

NITRA NEWS

...with industry always



Issue: Jan. - March, 2024

Insight

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Editorial Structure

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Dr. Arindam Basu

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Partha Basu

FROM DIRECTOR GENERAL'S DESK



Dear Patrons,

The last quarter of this fiscal (Apr.23 – Mar.24) has come to an end now. While we look forward to the next one, we sincerely hope that all our esteemed patrons have had excellent performance in terms of business operations and achieving business goals during the fiscal gone by. Friends, we are very glad to inform that this year NITRA steps into its golden jubilee year. Many of you may recall that NITRA was established in 1974, jointly by GoI and textile industry. During this glorious journey, NITRA carved a niche for itself while serving both the Indian and International textile industry. The organization provided yeoman service to the textile and allied industry in the fields of R&D, product development, technical consultancy, technical training, material testing, technical publication and many more through a bouquet of more than 1200 satisfied clients. To add another feather to its cap, NITRA is recognized by CII as one of the top 5 Innovative Institutes in India this year and was recognized as one of top 3 last year. As a testimony to that, today NITRA is enriched with numerous projects and commercialized product development, 30 patented and to be patented technologies, numerous internationally acclaimed research papers and many more distinctions. At this moment of great pride, I, on behalf of the management of NITRA, acknowledge all our patrons, clients, Govt. of India, Govt. of Uttar Pradesh and all those who have contributed to NITRA's glorious journey of 50 years. NITRA also assures to provide its dedicated service to the industry in the days to come with more vigour & enthusiasm.

This first quarter of 2024, has been very eventful for NITRA as the annual Research Advisory Committee (RAC) Meeting took place. Prof. R. Chattopadhyay, Emeritus Professor IIT, Delhi chaired the meet in presence of RAC members and other expert panelists from textile-apparel industry and academia. Total 11 R&D projects were presented by NITRA scientists. Panelists had very intensive interactions and came out with many suggestions and ideas.

During this period NITRA also participated in many forums such as 77th All India Textile Conference at IIT, Delhi wherein NITRA senior scientists presented papers. NITRA made a glorious presence at Bharat Tex 2024 at Bharat Mandapam, New Delhi. Hon'ble Smt. Darshana Vikram Jardosh, MoS, MoT, Ms. Rachna Shah, IAS, Secretary, MoT and Mr. Rajeev Saxena, IRS, Jt. Secretary, MoT shown keen interest on NITRA developments during the meet. NITRA also made a mark in National Workshop with Centre of Excellence for Technical Textiles organized by Govt. of Tamil Nadu at Coimbatore.

Besides, NITRA is recently granted a **patent on Method of Manufacturing Thermal Barrier or Linier Using Roving Material**. NITRA, during this period, also signed an MOU with M/s. Ginni Spectra Pvt. Ltd., Jaipur for development of various types of high Clo value for thermal layers using different non-woven fabric making techniques.

While I conclude, I wish you enjoy reading NITRA News.

Regards,

Dr. Arindam Basu
Director General

Northern India Textile Research Association

(Linked to Ministry of Textiles, Government of India)
Sector – 23, Raj Nagar, Ghaziabad – 201 002 (India)



R&D SPECTRUM

Presently, NITRA is working on ten Government sponsored projects :

Government Sponsored Projects - Completed:

- Development of molten metal splash resistant unique jute blend work-wear for steel industry workers (Sponsored by National Jute Board, Ministry of Textiles, GoI)
- Development of Jute composite for automotive acoustic insulation and other uses (Sponsored by National Jute Board, Ministry of Textiles, GoI)

Government Sponsored Projects - On-going:

- Socio-economic development of SC/ST by providing training, technology and market to convert local resources to industrial products (Sponsored by DST, GoI)
- Development of 3D High Performance Knitted Sports Textiles with Thermo-Physiological Comfort and Impact Protective Properties (Sponsored by NTTM, GoI)
- Development of Crop Cover, mulch, soil protection fabrics and other products using Sunnhemp and Banana Fibre (Sponsored by NTTM, GoI)
- Development of Specialized Firefighting Suit (Sponsored by NTTM, GoI)
- Cellulose based indigenous high Clo value and low density surface modified natural fibre for developing thermal layers of extreme cold weather clothing (Sponsored by NTTM, GoI)
- Development of flame retardant Nylon 66 yarn/fibre indigenously (Sponsored by NTTM, GoI)
- Development of Ceramic and UHMWPE Textile Based Hybrid Polymer Composite Armor (Sponsored by NTTM, GoI)

Recently Sanctioned Projects:

- Development of Indigenous State-of-the-art Instruments for Protective Textiles (Sponsoring Agency: NTTM, MoT, Govt. of India)

RESEARCH PAPER PUBLISHED/PRESENTED

| S. No. | Title | Author(s) | Publication/Place | Date |
|--------|---|-----------------------------------|---|--------------------|
| 1. | Optimization of extraction process of unconventional fibres | Arindam Basu & Nidhi Sisodia | 77 th All India Textile Conference, IIT, Delhi | March 16-17, 2024. |
| 2. | Optimization of blend proportion & process parameters to produce virgin cotton/ recycled cotton yarns | Arindam Basu & Lalit Giri Goswami | 77 th All India Textile Conference, IIT, Delhi | March 16-17, 2024. |

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|-----|---|--|--|-----------------------|
| 3. | Exploring the possibilities of sunhemp & banana fibres in Agrotech | Arindam Basu, A.K. Pandey & Nidhi Sisodia | 77 th All India Textile Conference, IIT, Delhi | March 16-17, 2024. |
| 4. | Protective Textiles and its future in India | Arindam Basu | National Workshop on Technical Textiles with Centres of Excellence, Coimbatore | March 16-17, 2024. |
| 5. | High Thermal resistant surface modified cellulosic fibre for extreme climate clothing | M.S. Parmar, Preeti Kaur Sachdeva, Nidhi Sisodia | 77 th All India Textile Conference, IIT, Delhi | March 16-17, 2024. |
| 6. | Machine learning based Development and Evaluation of a Hand Exoskeleton Rehabilitation Robot for Patients with Partial Paralysis | Anand Prakash Srivastava | 2nd International Conference on Disruptive Technologies (ICDT-2024) | March 15-16, 2024 |
| 7. | Deployment of an Advanced Wi-Fi Data Firewall System to Enhance Security in the IoT Ecosystem | B. Thankachan, Hilda Jerlin C M, Rakshit Kothari, K K Dewan, G R Kumar, Shashikant | 3rd International Conference on Sentiment Analysis and Deep Learning ICSADL 2024 hosted by Far Western University, Nepal | March 13 – 14, 2024 |
| 8. | Development of Eco-friendly Automotive Textiles for Acoustic purpose | Arindam Basu, Neha Kapil & Preeti Kaur Sachdeva | International Journal of Engineering Research & Technology (IJERT) | March, 2024 |
| 9. | Protective Textiles & its scope in India | Arindam Basu | Seminar on Protech Textiles Advancement & Adaptability, BharatTex 2024, New Delhi | February 28, 2024. |
| 10. | Implementation of a Vision-Based Access Control System for Enhanced Security and Environmental Protection in Sensitive and Protected Forest Areas | Divya Pachauri | 5 th 2024 IEEE International Conference on Computing, Power and Communication Technologies (IC2PCT) | February 9 – 10, 2024 |
| 11. | A System Security Strategy Implementation for Secured Data Communication System | Nitin Kumar Sharma | 5 th 2024 IEEE International Conference on Computing, Power and Communication Technologies (IC2PCT) | February 9 – 10, 2024 |
| 12. | A Novel Method For Quantifying The Blend Ratio Of Cotton And Jute Fibers”, Sustainable Technologies and Circularity in Textile Value Chain - The Global Perspective | Indu Gupta & M.S. Parmar | International Textile Conference (ITC)-2024, organized by SSM College of Engineering | February 8-9, 2024 |

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| 13. | A chapter on Light-Weight Indigenously Developed Firefighter Suit | M. S. Parmar & Nidhi Sisodia | Proceedings of 3rd International Conference on Functional Textiles & Clothing 2023. Edited by Deepti Gupta, Abhijit Majumdar & Sanjay Gupta, Springer Nature Singapore Pvt. Ltd. 2024 | Springer Proceedings in Materials, Vol 4, page 3, 2024 |
| 14. | An Analytical Comparison of various Machine Learning Algorithms for Effective Decision Making | B. K. Sharma | 14 th International Conference on Cloud Computing and Data Science Engineering, (IEEE), Organized by Amity University, Noida. | January 18-19, 2024 |
| 15. | Dynamic Convolution Layer Based Optimization Techniques for Object Classification and Semantic Segmentation | Jasvinder Singh & B. K. Sharma | Journal of Autonomous Intelligence. Vol. 7, Issue 3, Page No 1- 18 | January 9, 2024 |

CONSULTANCY CORNER

Inspection: Polycarbonate Shield (3 units), Coat Combat (2 units), Shirting Angola (1 unit), Terry Towel (2 units), Woollen Jersey (3 units), Blanket - Dark Blue-(2 units) , T Shirt Round Neck Disruptive Pattern (4 units), Cloth Gabardine (2 units), Cloth Cotton Drill Mineral Khaki ((1 unit), Mattress Glacier (1 unit), Rucksack 90 ltrs (1 unit), Cloth Serge Dress (1 unit), Vest Thermal (1 unit), Large Riot Control Helmet (1 unit), and Cloth Disruptive Pattern (1 unit)

Manpower Audit: Manpower Audit (2 units)

Process Audit: Process Audit (1 unit)

HRD FOCUS

Training Program/Workshop/Seminar organized by NITRA

- ❖ During the reported period NITRA Technical Campus organized an online training program on Hands-on Generative AI Workshop for its CSE and AIML students.
- ❖ During the reported period NITRA Technical Campus organized an online training program on Cyber Security & Blockchain Integration for its CSE and AIML students.
- ❖ During the reported period NITRA Technical Campus organized a program on Entrepreneurship and Start ups for 3rd and 4th year B.Tech students and faculty members. The program was conducted by Dr. Ashutosh Sahi, Associate Professor, NIFT Delhi and Chief Operating Officer, NIFT Foundation Design Innovation Centre, Dr. Namrata Sahi, Director and Mr. Sandeep Sen CEO of startup “Sahifab Private Limited”, New Delhi.

TESTING ZONE

During the period, total 1578 samples were tested in all the labs as per following table:

| S. No. | Lab Name | No. of samples tested |
|--------|----------------------------------|-----------------------|
| 1 | Physical Quality Evaluation Lab | 774 |
| 2 | Chemical Quality Evaluation Lab | 440 |
| 3 | Heat & Flame/Microbiology Lab | |
| 4 | Polymer & Technical Textiles Lab | 270 |
| 5 | Eco Lab | 38 |
| 6 | Environment Lab | 56 |

Total No of Fabric Defect Analysis under taken during the period: 04.

GLIMPSES

Research Advisory Committee (RAC) Meeting at NITRA, Ghaziabad



24th RAC meeting was held at NITRA on January 20, 2024. NITRA scientists presented 11 R&D projects to the august gathering consisting of experts from textile and apparel industry and academia (RAC members & special invitees). Developmental projects were aimed for steel industry / automotive industry / armour sector /specialized fire suits/agro textiles/extreme cold

climate clothing/protective textiles/ sports textiles / development of nylon 66/ conversion of natural resources to industrial products/sustainability etc.. Dr. Arindam Basu, DG NITRA, in his welcome address, emphasized that NITRA's belief has always been to conduct R&D in the area which are directly going to benefit textile and apparel industry. Meeting was chaired by Prof. R. Chattopadhyay, Emeritus Professor IIT, Delhi. Dr. M.S. Parmar, Director NITRA delivered the vote of thanks.

NITRA Scientists Present Research Papers in 77th All India Textile Conference

Paper presented by Dr. Arindam Basu, Director General, NITRA

Optimization of Blend proportion and process parameters to produce virgin cotton/recycled cotton yarns - *Arindam Basu and Lalit Giri Goswami*

Paper presented by Dr. M.S. Parmar, Director, NITRA

High thermal resistant surface modified cellulosic fibre for extreme cold climate clothing-*M.S.Parmar, Preeti Kaur Sachdeva and Nidhi Sisodia*

Paper presented by Dr. Nidhi Sisodia, Senior Scientific Officer, NITRA

Exploring the possibilities of sunnhemp and banana fibres in agrotech- *Arindam Basu, A.K.Pandey and Nidhi Sisodia*

Optimization of extraction process for unconventional fibres- *Arindam Basu and Nidhi Sisodia*



Textile Association of India Recognizes NITRA Scientists



NITRA's Glorious Presence at Bharat Tex 2024 at Bharat Mandapam, New Delhi

Hon'ble Smt. Darshana Vikram Jardosh, MoS, MoT, Ms. Rachna Shah, IAS, Secretary, MoT and Mr. Rajeev Saxena, IRS, Jt. Secretary, MoT and Dignities of Textile Sector shown keen interest in NITRA development under NNTM and appreciate NITRA R&D activities at Bharat Tex 2024.



Dr. Arindam Basu, DG NITRA Moderates Interactive Session on “Achieving Excellence: Green Practices & Innovative Material Management” at Bharat Tex 2024 on February 26, 2024

NITRA at National Workshop with Centre of Excellence For Technical Textiles organized by Government of Tamil Nadu at Coimbatore

Dr. Arindam Basu, DG NITRA Moderates a Session on “Interaction with the entrepreneurs on their journey in technical textile segments” at the workshop on February 2, 2024.



Dr. Arindam Basu, DG NITRA also Deliberates on scope, opportunities, product development, facilities and industry support in protective textiles at the workshop on February 2, 2024.



NITRA Signs MOU

On February 28, 2024 with M/s. Ginni Spectra Pvt. Ltd., Jaipur for development of various types of high Clo value for thermal layers using different non-woven fabric making techniques.



NTC Students Qualify GATE 2024

Mr. Rishabh Pandey, B. Tech student, Branch: Textile Chemistry (2017-2021) and Mr. Pratham Tayal, B. Tech student, Branch: Textile Technology (2020-2024) have qualified in 4th and 183rd rank respectively in the prestigious GATE Examination 2024.

NTC Pass-out Students Galore with Great Enthusiasm at Alumni Meet 2024



Placement Activities (B. Tech) at NITRA Technical Campus

| S. No. | Recruiting Company | Branch | Student's Name |
|--------|------------------------------|--------|---|
| 1. | RSJ Inspections | TT | Prateet Anand |
| 2. | Avanti Overseas, Noida | TT | Annu Maurya, Prakshi Sharma, and Shikha Solanki |
| 3. | Maral Overseas | TT | Harsh and Yogesh |
| 6. | DiracERP Solutions Pvt. Ltd. | CSE | Om Prakash Kushwaha, Mayank Yadav , Pratibha, Sanjay, and Vaishali Gautam |

Patent granted

- ❖ A patent is recently granted on Method of Manufacturing Thermal Barrier or Liner Using Roving Material (Indian Patent No. 502720 of 24.01.2024)

Patents applied

- ❖ A patent in Automotive component and process for manufacturing thereof from waste jute blends for automotive application, patent application No. 202311082687 dated 5.12.2023
- ❖ Method of manufacturing jute based fabric for protection against Molten Metal Splash, patent application No. 202311082688 dated 5.12.2023
- ❖ IOT based smart milk pan, patent application no. 202311067403 dated 7.10.2023
- ❖ Blockchain based authentication system for IOT networks, patent application No. 202341066014 dated 2.10.2023

Memorandum of Understanding (MoU) signed

- ❖ On February 28, 2024 with M/s. Ginni Spectra Pvt. Ltd., Jaipur for development of various types of high Clo value for thermal layers using different non-woven fabric making techniques.

NITRA Celebrates Golden Jubilee Year (1974-2024)



India's premier Textile Research Association (TRA) NITRA, established in 1974, jointly by GoI and textile industry, steps into its golden jubilee year in 2024. During this glorious journey, NITRA carved a niche for itself while serving both the Indian and international textile industry. It provided yeoman service in the fields of R&D, product development, technical consultancy, technical training, material testing, technical publication and many more to a bouquet of 1200 satisfied clients. As a testimony to that, today NITRA is enriched with numerous projects and commercialized product development, 30 patented and to be patented technologies, numerous internationally acclaimed research papers and many more distinctions. To add another feather to its cap, NITRA is recognized by CII as one of the top 5 Innovative Institutes in India for two successive years. NITRA's academic wing NITRA Technical Campus (NTC) today is a prime B.Tech College in Delhi, NCR and UP. In this moment of great pride, the management of NITRA acknowledges its patrons, clients, Govt. of India, Govt. of Uttar Pradesh and all those who have contributed to NITRA's glorious journey of 50 years. NITRA also assures to provide its dedicated service to the industry in the days to come.

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