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Topic of the Speech:

Rotational Motions of Fabric in a Domestic Tumble Dryer under Different Drying Conditions

Professor Xuemei Ding

Donghua University
China

Professor Xuemei Ding graduated from The Hong Kong Polytechnic University with a PhD in textile engineering and joined Donghua University on 2003. She is currently Professor in Textile and Clothing technology on Donghua University. She is also a vice director for Key Laboratory of Clothing Design & Technology (Donghua University). Her main teaching and research interests include Sustainable development in textile industry as well as Theory & technology in fabric care. She has completed more than 40 research projects, which are supported/sponsored by National Natural Science Foundation of China (NSFC), World Wide Fund For Nature (WWF), Ministry of Science and Technology of China (MOST), Science and Technology Commission of Shanghai Municipality (STCSM), Clothing Industry Training Authority of Hong Kong (CITA), Procter & Gamble Co. (P&G), Unilever Co., Invista Textile Co. (INVISTA), BSH Electrical Appliances Co., Ltd. (BSH), HAIER Group, MIDEA Group, Jide Group, Esquel Group, Unilever Co., Panasonic Co. and so on.

She has been invited as keynote speakers and/or session chairs over 40 industrial or academic conferences. She has made numerous contributions including more than 300 academic journal papers, conference papers and book chapters, more than 30 Chinese Patents as well as 8 textile industrial standards.

ABSTRACT SUBMISSION

-For invited speaker only

Rotational Motions of Fabric in a Domestic Tumble Dryer under Different Drying Conditions

Xin-Chen Yu[1,2,3,4], Xue-Mei Ding[1,2,3*]

[1] Fashion Institute, Donghua University, Shanghai 200051;
[2] Shanghai International Institute of Design & Innovation, Shanghai 200080;
[3] Key Laboratory of Clothing Design & Technology (Donghua University), Ministry of Education, Shanghai 200051;
[4] Apparel & Art Design College, Xi'an Polytechnic University, Xi'an, 710048

[*]Presenter's email: fddingxm@dhu.edu.cn

ABSTRACT (NO MORE THAN 500 WORDS:)

Rotational motion of fabric in a domestic tumble dryer plays an important role in fabric heat and mass transfer with hot air. However, little attention has been paid to fabric motion in the radial direction owing to a lack of effective and accurate experimental methods. In this paper, a high-speed detection system has been utilized to track a tracer fabric dyed yellow as it is tumbled amongst other fabrics under different drying conditions, aiming at characterizing the fabric motion in a domestic tumble dryer. The experimental results demonstrate that fabric motion is complicated and can be affected by the size of fabric, mass of drying load, but follows specific patterns. A larger active layer, where fabric falls down freely enhancing the contact between fabric and hot air, was observed with the size of 80 cm*80 cm and the mass of 3 kg. The optimum fabric motion for a rapid and uniform drying can be obtained by controlling the fabric size, mass of drying load under monitoring using high-speed detection system.