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Current collaborators: Elena Cherkaev(U. Utah), Robert Gilbert(U. Delaware), Dali Zhang(U. Calgary)

Background: De-homogenization of composites with fine microstructure and direct/inverse acoustic scattering in waveguides

Current Research Projects: De-homogenization for composites of elastic matrix with visco-elastic fluid (frequency domain) and de-homogenization in time domain.

Potential problems to work with the image group: to identify what information of the composites can be recovered by using the time-reversal method and possible combination with the de-homogenization technique. In the panel discussion, Jean-Pierre mentioned that time-reversal using elastic waves should be an interesting area to work on. He also mentioned about the open problems for time-reversal acoustic for media without layered structure. I think these two sets of problems are interesting open problems for us to solve.