

SINAM NANO SEMINAR

Center for Scalable and Integrated
Nano Manufacturing (SINAM) &
UC Berkeley Mechanical Engineering Dept.
present



Light in Anisotropic Media: Towards Negative Index Materials and Subwavelength Imaging at Optical Frequencies

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Friday, January 27, 2006

3:00 - 4:00 pm

1165 Etcheverry Hall

Abstract

We develop a new approach to materials with negative refraction index. In contrast to conventional schemes based on resonant behavior to achieve a non-zero magnetic response, our system is intrinsically non-magnetic and relies on an anisotropic dielectric constant to provide a left-handed response in waveguide geometry. In contrast to conventional negative refraction materials, the proposed approach does not require periodicity and thus is highly tolerant to fabrication defects. Furthermore, it is not limited to proximity of a resonance leading to relatively low loss. We demonstrate that such non-magnetic negative-index materials can be effectively used for waveguide imaging systems, and propose specific realizations -- from THz to optical range.

About Dr. Narimanov

Evgenii Narimanov received a Ph.D. from Moscow Institute of Physics and Technology in 1995, was a postdoctoral associate at the Department of Applied Physics of Yale University from 1995 to 1998, worked in the Theory Department of Bell Laboratories in 1998-2000, and in 2000 joined Princeton University as assistant professor of electrical engineering.

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