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INM-KOLLOQUIUM

"BIOINSPIRED ADAPTIVE MATERIALS BASED ON SMART HYDROGELS: SENSING, SORTING, AND HARVESTING"

Prof. Ximin He
University of California (UCLA), Los Angeles, USA

Montag, 02.07.2018, 11.00 Uhr

INM, Leibniz-Saal, Campus D2 5
Gastgeber: Dr. Jiaxi Cui, Leiter Schaltbare Mikrofluidik

From the cellular level up to the body system level, living organisms cooperatively sensing and adapting to local environment, to transport specific biological species in the complex bio-fluids and harvesting energy from the environment to keep alive and perform various functionalities. These graceful capabilities arise from the coordination of the chemo-mechanical actions of their muscles and/or tissues with their environmentally vigilant cells, such as the molecular configuration changes and micro/macroscopic mechanical motions in response to a variety of signals. Inspired by these unique abilities, we have developed a series of dynamic material systems, which are based on stimuli-responsive hydrogel and its adaptively reconfigurable microarchitecture. This presentation will introduce several novel functionalities that this broad-based platform has demonstrated, ranging from beetle-inspired ultrafast colorimetric sensing of chemical and biological species, autonomous sorting of target molecules in complex biofluids or wastewater, and plant-mimetic adaptive light tracking and harvesting. Overall, the environment-adaptive, dynamic material systems would have transformative impacts in areas ranging from medical implants that help stabilize bodily functions, to a low-coat high-throughput point-of-care diagnostic tool of diseased indicators in solution, and to smart devices that regulate energy usage.

Bio-sketch:
Ximin He is an assistant professor of Materials Science and Engineering at University of California, Los Angeles (UCLA) and Faculty of California Nanosystems Institute (CNSI). Dr. He was postdoctoral research fellow in Wyss Institute of Bioinspired Engineering and School of Engineering and Applied Science at Harvard University. Dr. He received her PhD in Chemistry from University of Cambridge. Dr. He's research focuses biologically inspired functional smart materials, chemical and biological sensors, actuators with broad applications in materials science, bi-

omedicine, environment, and energy. She has authored/co-authored 40 papers in leading archival journals and peer-reviewed conference proceedings, book chapters and has a number of pending U.S./U.K. patents. Dr. He is the recipient of many young scientist awards including the National Science Foundation CAREER award and Air Force Office of Scientific Research (AFOSR) Young Investigator Program award. Her research on bioinspired homeostatic materials and chemo-mechanical molecule separation have garnered a number of regional and international awards and was featured in >100 international news outlets.

Wir laden 15 Minuten vor Beginn zu einem Get-together mit der Referentin ein.

KONTAKT

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