

Physics Colloquium 2012 Fall

Optical Metamaterials:

Negative Refraction, Superlens and Plasmon Lasers

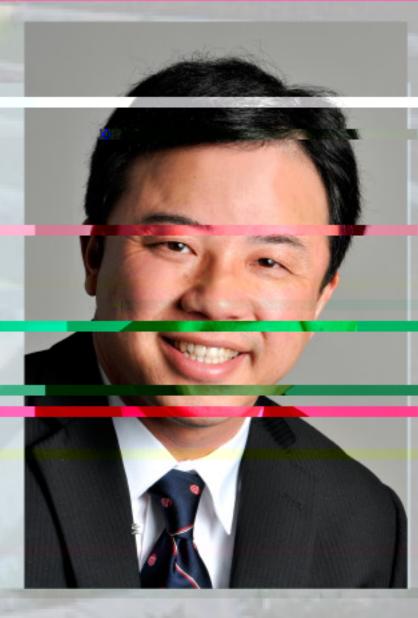
Abstract

Recent theory predicted a new class of photonic composite materials that its properties are derived by the structure rather than chemical compositions which promise unprecedented electromagnetic properties that doesnotexist in the natural such as phiculan agentism, and regative a forestion. Especially, superlens made of metamaterials broaks the fundamental diffraction limit, which may have profound impact in wide range of applications such as nano-scale photonics; electronics manufacter uring, and biomedical imaging.

I'll discuss recent progress that demonstrated the intriguing physics. We created the first bulk optimal metamaterials that show the regative with actions in the constrated the superiors and physical cloak using acceptably does great placements metatiche dispersions. Socieng down what action is a key to drive the exponential growth of information trashnology, in will discuss a strategies for truly nano-scale photonics including indefinite cavity, plasmonic waverquite and ascertace coherent light at molecular scale. Finally I will present a 22nm superiors lithography technology that may transform the next generation of nano-manufacturing.

Speaker

Xiang Zhang is the Ernest S. Kuh Chaired Professor at University of California, Berkeley and the Director of NSF Nano-scale Science and Engineering Center (SINAM). He is a member of US National Academy of Engineering (NAE), Academia Sinica and fellow of APS, OSA, AAAS and CONE. His group presearch in population optical metamaterials was selected by Times Magazine as "Top 10 Scientific Discoveries in 2008". He received his BS/MS in physics in itanjing University, China, and Ph.D from UC Berkeley in 1996 and was on faculty at Pennsylvania State University and University of California, Los Angeles (UCLA) prior joining the Berkeley faculty in 2004.





2012-10-09 16:00

Zheng Yu-Tong Lecture Hall, New Ssiensz-Building

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