X-REPORTS IN THERMAL SCIENCE AND ENGINEERING

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Introduction to X-Reports

In recent years, the thermal science and engineering field has greatly expanded and now overlaps with other branches of science, such as physics, material science, biomedical science, nanotechnology, big data, and artificial intelligence. High-level interdisciplinary research demands closer connections and cooperation among global researchers working on a wide range of subjects. Webcam meetings enable global scholars to easily come together to discuss and cooperate on these crucial topics. The X-Reports aim to invite distinguished professionals from various disciplines and countries to give cutting-edge/breakthrough lectures on an interactive platform to encourage new ideas and promote innovations in thermal science and engineering.

2nd X-Report

Prof. Zuankai Wang

City University of Hong Kong, China

Title: Innovations at interfaces for water-energy nexus

Time: 10:00-12:00 am, August 29 (Beijing Time), 2020

Webinar Meeting Code No.: 64234262377 (ZOOM ID)

Website: http://www.xreports.org

Abstract

Water is the origin of life and energy. In spite of its ubiquity and seemingly simplicity, the water is probably the least understood matter in the world. The phase transition, transport, and manipulation of water, normally spanning different time and length scales, constitute the basic paradigm of numerous biological systems and industrial processes such as thermal management , energy, agriculture, and healthcare. Over the past decade, the advances in manufacturing and visualization provide new dimensions in our fundamental and controlling of interfacial and transport phenomena of water, especially on textured surfaces and under complicated working environments involving varying temperatures.

The main aim of this talk is to discuss recent innovations at the interfaces to address one of the most important challenges facing us today, i.e., water-energy nexus. In particular, I will highlight how the rational design and control of topological structures enables us to fundamentally change the triple-phase interaction and achieve the preferred functionalities. Examples include how to efficiently collect water from air, how to use one droplet to cool down hot surfaces by several hundreds of degrees, and how to use one droplet to light up 100 LEDs.