



Topic of the Speech:

Approaches to Development of Thermal Insulation Layers

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Dr. Mohanapriya Venkataraman is a passionate textile material scientist, working as an Assistant Professor at the Department of Material Engineering, Faculty of Textile Engineering, Technical University of Liberec, Czech Republic. Hailing from Chennai, India, she is a holder of a Ph.D. and multiple Post-graduations in Textile Material Engineering, Fashion Technology, and Garment Manufacturing Technology. Her teaching and research areas include Textile Materials, Thermodynamic Analysis, Micro and Nanoporous Materials, Heat Transfer, Polymers, and Composites.

She is a leader and team member of multiple international research projects funded by the EU, the Technology Agency of the Czech Republic (TA ČR), and the Czech Science Foundation (GA ČR). She has authored and co-authored more than 60 scientific papers in peer-reviewed journals; more than 75 conference publications; more than 10 keynote speeches; and more than 30 book chapters. She has won international recognition as “Outstanding Researcher” in multiple forums like SGS, TBIS, etc., Prior to endeavoring into academics and research, she worked as an executive in Material Quality Assurance in an International Textile behemoth. She is certified in ISO, Lean Six Sigma, 5S, Kaizen, and Silverplus Limited brands testing.

She was recently profiled in TA.DI magazine of Technology Agency of the Czech Republic (TA ČR) as 1 of 3 female researchers as an example breaking the stereotype of a traditional scientist. She is an ambassador for INOMICS and “Study in the Czech Republic” initiatives. She is very passionate about woman empowerment and sustainability.

Approaches to Development of Thermal Insulation Layers

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ABSTRACT (NO MORE THAN 500 WORDS:)

Thermal insulative clothing requires specialized construction to ensure the comfort of the wearers. Thermal insulation is expressed in "clo" which is a measurement of clothing comfort under specific climatic conditions. The climatic conditions are influenced by factors like temperature, wind speed, and altitude. For the design and development of thermal clothing, three major parameters are used to select the textile layer composition and thickness. The parameters are fiber type, fabric construction, and thickness. In this study, a multi-pronged approach was taken to develop thermal clothing. The tuning of thickness was carried out by the creation of nonwoven layers or multilayers. In addition, the utilization of IR heat produced by human body by back reflection surface is also explored. The comparison and evaluation of sandwich structures containing thermal insulation layers were done.