

报告人：尹晓波教授

美国博尔德科罗拉多大学

机械工程系

时间：5月9日（周三）上午9:00-10:00

地点：物理馆512会议室



Designing and Manufacturing Optical and Thermal Metamaterials for Large Scale Energy Applications

Micro/nano-structured materials offer significantly new opportunities for high efficiency devices and systems for energy harvesting, conversion and storage. Fundamental understanding at the small scale enables us to design structures and materials with unprecedented performances. However, there is a tremendous gap between the proof-of-principle demonstration at small scale and the intrinsically large scale real-world thermal and energy systems. As one example, energy use for cooling is poised to increase dramatically over the next several decades. In this talk, I will give an overview on our research and, more specifically, present our recent development on thermal radiation control for large scale cooling applications. We demonstrated the scalable manufactured hybrid glass-polymer composite with extreme light-matter interactions provides a 24/7 continuous cooling power of 110 W/m² without consuming electricity or water.

报告人简介：

尹晓波教授本科和硕士毕业于南京大学物理系。2008年获斯坦福大学博士学位。2018年获博尔德科罗拉多大学终身副教授。他的研究集中在纳米结构光学材料，热辐射，高温材料和可扩展性（scalable）制造。他迄今发表了90多篇杂志文章包括4篇Science，3篇Nature，14篇Nature子刊，和4篇PRL。引用超过9000次。他获2015 DARPA Young Faculty Award, the 2017 Moore Inventor Fellowships, the 2017 Kavli Foundation Early Career Lectureship of Materials Science. 他最近在Science上发表的关于辐射制冷的研究被英国物理学会的“物理世界”杂志评为2017年世界10重大突破之一。