



Win some and lose some: A competition between metamaterials and non- metamaterials

Short Bio.

Dr. C.W. Qiu received his B.Eng. and Ph. D. degree (from Joint Singapore-France PhD Program of NUS-SUPELEC) in 2003 and 2007, respectively. He was a Postdoctoral Fellow at Physics Department in MIT till the end of 2009, and in December 2009, he joined NUS as an Assistant Professor. He was the recipient of the SUMMA Graduate Fellowship in Advanced Electromagnetics in 2005, IEEE AP-S Graduate Research Award in 2006, Young Scientist Travel Grant of ISAP in 2007, URSI Young Scientist Award in 2008, and NUS Young Investigator Award in 2011, and MIT TR35@Singapore Award in 2012. His research interests are in the areas of light-matter interaction, transformation/diffractive optics, and nanophotonics. He has published over 60 journal papers and one book chapter, with media coverage by *Science*, 联合早报, Straits Times, and many others. He has been serving as Associate Editor for the Advanced Electromagnetics Journal.



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Date

Wednesday, **November 21st**, 2012

Time

10:00 – 12:00

Location

**R1101, 11F, Bldg. for Humanities & Social Sciences
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Abstract

Metamaterials, derived from transformation optics or negative refraction law, have been receiving intensive attention. Exciting progress has been made to pave the way from fundamental physics to real-world devices, exhibiting unprecedented light phenomena, such as cloaking, super-resolution, focusing, redistribution of photon momentum, etc. In this talk, we will present an alternative look into the realm of non-metamaterials, and see whether they can perform as equally well as, if not better than, the metamaterial counterpart. In particular, we will demonstrate back-to-back comparative results in cloaking, focusing, super-resolution, and tractor beam, including our very recent results published or to be published. Interestingly new phenomena can be found in classic methods or materials which can definitely compete with its counterpart in metamaterials. Nevertheless, it again proves the universal truism that neither of these two routes is perfect.

