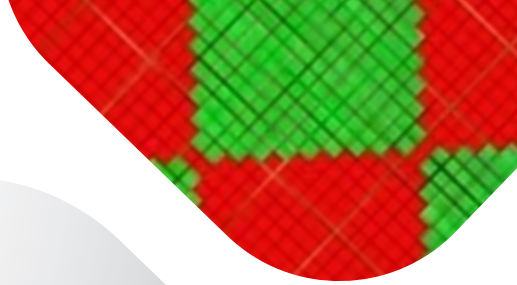

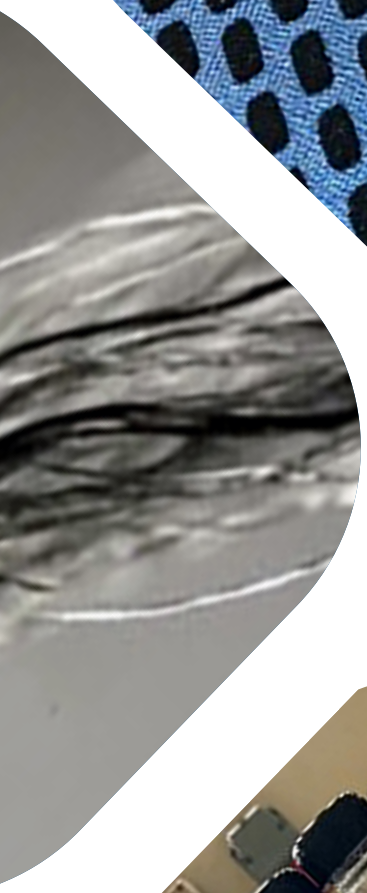

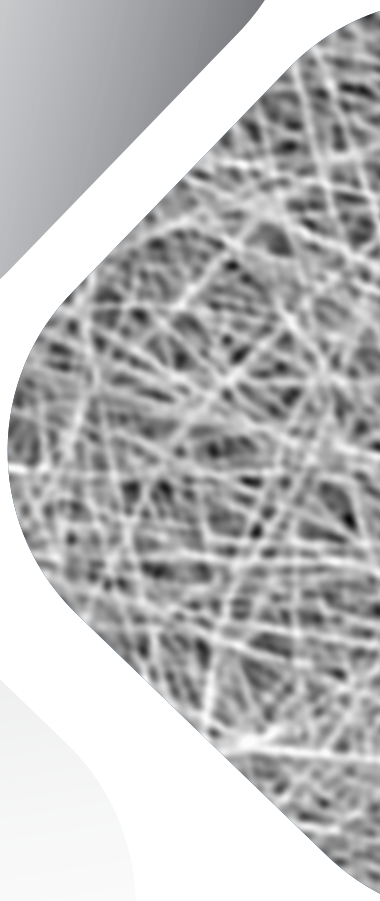

Textile Engineering Research Symposium

Proceedings

August 2023

Department of
Textile and Apparel Engineering

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TERS2023

TEXTILE ENGINEERING RESEARCH

SYMPOSIUM 2023

31st August 2023, University of Moratuwa.

Organized by

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Sri Lanka

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Abstracts

Message from the Symposium Chair

Dr. Gayani K. Nandasiri
University of Moratuwa,
Sri Lanka

It is with great pleasure that I am welcoming all the participants to the very first Textile Engineering Research Symposium (TERS 2023) organized by the Department of Textile and Apparel Engineering University of Moratuwa. With the vision of promoting research in emerging fields of Textile and Apparel Engineering we organized the inaugural research symposium as a meeting place of young talents and industry experts. Thus, we trust this will provide the much-needed connection between the industry and the university academics, the researchers to embark towards product incubation.

The symposium was mainly focused on the Design/ Research projects of the final year undergraduates of the intakes 2018, 2017 and 2016 of the Department of Textile and Apparel Engineering. It accepted extended abstracts under 15 thematic areas including traditional textile processes, current trends in textiles, innovative technologies towards futuristics textiles and apparel.

I would like to take this opportunity to firstly thank Twinery-Innovations by MAS team for coming forward as the main sponsor for the event, by helping to promote research culture and helping the students to showcase their talents. Further, I wish to extend my sincere gratitude to MAS Capital team for Co- sponsoring the refreshments for the event. I would like to thank the symposium committee of TERS 2023 who was instrumental in bringing this into a reality. Further, I would like to extend my gratitude towards the scientific committee members for their untiring efforts in reviewing the submitted extended abstracts and providing constructive feedback.

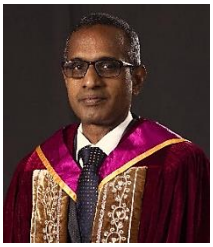
I would like to thank our keynote speaker for the event, Ms. Sithila Dassanayake for the inspiring address on "innovation + Textiles", which provided insights into enhancing the functionalities of textiles with crafting a future that enhances the quality of life for people globally.

Finally, I would like to acknowledge all the authors who have contributed to the TERS2023, we had about 20 extended abstracts submitted out of which 16 were selected to be presented at the TERS2023. Thank you for your wonderful scientific contributions to the symposium.

Dr. Gayani K. Nandasiri.
Symposium chair- TERS2023
Department of Textile and Apparel Engineering
University of Moratuwa.

Symposium Committee: TERS2023

Prof. Sandun Fernando



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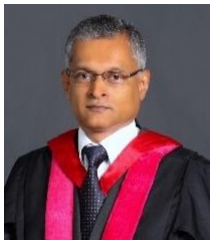

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Keynote: Innovation in Textiles

Ms. Sithila Dassanayake
Director of Technology Innovation,
Twinery by MAS

Why Innovation is Critical in this Industry

The textile industry is facing a number of challenges, including being environmentally Sustainable and catering to the changing needs of consumers. Innovation is essential for the industry to address these challenges and remain economically and ecologically sustainable in the long run.

Environmental Sustainability - Is it a trendy language or a massive responsibility?

The textile industry is a major polluter responsible for significant use of non-renewable resources, water, and air pollution, as well as greenhouse gas emissions. These are just the current facts. However, for how long is this level of resource consumption sustainable? Innovation is needed to develop more sustainable materials, production processes and business models.

Global trends influenced by changing consumer needs

Consumers are becoming more aware of the environmental impact of their clothing choices at all stages of the production and post use processes. The capsule wardrobes with functional yet fashionable materials is becoming a key trend. Consumers increasingly look for apparel to be much more than a nice drape, expecting products to support them in their active lifestyle. All in all, they demand more sustainable and ethical products that improve their life style. Industry has to invest in innovation to serve these under-met needs of the future consumer.

Examples of Innovation in the Textile and Apparel by Twinery

- **Infini:** A 100% recyclable polyester bra-cup to replace polyurethane cups, which are currently used in most bras, not recyclable and takes 400 or more years to degrade.

- **Plasma:** Extending the lifespan of garments reduces the landfills while reducing the resource usage needed for new clothing. Use of Plasma Enhanced Chemical Vapor deposition helps garments last longer. This zero water, zero effluent, zero fluorocarbon technology shows great promise.
- **Spryng:** An active calf compression device that improves blood circulation, helping to speed up recovery from exercise. This product helps the wellness-conscious consumer turning to technology for innovative solutions to live a better life.
- **Femography:** Femography is the arm that creates and introduces products which address the unmet needs at different stages of a woman's life, such as puberty, pregnancy and menopause. This initiative offer a range of solutions that are textile-based and reusable, that help women continue their daily lives as usual.

Approach to Innovation

Innovation is not just about developing new technologies. It is also about finding new ways to use existing technologies to solve real problems. It is about taking new solutions to consumers at large, which in-turn beneficial to organizations that invest in innovation.

The Future of the Textile and apparel Industry

The players in the industry cannot continue with business as usual anymore. Either we need to embrace innovation and become more sustainable and ethical, or slowly succumb to non-existence. The future of the