

modelled using CATIA V5R16 and analysed via FLUENT.

Finally, good agreement between numerical and experimental values, with an uncertainty value of 11%, of the heat transfer coefficient for plain knitted cotton fabrics was obtained. The results also suggested that the study offers a valuable reference point for further studies on FVM applications to knitted structures.



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## Technical University of Lodz Faculty of Material Technologies and Textile Design

### Department of Clothing Technology and Textronics

The Department was established in 2009, combining the departments of: Clothing Technology and Automation of Textile Processes.

The Department offers research and cooperation within the following fields:

- physical and biophysical properties of clothing (modelling the microclimate under clothing packages)
- creating a basis for engineering fashion design (e.g. actions to improve design processes)
- unconventional structures of clothing with regard to use and manufacturing
- analysis of the operating conditions of machines for clothing production (e.g. optimisation of the gluing parameters process working conditions of sewing threads)
- creating analysis and design processes for the industrial production of garments
- basic problems of general and technical metrology
- instrumentation of measurements, the construction of unique measurement device and system
- measurement and control computer systems, including virtual instruments of the fourth generation
- textronics as synergetic connecting textile technologies with advanced electronic systems and computer science applied in metrology and automatics
- identification of textile and clothing objects with the use of advanced microprocessor measurement techniques
- modelling of objects and their computer simulation, methods of experimental research, especially experiment design of experiments and computer analysis of results

The Department is active in the following educational and scientific fields: textile engineering, pattern design, education of technology and information engineering, materials engineering, health and safety at work, and logistics.

#### For more information please contact:

Department of Clothing Technology and Textronics  
Technical University of Lodz  
ul. Żeromskiego 116, 90-924 Łódź, Poland  
tel.: (48)(42) 631-33-21  
e-mail: maria.kwiatkowska@p.lodz.pl  
web site: <http://www.clozet.p.lodz.pl/>