

MSRI  Berkeley
University of California



MSRI/Evans Talk

MONDAY, NOVEMBER 8, 2010
4:10PM; 60 EVANS HALL
UNIVERSITY OF CALIFORNIA, BERKELEY

“DETECTION AND IMAGING WITH WAVES IN HETEROGENEOUS, STRONGLY BACKSCATTERING MEDIA.”

**Liliana Borcea
(Rice University)**

Objects that are buried deep in heterogeneous media produce faint echoes which are difficult to distinguish from the waves backscattered by the inhomogeneities in the medium. Sensor array imaging in such media cannot work unless we filter out the back scattered echoes and enhance the coherent arrivals that carry information about the objects that we wish to image. We study such filters for imaging in strongly backscattering, random media. I will present an approach to detection and filtering that is based on the spectral decomposition of the scattering matrix in time windows that are to be selected as part of the problem. This new approach applies to a large class of random media, but I will present theory only in randomly layered media.

**Refreshments at a nearby establishment immediately following the talk!
Graduate students and Postdoctoral Fellows are particularly welcome.**

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