

Jintu Fan

Web Bio

Information

Biography

Biographical Statement

Professor Jintu Fan holds a PhD from The University of Leeds (1989) and a Bsc from Donghua University, Shanghai (Originally China Textile University).

Prof. Fan's research is focused on improving the understanding of the interaction between human body, clothing and environment, and on that basis, to develop clothing with enhanced functional performance and aesthetic appearance. His work is multi-disciplinary involving instrumentation, computational modeling, biomimetics, nanotechnology as well as neural psychology.

In the area of comfort, Prof. Fan has developed a number of patented instruments and theoretical models to characterize and better understand the heat and moisture transport phenomenon through clothing and porous media. In particular, his invention of the world's first sweating fabric manikin-Walter was considered as a breakthrough in manikin technology and has been reported by leading scientific magazines and websites such as New Scientist and Scientific American. The invention also made headline news in the international media including Reuters, BBC, CNN and Agence France Press, Xinhua News Agency, ABC, Germany Radio and Japan Radio. So far eight units of such sweating manikins have been installed in institutions around the world.

In the area of the perception of beauty, Prof. Fan is interested in identifying the objectivity of beauty and investigating how beauty perception is related to the physical characteristics of human body as well as how it can be enhanced by clothing. He and his co-workers discovered that VHI (body volume divided by the square of height) is the dominant factor of bodily attractiveness. After the publication of this work in Proceedings of Royal Society of London-Biological Sciences, it was widely publicized by Nature News and numerous media.

Prof. Fan and his group have also been active in developing functional materials and integrating them into smart clothing through design innovation. Such work has been published in leading journals in materials, textiles and clothing technology. He has also contributed extensively towards research extension through the development of the world's first and largest apparel knowledge portal, www.apparelkey.com.

Prof. Fan has won many competitive research grants from different funding sources including the Research Grants Council, Innovation & Technology Commission of HKSAR and industry. He has been an organizer, session chairs or invited speakers of many international conferences and served as referees of many international refereed journals. He has also published extensively with 4 books and about 300 papers or patents.

For his outstanding contribution, Prof. Fan has been honored by a number of prestigious awards, including Honorary Fellow of Textile Institute (The highest honor of the worldwide Textile Institute for creativity and advancement of knowledge. Only 58 recipients since its installation in 1928), Doctor of Science Award from Leeds University, Distinguished Achievement Award from the US Fiber Society, and President's Award of the Hong Kong Polytechnic University.

Teaching

Teaching and Advising Statement

Teaching expertise includes:

- Clothing Physiology
- Apparel Product Development
- Clothing Technology
- Textile Materials

Professional

Current Professional Activities

Governing Council Member, US Fibre Society.

Fellow, Textile Institute.

Member, US Fibre Society.

Fellow, Hong Kong Institution of Textiles and Apparel

Research

Current Research Activities

- Clothing thermal comfort
- Heat and mass transport through nanofibrous porous media
- Body image and facial attractiveness and their effects on fashion design
- Performance apparel
- Flexible piezoelectric fibers and fabrics for e-textiles

Extension

Current Extension Activities

- Cornell Institute of Fashion & Fiber Innovation (CIFI).
- Consultancy in prediction of thermal comfort.
- Consultancy in development of uniform and protective clothing.
- Testing of functional clothing.

Education

Education

Ph.D	The University of Leeds	1989
B.Sc	China Textile University	1985

Courses

Websites

Related Websites

<http://www.technology.org/2013/10/15/new-institute-promotes-smart-clothing-future/>

<http://www.nature.com/news/1998/040112/full/news040112-5.html>

<http://www.scientificamerican.com/article.cfm?id=000294C9-8DBB-1D13-8B07809EC588EEDF>

<http://www.newscientist.com/article/dn2440-sweaty-mannequin-to-help-clothes-designers.html>

Administration

Administrative Responsibilities

Department Chair of Department of Fiber Science & Apparel Design

College of Human Ecology, Cornell University

Director of Cornell Institute of Fashion & Fiber Innovation (CIFI)

College of Human Ecology, Cornell University

Publications

Selected Publications

Books

JT Fan and L Hunter, *Engineering of Apparel Fabrics and Garments*, Woodhead Publishing Limited, Cambridge, England, 2009.

JT Fan (ed.), *Thermal Manikins and Modelling*, Hong Kong Polytechnic University, 2006.

W Yu, JT Fan, S Harlock and SP Ng, *Innovation and Technology of Women's Intimate Apparel*, Woodhead Publishing Limited, Cambridge, England, 2006.

JT Fan, W Yu and L Hunter, *Clothing Appearance and Fit: Science and Technology*, Woodhead Publishing Limited, Cambridge, England, 2004.

Refereed Journal Papers

[KPM Tang](#), [CW Kan](#) and [JT Fan](#), Assessing and predicting the subjective wetness sensation of textiles: subjective and objective evaluation, *Textile Research Journal*, November 7, 2014, DOI: 10.1177/0040517514555799.

JL Kou, [HJ Lu](#), [FM Wu](#), [JT Fan](#) and [J Yao](#), Electricity Resonance-Induced Fast Transport of Water through Nanochannels, *Nano Lett.*, 2014, *14* (9), pp 4931–4936, DOI: [10.1021/nl500664y](#), Publication Date (Web): July 14, 2014.

DH Shou, JT Fan and F Ding, Hydraulic Permeability of Fibrous Porous Media, *International Journal of Heat and Mass Transfer*, 54 (2011) 4009–4018.

CP Ho, JT Fan, E Newton, R Au, The effect of added fullness and ventilation holes in T-shirt design on thermal comfort, *Ergonomics*, 54(4), 403–410, 2011.

K Bal, JT Fan, MK Sarkar and L Ye, Differential spontaneous capillary flow through heterogeneous porous media, *International Journal of Heat and Mass Transfer* 54 (2011) 3096–3099.

YS Wu, JT Fan and WM. Yu, Effect of posture positions on the evaporative resistance and thermal insulation of clothing, *Ergonomics*, 54(3), 301-313, 2011.

HJ Wu, JT Fan, CC Chu and J Wu, Electrospinning of small diameter 3-D nanofibrous tubular scaffolds with controllable nanofiber orientations for vascular grafts, *Journal of Materials Science-Materials in Medicine*, 21(12), 3207-3215, DEC, 2010.

R Brooks, JP Shelly, JT Fan , et al., [Much more than a ratio: multivariate selection on female bodies](#), *Journal of Evolutionary Biology*, 23(10), 2238-2248.

MK Sarkar, FA He, JT Fan, [Differential superhydrophobicity and hydrophilicity on a thin cellulose layer](#), *Thin Solid Films*, 518(18), 5033-5039, JUL 1 2010.

PT Zhao and JT Fan, Electrospun Nylon 6 Fibrous Membrane Coated with Rice-like TiO₂ Nanoparticles by an Ultrasonic-assistance Method, *Journal of Membrane Science*, 355, 91–97, 2010.

Q [Chen](#), JT [Fan](#), M [Sarkar](#), and GM [Jiang](#), Biomimetics of Plant Structure in Knitted Fabrics to Improve the Liquid Water Transport Properties, *Textile Research Journal*, 80(6), 568-576, 2010.

F He, S Lau, HL Chan, and JT Fan, High Dielectric Permittivity and Low Percolation Threshold in Nanocomposites Based on Poly(vinylidene fluoride) and Exfoliated Graphite Nanoplate, *Advanced Materials*, 21, 710-715, 2009.

XF [Wan](#), JT Fan, A New Method for Measuring the Thermal Regulatory Properties of Phase

Change Material (PCM) Fabrics, *Measurement Science & Technology*, 20(2), 2009.

XF Wan and JT Fan, A Transient Thermal Model of the Human Body-Clothing-Environment System, *Journal of Thermal Biology*, 33, 87-97, 2008.

N DU, JT Fan, H Wu, S Chen and Y Liu, An Improved Model of Heat Transfer through Penguin Feathers and Down, *Journal of Theoretical Biology*, 248, 727-735, 2007.

JT Fan, W Dai, X Qian, KP Chau and Q Liu, Effects of Shape Parameters on the Attractiveness of a Female Body, *Perception and Motor Skills*, 105, 117-132, 2007.

JT Fan, W Dai, F Liu and J Wu, Visual Perception of Male Body Attractiveness, *Proceedings of Royal Society of London Series B-Biological Sciences*, 272, 219-226, 2005.

W. Yu, JT Fan, XM Qian and XM Tao, A Soft Mannequin for the Evaluation of Pressure Garments on Human Body, *Sen'I Gakkaisgi*, 60(2), 57-64, 2004.

JT Fan, X Cheng, X Wen and W Sun, An Improved Model of Heat and Moisture Transfer with Phase change and Mobile Condensates in Fibrous Insulation and Comparison with Experimental Results, *International Journal of Heat and Mass Transfer*, 47(10/11), 2343-2352, 2004.

JT Fan, W Dai, F Liu and J Wu, Visual Perception of Female Physical Attractiveness, *Proceedings of Royal Society of London Series B-Biological Sciences*, 271(1537), 347-352, 2004.

YS Chen, JT Fan, X Qian and W Zhang, Effect of Garment Fit on Clothing Thermal Insulation, *Textile Research Journal*, 74(8), 742-748, 2004.

JT Fan and X Qian, New Functions and Applications of Walter, the Sweating Fabric Manikin, *European Journal of Applied Physiology*, 92, 641-644, 2004.

JT Fan and YS Chen, Measurement of Clothing Thermal Insulation and Moisture Vapour Permeability Using a Novel Perspiring Fabric Thermal Manikin, *Measurement Science and Technology*, 13, 1115-1123, 2002.

DH Shou, JT Fan and F Ding, Effective Diffusivity of Gas Diffusion Layer in Proton Exchange Membrane Fuel Cells, *Journal of Power Sources*, [Vol. 225](#), 1 March 2013, Pages 179–186.