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Topic of the Speech:
Bioinspired Structures for Functional Textiles

Professor Qufu Wei
Jiangnan University
China

Professor Qufu Wei is a professor of Textile Science and Engineering in the School of Textiles and Clothing at Jiangnan University, earned his Ph.D. in Textiles Science and Engineering from Heriot-Watt University in the UK. He currently serves as Director of the Key Laboratory of Eco-textiles within the Ministry of Education of P.R. China at Jiangnan University. He is also Director of the International Joint Laboratory for Functional Textile Materials at Jiangnan University. He was an Area Editor of Journal of Engineered Fibers and Fabrics.

Prof. Qufu Wei is a recipient of the 2006 Award for New Century Excellent Talents in Universities from the Chinese Ministry of Education. His research interests lie in the surfaces and interfaces of functional textiles, nanostructured textile materials and smart textiles. His research has been funded by the National Key Research and Development Plan, the National High-tech Research Plan (863), the National Natural Science Foundation of China and Jiangsu Department of Science and Technology. He has also be awarded a Second Prize of the Natural Science Award of Ministry of Education and the First Prize of the Science and Technology Award by China General Chamber of Commerce.

He has authored two books, "Surface Modification of Textiles" (2009) and "Functional Nanofibers and Their Applications" (2012) which have been published by Woodhead Publishing. He has also published more than 250 articles in the international peer-reviewed journals. He has over 50 patent applications in which 18 National Invention Patents have been granted.

ABSTRACT SUBMISSION

-For invited speaker only

Bioinspired Structures for Functional Textiles

Qufu Wei

Key Laboratory of Eco-Textiles, Ministry of Education, Jiangnan University, China

*Presenter's email: qfwei@jiangnan.edu.cn

ABSTRACT (NO MORE THAN 500 WORDS:)

The design and fabrication of bioinspired structural textiles for various applications requires a fundamental understanding of the interfacial behaviors of functional nanostructures. Structural coloration in some animals and plants is the production of color by microscopically structured surfaces fine enough to interfere with visible light. The structural colors could be generated on the fabrics by functional structures formed using magnetron sputtering. Surface modification of textiles by physical vapor deposition produced "Lotus-Effect" structures on the textiles. The in-situ self-assembling technique was also tried to prepare porous bacterial cellulose/textile fibers (BC/TF) 3D hybrid structure. BC nanofibril network was successfully grown over the TF surface and penetrated into the fibrous structure, which helped to interlock the fibers and resulted into stable 3D hybrid structure. We have also developed a speed-adjustable electrospinning machine to produce the nanofibrous materials with microstructure gradient, which have great potential in tissue engineering and filtration.