
[1]SWU Neofit Rilski – Blagoevgrad, Bulgaria
[2]E. Miroglio EAD, Industrial District, 8800 Sliven, Bulgaria
Ivelin.Rahnev@emiroglio.com

The production of braided cords includes two technological operations: braiding and winding and belongs to the circular knitting technology.

The peculiarity of the device is due to the large difference between the rotation speed of the knitting head of about $\omega \cong 1850\ min^{-1}$ and the linear speed of the outgoing cord of about $v \cong 5$ m⁄min. The angular velocity of the working elements for pulling and winding, adjusted to the structural dimensions of the machine elements, is about 30 times smaller than the rotation of the head. Another feature is the variable speed of the winding working element.

The pulling of the cord from the knitting working area is at a constant linear speed, which is maintained at the point of its winding onto the yarn body. The constantly increasing diameter of the yarn body requires a corresponding reduction in the angular velocity of the winding shaft to maintain constant tension on the cord. The above-mentioned features lead to the separation of 2 independent sources for driving the two main groups of mechanisms – the knitting and the winding.



There are three functional mechanisms in the overall design of the apparatus: (1) knitting, (2) pulling and (3) winding. The knitting mechanism consists of a knitting head spindle with longitudinal channels in which the knitting needles move linearly. The axial cams are fixedly mounted in the spindle, between which the needle consoles are located. The constant angular velocity of the spindle is converted into a sinusoidal reciprocating motion of the needles, which forms the loops of the cord.

The take-up cylinders take the knitted cord out of the knitting zone. The linear speed of the periphery of the take-up cylinders and, accordingly, the angular speed of their shafts, is synchronized with the spindle speed and determines the density of the loop rows of the cord. Synchronization and adjustment within small limits is a prerequisite for the overall propulsion of knitting and pulling. In this case, the pull speed adjustments are solely for the purpose of slightly changing the linear density of the linear textile product.

The third functional mechanism, or the winding mechanism, is self-powered for three reasons. Cord winding is an operation remote from the knitting work area. The mechanical connection between the knitting head and the winder complicates the overall design of the apparatus. Furthermore, the winding speed is a function of the constant tension of the cord and the increasing diameter of the yarn body.

The subject of the article is the kinematic chain of the hollow braided cord apparatus. The goal is to develop a mathematical apparatus and algorithm for controlling functional mechanisms.

Keywords: *knitted cord, textile engineering, kinematic chain*

Topic №6,
Textile Management, Marketing and Sustainability

UDC 33
Economics. Economic sciences

UDC 677
Textile Industry. Technology of textile materials

UDC 678
Industry of High Molecular Substances. Rubber industry. Plastic industry


ерската идея, а
ените елементи,
лото и умелото
мране допълват
по-добри идеи и
ълняващи дизайни,
НТК
НАУЧНО-ТЕХНИЧЕСКИ СЪЮЗ
ПО ТЕКСТИЛ, ОБЛЕКЛО И КОЖИ
ОРГАНИЗИРА
Erasmus+
irtu

https://doi.org/10.53230/tgm.1310-912x.2025.1006.01

SUSTAINABILITY IN HAND WEAVING: ASSESSING ENVIRONMENTAL IMPACTS AND ETHICAL PRACTICES

Suzana Đorđević
Academy of Applied Studies Southern Serbia, Department of Technology and Art Studies Leskovac, Vilema Pušmana 17, Leskovac, Serbia
drdrag64@yahoo.com

Hand weaving, a centuries-old textile tradition, is increasingly recognized as a potential model for sustainable production in the modern textile industry. This study evaluates the environmental, ethical, and socio-economic dimensions of hand weaving across region of Serbia using a mixed-method approach combining life cycle assessment (LCA) and ethnographic field analysis. Quantitative results demonstrate that hand weaving produces up to 70% fewer carbon emissions and consumes 50–80% less energy than mechanized textile manufacturing, particularly when using locally sourced, natural fibres. Qualitative findings reveal strong cultural and ethical benefits, including gender-inclusive employment and heritage preservation; however, persistent challenges such as synthetic dye pollution, market volatility, and insufficient policy support limit the sector's overall sustainability. The study concludes that integrating traditional weaving with eco-innovation, fair-trade certification, and community-based governance can position hand weaving as a viable pathway toward circular and ethical textile production systems.

The textile and apparel industry is among the most resource-intensive and environmentally burdensome sectors globally. Its production chain – spanning fibre cultivation, spinning, weaving, dyeing, finishing, and distribution – consumes enormous quantities of water, energy, and chemicals while generating significant carbon emissions and waste. According to the United Nations Environment Programme (UNEP, 2022), the global textile sector accounts for approximately 10% of total carbon emissions and 20% of global wastewater production [1], [2]. Within this context, hand weaving emerges as a sustainable and ethically grounded textile practice rooted in centuries of artisanal knowledge. Hand weaving involves the manual interlacing of warp and weft yarns using simple or semi-mechanical looms operated without electricity. The process relies primarily on human labour and renewable materials, significantly reducing dependence on fossil fuels and synthetic inputs [3, 4]. Sustainability in hand weaving can be viewed through three interconnected dimensions: environmental, economic, and social. Environmentally, the practice contributes to low carbon emissions, minimal water pollution, and reduced textile waste. Economically, it supports small-scale, community-based production systems that emphasize quality over quantity and encourage circular design approaches. Socially, it fosters fair labour conditions, equitable income distribution, and intergenerational transmission of cultural and technical skills [3-5].

Keywords: *hand weaving, sustainability, environment, ethical practice, life cycle assessment.*

https://doi.org/10.53230/tgm.1310-912x.2025.1006.02

DIGITAL METHODS FOR DOCUMENTING, PRESERVING, AND TRANSMITTING TRADITIONAL KNOWLEDGE IN THE FIELD OF NATURAL TEXTILE DYEING

Nezabravka Popova-Nedyalkova
New Bulgarian University, Department of Arts and Design, Fashion Program,
21 Montevideo St., 1618 Sofia, Republic of Bulgaria
nezi_ned@abv.bg

Abstract

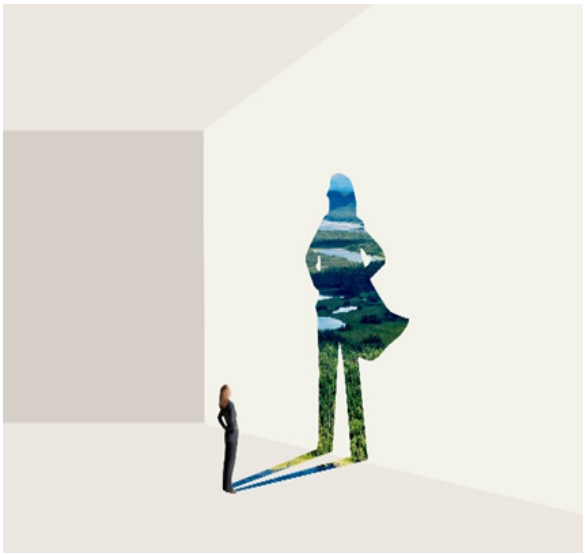
This study focuses on the role of various digital strategies for the preservation, documentation, and revitalisation of traditional practices in natural textile dyeing. Based on long-standing knowledge of natural dyes, these practices represent an essential element of intangible cultural heritage. However, they are under significant pressure from industrialisation and are further threatened by the disruption of intergenerational transmission. The study examines digital archives and databases, online educational platforms and communities, as well as tools for visualisation, analysis, and reconstruction (including laboratory methods for research and possibilities for mapping dye plants). International practices and European initiatives are presented, alongside Bulgarian examples. Key issues related to the ecological and ethical aspects of using natural dyes are discussed, such as traceability and certification, as well as the role of international standards for accessibility, sustainability, and data management. In conclusion, the paper highlights that digital strategies not only preserve traditional knowledge but also create new opportunities for creative interpretation, education, and intercultural dialogue, linking local communities, research practices, and contemporary design within a shared and sustainable ecosystem.

Keywords: *natural dyeing; digital archives and databases; intangible cultural heritage; dye analysis; sustainability and ethics; digital mapping.*

https://doi.org/10.53230/tgm.1310-912x.2025.1006.03

APPLICATION OF CoC SYSTEM FOR GARMENT SUSTAINABLE CONCEPTION

Maria Rangelova Koleva[1], Ivelin Rahnev[2]
[1]South-West University "Neofit Rilski", 66 Ivan Mihaylov str., 2700, Blagoevgrad, Bulgaria
[2]E. Miroglio EAD – Sliven
mariia_rk@abv.bg



Chain of custody systems have become an indispensable element of many different applications, such as certification schemes especially for textiles and garment. They enable information associated with a product and/or production characteristics to be shared among various organizations active in the chain of custody such as material and ingredient suppliers, processors, contractors, scheme owners, companies active in refurbishing and recycling, governmental organizations, end customers, and consumers or other end users. CoC standard defines a framework for chain of custody by providing a consistent generic approach to the design, implementation and management of chains of custody models. Chain of custody is a process by which inputs, outputs, and associated information are transferring, monitoring and controlling as they move through each step in the relevant supply chain. Mass balance model is the most valuable. Its chain of custody model in which materials or products with a set of specified characteristics are mixed according to defined criteria with materials or products without that set of characteristics. The mass balance model is a chain of custody model in which materials or products with specified characteristics are mixed with materials or products without some or all of these characteristics, resulting in a claim on a part of the output, proportional to the input. The mass balance model is carrying out by two parallel methods: rolling average percentage method and credit method. The credit method is applicable when two or more types of input are used in a material or product. The recorded output amount of each type shall be equivalent to the physical input, taking into account the conversion factor. The conversion factor shall be defined within each material or product at each site and it shall be applied to define the amount of credit to enter the credit account, when using the output as the basis for calculation, or to withdraw the credit when using the input as the basis for calculation. The ingredients and common garment weight shall be balanced. The garment conception shall ensure a zero or positive balance for any project. The designer shall provide evidence that volumes of input materials or auxiliaries with specified characteristics implemented to the sewing product are balancing in the common disposal materials with the volumes bought for the collection in development. The subject of the article is the reproduction of the credit method of mass balance in the technology of sewing production. The purpose of the development is to compile an algorithm and a small application for implementation in activities in sustainable clothing design.

Keywords: *sustainable garment design, chain of custody, mass balance*

https://doi.org/10.53230/tgm.1310-912x.2025.1006.04

SUSTAINABILITY AND DIGITAL TECHNOLOGIES IN APPAREL DESIGN

Nezabravka Popova-Nedyalkova
New Bulgarian University, Department of Arts and Design, Fashion Program,
21 Montevideo St., 1618 Sofia, Republic of Bulgaria
nezi_ned@abv.bg

Abstract

The fashion industry is undergoing a critical transformation as it confronts significant environmental and social challenges associated with its traditional linear model of production and consumption. As one of the most polluting sectors globally, it is responsible for substantial carbon emissions, water contamination, and the accumulation of vast amounts of textile waste – issues further intensified by the rise of fast fashion. In response, sustainable fashion has emerged as a comprehensive framework aimed at reducing environmental impact, promoting ethical labor practices, and advancing the principles of a circular economy.

This article examines the role of digital technologies as key enablers of this transition. Innovations such as 3D design and virtual prototyping minimize the need for physical samples, conserving materials and shortening design cycles. Digital textile printing and on-demand manufacturing combat overproduction and significantly reduce water and energy consumption. Artificial intelligence enhances trend forecasting and supply chain optimization, improving operational efficiency while minimizing waste. Blockchain technologies improve transparency and traceability across the supply chain, reinforcing ethical practices and counteracting product counterfeiting. Virtual try-ons and augmented reality enrich the consumer experience and reduce product returns, while 3D printing enables customized, low-waste production using sustainable materials.

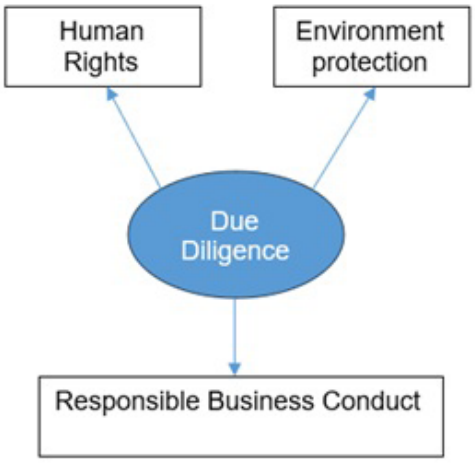
Furthermore, the article discusses how circular economy principles – designing for durability, reuse, repair, and recyclability – are increasingly supported by digital innovations and Extended Producer Responsibility (EPR) frameworks. Although challenges remain, including high implementation costs, data integration complexities, and the need for specialized expertise, the integration of sustainability and digital technologies is emerging as a critical pathway toward a more responsible, transparent, and innovative fashion ecosystem.

Keywords: *fashion industry, textiles, clothing, sustainability, digital technologies*

https://doi.org/10.53230/tgm.1310-912x.2025.1006.05

AUDITING DEVELOPMENT OF IN TEXTILE ENTERPRISES WITH THE DUE DILIGENCE APPROACH

Tanya Randeva Nedelcheva[1], Ivelin Rahnev[2]
[1]Lempriere Wool Ltd, West industrial district, 8800 Sliven, Bulgaria
[2]E. Miroglio EAD, Industrial district, 8800 Sliven, Bulgaria
Tanya.Nedelcheva@lempriere.bg



For more than 30 years, independent organizations have been subject to general external control. The control is carried out by qualified specialists from an independent external organization and is commonly known as an audit.

Due to the type of audit conclusion, external organizations are called certifying organizations, and the audited organizations are called certified. An audit is a methodical process, independent and documented.

The verification allows for objective evidence to be obtained, with which to objectively assess the degree of satisfaction of the set indicators.

The improvement of auditing proceeds in two main directions: expanding the scope of the activities being inspected and detailed regulation of the activities in the inspection.

Now, auditing textile enterprises includes a new approach to auditing, providing for a duty of increased vigilance. This is the due diligence approach to human rights compliance and responsible governance in textile organizations.

A pioneer in this endeavour is the upcoming Global Responsible Textile Standard with the first methodological version of the due diligence from 2024. The objectives of due diligence are threefold: human rights, environment, and responsible governance.

In order to regulate universal auditing, due diligence is carried out in six steps: implementing responsible management; recognizing risk; preventing circumstances; following up; informing and correcting.

It is characteristic that the programming of due diligence provides for the development of standard audit forms, which achieves uniformity in terms of the indicators being checked and the audited organizations.

Subject of this article is the application of due diligence in auditing textile enterprises.

Goal of the development is to explore the principles of this new approach and enable its accelerated implementation in the textile and apparel industry.

Keywords: *textile enterpirise, audit, due diligence*

https://doi.org/10.53230/tgm.1310-912x.2025.1006.06

MANUAL OPERATIONS CLASSIFICATION IN PRIMARY TEXTILE AND SEWING TECHNIQUES

Hamid Hamid Benvedi[1], Ivelin Rahnev[2]
[1]South-West University "Neofit Rilski", 66 Ivan Mihaylov str., 2700, Blagoevgrad, Bulgaria
[2]E. Miroglio EAD – Sliven, Bulgaria
Ivelin.Rahnev@emiroglio.com

Since the inception of industrial textiles two and a half centuries ago, human participation in the production process has been steadily decreasing. Now, like an impregnable fortress, there remain those operations that represent a direct link between primary techniques and manual actions. In the overall sequence of multiple operations for producing yarn, the critical transition from twisting fibrous sheaf to spun thread inevitably requires delicate human intervention. A similar need is observed in maintaining the order of crossing the weaving threads. Analog connections of direct need for human intervention in technological processes are established in all textile and clothing techniques. The attention to manipulations in textile production is caused by the objective reduction of labour resources in the industry and the need for effective training and professional preparation of machine technicians and operators. The subject of the article is the orderly description of the indispensable manual influences in textile and clothing techniques. Five factors distinguish the groups in the classification:

- Type of technique: spinning, weaving, finishing and sewing;
- Depth of contact: observation, impact on working organs, contact with fibrous material;
- Use of human organs: vision, legs, hands;
- Application of additional devices: threading or sewing hooks, scissors, magnifying glasses;
- Impact of the process: loading, recovery and grading.

The resulting classification allows for the assessment of jobs in the textile industry, the reduction of manual labour, and the development of up-to-date teaching aids in the field of vocational education and training.

Present work carries out planned activities by project No. 2025-1-BG01-KA210-ADU-000363229 under the Erasmus+ program with the operating organization of the National Agency for Human Resources Development Centre in Sofia.

Keywords: *primary textile techniques, manual operations*

Topic №7,
Innovations in Textile Education

UDC 377
Special Education. Vocational education. Vocational schools

UDC 378
Higher Education / Higher Education Institutions


НАУЧНО-ТЕХНИЧЕСКИ СЪЮЗ
ПО ТЕКСТИЛ, ОБЛЕКЛО И КОЖИ
ОРГАНИЗИРА
ЕРАЗЪМ+: 2025-1-BG01-KA210-ADU-000363229
ПРОЕКТ УЧЕБНА РАБОТИЛНИЦА ЗА ПЪРВИЧНИ ТЕКСТИЛНИ ТЕХНИКИ
LEARNING WORKSHOP FOR FUNDAMENTAL TEXTILE TECHNIQUES
СЕМИНАР № 1/6.
ОБЩИ ПОНЯТИЯ, ОПЕРАЦИИ И ПРОЦЕСИ В ТЕКСТИЛНАТА ТЕХНИКА
GENERAL CONCEPTS, OPERATIONS AND PROCESSES IN
TEXTILE TECHNOLOGY
Erasmus+
С ВОДЕЩАТА РОЛЯ НА
НБУ – София, Департамент „Изкуства и дизайн"
и сътрудничеството с партньорите
15 - 17 октомври 2025 г., УЦ Бачиново, Благоевград
Обхват и примерна тематика на докладите:
İTÜ
www.tok-ntok.bg

https://doi.org/10.53230/tgm.1310-912x.2025.1007.01

THREADS OF MEMORY – LIFESTYLE AND CULTURE IN THE VILLAGE OF DRAGINOVO

Elka Tsankova Djurakova
"Methodiy Draginov" Secondary School – Draginovo village,
Velingrad municipality, Bulgaria
elkadjurakova@abv.bg

There, in the northern part of the Chepina Valley, 3 km north of Velingrad, surrounded by deciduous and coniferous forests, colorful fields and meadows, clear rivers, cold and warm mineral springs and clean air, is the village of Draginovo. The aim of this work is to present a small historical museum located in the "Methodiy Draginov" Community Center - the village of Draginovo. The creation of the museum has a nearly 10-year history. Its main goal is to preserve the authenticity of the village of Draginovo, to inform generations about the life, customs, clothing and traditions of the Velingrad village and the Chepino region. The ethnographic room exhibits typical village costumes, ceramic vessels, labor equipment, utensils, blankets and bedding, wool combs, a loom and others, provided entirely by the local population. We emphasize the Draginovo folk costume, which has shown its stable traditional forms that have survived to this day. This is due to the geographical location and long economic backwardness, which have reinforced domestic conservatism. The clothing of men - "wanderers" - developed more rapidly and became closer to the national style. The distinguishing marks are more noticeable on the hats. Among women who led a secluded life, the costume had great variety and was preserved for a longer time, reaching the present day. We are looking at men's clothing, which was in the black-robed type and has a great variety. According to the craft, material condition and age, it is: everyday, work, shepherd, craft, for the poor and the rich, for the old and the young, for children and babies. The shirt is a basic element, regardless of social, age and professional differences. It is used for outerwear and underwear. It is made from homemade white fabric without shoulder stitching. The pants are also made of homemade fabric. The leggings gradually narrow at the bottom, and are finished with a knitted drawstring at the top. An aba made of natural black or beige homespun cloth and long sleeves is worn over the shirt. The edges are decorated with braids. They wear "chikshire" (pants Turks), which are finished at the top with a "vorkozun" for tying at the waist. The feet are shod with black or white woolen socks, followed by cowhide boots. The cross is wrapped with a black belt. During cold winter days and in rainy weather, a yamorluk was worn made of rough homespun cloth, woven from fur mixed with a little wool and heavily quilted to make it thicker and protect against the rain. There is a great deal of variety in hat wearing. The most widely used is the knitted hat, also known as a shepherd's hat. All parts are handmade: woven, knitted, embroidered, etc. The subject of this article is to make a comparison between the lives of people in the past and the present. The main task is to preserve the authenticity, traditions and customs of the local population. We emphasize the weaving loom, which played an important role in women's lives. It was used to make both part of the bride's clothing and her veil. It is important to make a comparison between the hand-made craftsmanship of the past and the current industrial craftsmanship with modern technological equipment in sewing production.

https://doi.org/10.53230/tgm.1310-912x.2025.1007.02

IMPORTANCE OF MANUAL SKILLS IN TEACHING WEAVING TECHNIQUES

Sylvie Boyer[1], Ivelin Rahnev[2]
[1]Tissage d'Art & Formations, 1 rue Bombecul, 47140 Penne d'Agenais, France
[2]E. Miroglio EAD – Sliven, Bulgaria
sylvieboyer47@aol.com

In both the industrial and the craft, artistic forms of weaving, the indispensable human intervention is established.

Two operations stand out clearly, in which competence, observation and manual skills allow the normal course of the weaving process. In the preparation of weaving threads, as well as during the weaving cycle, it is necessary to restore a broken thread.

First of all, it is necessary to know the location of the broken thread in the thread guides from the warping cones frame to the reed's teeth of the loom. Any random threading of a weaving thread and the eventually error will result in incorrect weaving, repairs, and a decrease in overall efficiency.

In second place is careful observation through visual control. The usual density of 3 weaving threads per millimetre requires detection of any deviation and maintenance of the specified thread order and fabric structure. Thirdly and most importantly, the manual skill to perform the necessary operation to restore a broken thread is essential. In some cases, the manipulations require the use of additional tools, such as threading hooks, for example. This implies mastered actions not only with weaving threads, but also with specific tools that have application only in weaving techniques. The core of the manual skills consists of connecting the ends of the broken threads using knots. Weaving knots have emerged as a separate category of hand-made mechanical connections, or splices. Weaving knots must be strong against the loads, especially on the warp threads. Furthermore, the knots must be of a minimum size to sink into the fabric structure, and the residual ends must be long enough to remain visible for removal when grading or cleaning the raw fabric.

All of these personal abilities build weaving skills for autonomous work, but can be acquired through personal experience on operational equipment under the guidance of a training organization with leading teachers.

The subject of the article is the set of knowledge, visual and manual skills for carrying out the weaving process.

The development was carried out in implementation of a project under the Erasmus+ program: 2024-1-BG01-KA122-ADU-000232194 "European mobility for the restoration and preservation of artisanal hand-weaving of household fabrics" with the operating organization of the National Agency for Human Resources Development Centre in Sofia.

Keywords: *textile craft, hand weaving, training*

https://doi.org/10.53230/tgm.1310-912x.2025.1007.03

APPLICATION OF ERASMUS+ PARTNERSHIP IN VET OF TEXTILE TECHNIQUES

Ivelin Rahnev
E. Miroglio EAD, Sliven, Bulgaria
Ivelin.Rahnev@emiroglio.com

After several attempts, the Scientific Engineering Union for Textiles, Garment and Leathers was given the oppotunity to coordinate cooperation in the field of primary textile techniques.
One of the essential features of collaboration lies in the diversity of participants.

Nine partners from 4 countries participate in the project: Bulgaria, France, Turkey and Serbia.

The organizations represent three groups of educational institutions.

University units include the textile departments of the New Bulgarian University in Sofia, the Istanbul Technical University and the Leskovac Faculty of Technology.
Specialized secondary education is represented by the PGTO "Dobri Zhelyazkov" and the National Art School "Dimitar Dobrovich" in Sliven, and the PGD "Ivan Vazov" in Velingrad.

A unifying element in vocational training for adults is the "Tissage d'Art et formation" training workshop in Penne d'Agenais and the Centre of vocational training at FNTS in Sofia.

The main idea of the upcoming work is to extract and descriptively express the primary textile techniques, as an indispensable prototype of the contemporary variety of processes and operations in textile technology. Such techniques in spinning are the formation and twisting of the fibrous sheaf, the crossing of threads in weaving, the finishing of raw fabrics, as well as the technological connection between the properties of fibres and the application of clothing.

The organizational forms of the partnership provide for the holding of six seminars for reporting on the stages of the project and two meetings for planning and reporting on the collaboration.

For the year and a half of the project, the expected results include articles, teaching tools and programs that compose a monograph with the main parameters for building a training workshop for primary textile techniques.

The partnership is united by project No. 2025-1-BG01-KA210-ADU-000363229 under the Erasmus+ program with the operating organization of the National Agency for Human Resources Development Centre in Sofia.

Keywords: *primary textile techniques, vocational training*

XXVII НАЦИОНАЛНА ТЕКСТИЛНА КОНФЕРЕНЦИЯ С МЕЖДУНАРОДНО УЧАСТИЕ
„Традиции и иновации в текстила и облеклото“

В периода 16 – 18 октомври 2025 година в Университетския център „Бачиново“ на ЮЗУ „Неофит Рилски“ се проведе XXVII национална конференция с международно участие „Традиции и иновации в текстила и облеклото“. Форумът се организира ежегодно от Научно-техническия съюз по текстил, облекло и кожи със сътрудничеството на катедрите по текстил и дизайн във висшите училища в България.

Водеща организация на събитието тази година беше катедра „Машинно инженерство“, водеща обучение по специалност „Дизайн и технологии за облекло и текстил“ в Техническия факултет на ЮЗУ „Неофит Рилски“.

В научния форум, който се проведе присъствено, взеха участие над 80 студенти, докторанти, специалисти, преподаватели и учени от висши училища у нас и в чужбина, от професионалните гимназии по дизайн, текстил и облекло, от Института по полимери на БАН, Института по отбрана „Проф. Цветан Лазаров“, от висши училища във Виетнам, Северна Македония, Турция, Сърбия, Тунис, Германия и Албания. Онлайн се включиха студенти, докторанти и учени от Ханойския университет по наука и технологии, Техническия университет в Дрезден, Школата по художествено тъкане в град Пен д‘Ажене, Франция и други.

Конференцията беше открита от декана на Техническия факултет проф. д-р инж. Снежина Андонова. В приветственото си слово тя подчерта, че за целия преподавателски колегиум на факултета е чест и удоволствие за поредна година да работят в екип с Научно-техническия съюз по текстил, облекло и кожи.

Научното събитие се провежда и с подкрепата на Фонд „Научни изследвания“ по проект КП-06-МНФ/23/ 13.08.2025 г. с допустим кандидат ЮЗУ „Неофит Рилски“ по инициатива на Научно-техническия съюз по текстил, облекло и кожи. Значимостта на този традиционен научен форум за всички специалисти в областта на дизайна, текстила и облеклото у нас се дължи на подкрепата на спонсорите на конференцията „Е. Миролио“ ЕАД – Сливен, „Пиринтекс“ ЕООД – Гоце Делчев, „Лемприер Уул“ ЕООД – Сливен, както и на домакините на събитието.

Работата на конференцията започна с кръгла маса на тема „Кадрово осигуряване на текстилната професия“ с модератор доц. Ивелин Рахнев, председател на НТС по ТОК. Основни тематични изказвания бяха направени от г-н Ивайло Стефанов – главен експерт в дирекция „Икономическа политика към Министерството на икономиката и индустрията, и инж. Фани Тодорова – държавен експерт в дирекция „Професионално образование и обучение“ към Министерството на образованието и науката.

В научните сесии бяха представени доклади, свързани с новите влакнести суровини и съвременни химични технологии в текстила; антимикробни текстили и други иновационни технологии в текстилното и шевно производство; съвременното текстилно изкуство, модата, композицията; управлението, маркетинга и устойчивото развитие в съвременното шевно и

текстилно производство, както и актуални методи и форми на обучение в областта на текстила и облеклото.

Образователната част на конференцията започна с модно ревю на колекции, организирано от специалност „Дизайн и технологии за облекло и текстил“ в Техническия факултет на ЮЗУ „Неофит Рилски“. В станалото традиционно за конференцията ревю, и като заключителна част от 16-ия Национален младежки конкурс „Най-добра дипломна работа и курсов проект в областта на текстила и облеклото 2025“ с колекции се представиха възпитаниците от катедрите „Изобразително изкуство“ и „Машинно инженерство“ на ЮЗУ „Неофит Рилски“, департамент „Изкуство и дизайн“ на НБУ – София, ПГО “Княгиня Мария Луиза“ – София и Иновативно средно училище „Методи Драгинов“ – с. Драгиново.

На конференцията бяха представени 50 научни доклади, чиито разширени резюмета са публикувани в брой №10/2025 година на списание Текстил и облекло. Пълният текст на статиите е включен издателската програма на списанието през 2025 и 2026 година.
Научните доклади бяха разработени в университетските звена на ХТМУ – София, НБУ – София, ЮЗУ – Благоевград, ЛБАП на ИП при БАН – София и ИО „проф. Цветан Лазаров“ – София.

В рамките на научните сесии на конференцията бяха изнесени доклади от семинар на тема „Общи понятия, операции и процеси в текстилната техника“ по проект 2025-1-BG01-KA210-ADU-000363229 на програмата Еразъм+ „Учебна работилница за първични текстилни техники“ на НТС по ТОК, като координатор, и ЦРЧР – София като национална агенция.

Конференцията включи социална програма с официална вечеря и множество дискусии в кафе-паузите и есенните разходки по алеите на парк Бачиново край Благоевград.

Благоевград, 18.10.2025
НТС по ТОК

Списание Текстил и облекло
БРОЙ 10/2025

РЕДАКЦИОННА КОЛЕГИЯ

ЧУЖДЕСТРАНЕН НАУЧЕН КОМИТЕТ

ИНФОРМАЦИЯ ЗА АВТОРИТЕ

ПРАВИЛА ЗА ДЕПОЗИРАНЕ И ПУБЛИКУВАНЕ НА СТАТИИ

Подаването на докладите трябва да се адресира до редакцията на имейл: textilejournal.editor@fnts.bg
Докладите трябва да са написани на български език от български автори и на английски (работен език за чуждестранните автори).

Споразумение за прехвърляне на авторски права трябва да бъде подписано и върнато на нашата редакция по поща, факс или имейл, колкото е възможно по-скоро, след предварителното приемане на доклада. С подписването на това споразумение авторите гарантират, че целият труд е оригинален и не е бил публикуван, изпращан е само в списанието и че целият текст, данни, фигури и таблици, включени в труда са оригинални и непубликувани преди това или подавани другаде в каквато и да е форма. Процесът на рецензиране започва след получаване на този документ. В случай, че докладът вече е представян, той може да бъде публикуван в нашето списание, само ако не е бил публикуван в общодостъпни материали от конференцията; при такава ситуация трябва да се направи съответното изявление, което се поставя в редакционните бележки в края на статията.

Общи стил и оформление

Обемът на доклада не трябва да надвишава 12 стандартни страници (А4) в една колона (страница от 3600 знака), вкл. таблици и фигури. Форматът е MS Office Word (normal layout). Рецензентите си запазват правото да съкратят статията, ако е необходимо, както и да променят заглавията.

Заглавието на доклада не трябва да надвишава 120 знака.

Пълните имена на авторите, както и пълните наименования на институциите, в които работят - факултети, катедри, университети, институти, компании, град и държава трябва да са ясно посочени. Авторът за кореспонденция и неговият имейл трябва да бъдат също така указани.

Резюмето на доклада е задължително и не трябва да надвишава 250 думи.

Ключовите думи трябва да са в рамките на 4 до 6.

Формулите се номерират в последователен ред (с арабски цифри) и трябва да са споменавани в текста.

Фигурите се вграждат директно в текста в **формат JPG с минимум 300 dpi**. **Фигурите** трябва да са номерирани, със заглавие и обяснителен текст.

Таблиците също се вграждат в текста, номерират се последователно и се озаглавяват над самата таблица.
Повтарянето на информация трябва да се избягва.

Препратки: всички препратки в текста трябва да се цитират с числова последователност по ред на появяване в текста (изписвани чрез арабски цифри в латински скоби, напр. [1]) и изписани цифри в квадратни скоби според системата Ванкувър.

ТЕКСТИЛ И ОБЛЕКЛО

НСТ по текстил, облекло и кожи

www.tok.fnts.bg

БРОЙ 10/2025

XXVII НАЦИОНАЛНА ТЕКСТИЛНА КОНФЕРЕНЦИЯ 2025 "ТРАДИЦИИ И ИНОВАЦИИ В ТЕКСТИЛА И ОБЛЕКЛОТО

Настоящият сборник с разширени резюмета от 27-та Национална текстилна конференция е издаден с подкрепата на Фонд Научни Изследвания в България по проект КП-06-МНФ/23 от 13.08.2025 г.

Адрес на редакцията:
1000 София, ул. "Г. С. Раковски" 108, стая 407, тел. 02 980 30 45
e-mail: textilejournal.editor@fnts.bg
www.bgtextilepublisher.org

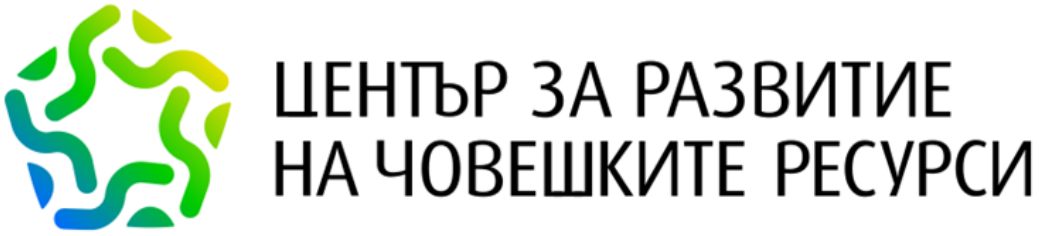
Банкова сметка:
НТС ПО ТЕКСТИЛ, ОБЛЕКЛО И КОЖИ
ИН по ДДС: BG 121111930
Сметка IBAN: BG43 UNCR 9660 1010 6722 00

ISSN 1310-912X (Print)
ISSN 2603-302X (Online)
https://doi.org/10.53230/tgm.1310-912X.2025.1000
COBISS.BG-ID – 74291208
https://randii.nacid.bg/register/search/1987


НАУЧНО-ТЕХНИЧЕСКИ СЪЮЗ ПО ТЕКСТИЛ, ОБЛЕКЛО И КОЖА
ОРГАНИЗИРА
ОРГАНИЗИРА
XXVII НАЦИОНАЛНА ТЕКСТИЛНА КОНФЕРЕНЦИЯ 2025
ТРАДИЦИИ И ИНОВАЦИИ В ТЕКСТИЛА И ОБЛЕКЛОТО


ФОНД
НАУЧНИ
ИЗСЛЕДВАНИЯ
МИНИСТЕРСТВО НА ОБРАЗОВАНИЕТО И НАУКАТА


Funded by
the European Union


ЦЕНТЪР ЗА РАЗВИТИЕ
НА ЧОВЕШКИТЕ РЕСУРСИ