TBIS

Topic of the Speech:

Research on Dynamic Pressure Distribution of Women Wearing Sports Bra in Running State Based on Co-simulation

Dr. Long Wu

School of Apparel and Art Design
Xi'an Polytechnic University
China

Dr. Long Wu obtained his PhD from the Hong Kong Polytechnic University in 2013. He is currently serving as associate professor in School of Apparel and Art Design of Xi'an Polytechnic University. He teaches subjects about Apparel Production Technique, Apparel Machinery, Anthropometric Technology and Application etc.

As the main participant of the National Natural Science Foundation of China in 2013 (61303120), Dr. Wu carried out research work in Research Center of Apparel Engineering and Technology. Over the last several years, he received outstanding student papers competition award in TBIS 2011 and outstanding research papers competition award in TBIS 2014.

Also, Dr. Wu was a member of the expert committees of the Garment Industry Association in Shaanxi Province between 2016 and 2019. Funded by China Scholarship Council in 2019, Dr. WU became a visiting scholar in the School of Fashion and Textiles at RMIT University in Melbourne, Australia from October 2019 to May 2020.

ABSTRACT SUBMISSION
-FOR INVITED SPEAKER ONLY

TBIS

Research on Dynamic Pressure Distribution of Women Wearing Sports Bra in Running State Based on Co-simulation

Chang-Lin Zhu, Long Wu*, Bo-An Ying, Jing Qi,

School of Apparel and Art Design, Xi'an Polytechnic University, Xi'an, Shaanxi, 710048, P.R. China
*Presenter's email: longwu@xpu.edu.cn

ABSTRACT (NO MORE THAN 500 WORDS:)

In order to research pressure distribution in the state of running for women, a simulation model was established to simulate running movement at different speeds for women wearing the typical tight sports bra using co-simulation method. Through contact analysis between the female breast and the sports bra, the dynamic pressure changes of the sports bra on the human body were obtained during movement. In this research, through the co-simulation interface between Adams and Marc platform, the data were transferred between multi-body dynamics and non-linear finite element simulation, setting up the finite element human body model with sports bra and the multi-body motion model that conveyed the data bi-directionally for repeated iterated operation based on the point of common connection. The validity of the finite element model was conducted by a customed non-contact optical device for capturing body motion. The model established in this paper can predict the breast deformation and pressure distribution at different running speeds.