Abstract of the lecture:
USING BACKGROUND NOISES IN SEISMOLOGY
Matrei, july 2005

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Michel Campillo (LGIT, Grenoble) and other earth scientists started recently to use correlations of the seismic noises recorded at different points in order to make maps of the earth crust. In this talk, I present a mathematical model in 2 parts:

- Modelling a localized noise as the image of the white noise by a semi-classical pseuod-differential operator, I show how to recover the oscillating part of the Green's function and hence the ray dynamics. This part holds for any kind of linear wave propagation.

- Only surface waves are recorded, the body waves decay much too fast. Rayleigh wave are very particular surface waves which I describe in a toy model: the acoustical wave equation with a scalar fields and a stratified medium. I show how the vertical structure of the underground could be recovered from a natural inverse spectral problem.

A preprint is available on my web page: http://www-fourier.ujf-grenoble.fr/ỹcolver/

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