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Topic of the Speech:
Functional Hybrid Fibers for Sustainable Development

Academician Professor Meifang Zhu
Dean of the College of Materials Science and Engineering,
Director of the State Key Laboratory for Modification of Chemical Fibers and Polymer Materials
Donghua University
China

Academician Professor Meifang Zhu, member of the Chinese Academy of Sciences, TWAS Fellow. She obtained her Ph.D degree on Materials Science in 1999 from Donghua University (DHU, Shanghai). Currently, she is the dean for the College of Materials Science and Engineering in DHU, and the director of the State Key Laboratory for Modification of Chemical Fibers and Polymer Materials. She also serves as the vice-president for Chinese Materials Research Society (C-MRS), for Chinese Association of Women Scientific Workers, and for China Textile Engineering Society, as well as the editor-in-chief of Advanced Fiber Materials.

Prof. Zhu has long been engaged in the research of functional fibers, nanofibers and intelligent fiber materials, organic /inorganic hybrid materials. She is renowned for both her fundamental and technological contributions to the design and development of polymer-based nanocomposites and their fiber processing. She published more than 500 papers in peer-review journals and 10 books (chapters), and was granted more than 300 National Invention Patents. She received many honors and awards, including Second Prize of National Award for Technological Inventions, Second Prize of National Award for Progress in Science and Technology, National Innovation Competition Award, First Prize of Shanghai Natural Science Award, the Cheung Kong Scholars, Award for Chinese Youth Woman Scientist, Scientific and Technological Youth Innovation Award of the Ho Leung Ho Lee, Shanghai Science and Technology Elite, etc.

ABSTRACT SUBMISSION
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Functional Hybrid Fibers for Sustainable Development

Meifang Zhu

State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University, Shanghai, 201620, China
*Presenter's email: zmf@dhu.edu.cn

ABSTRACT (NO MORE THAN 500 WORDS:)

After spending more than 30 years in the research of fiber materials, we have established a full-chain theory and technical system for the preparation of functional and intelligent fiber materials, from molecular design, in-situ polymerization, fiber spinning, device construction to system integration. Our main research achievements include: (1) the development of a new strategy for the construction of multi-scale hybrid materials, and the realization of the "1+1⩾2" effect in transferring and amplifying functions in fibers; (2) the invention of "in situ hybridization" and "multiphase spinning" technologies, which endow both functionality and comfort to chemical fibers; (3) the creation of a new method for the continuous preparation of fibers by mesoscopic induction, which provides the possibility to build smart fibers and their flexible systems with physiological perception, energy storage and transfer, sensing and actuation. These research work have promoted the fiber quality in China from low to high and the industry in China from large to strong. In the future, we expect to focus more on the sustainability of the fiber materials and contribute our efforts in the development of the revolutionary fiber materials for a better world. In this talk, we will introduce how we learned from history and nature to design functional hybrid fiber materials, especially our work in development of bio-based functional fiber materials based on the hybrid strategy. The application perspective and the challenges in the industrialization of bio-based fibers will also be discussed.