



FMSP Lectures

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Inverse scattering from random potential

January 18 (Mon) 14:45 ~ 15:25 Room 126

Abstract:

We consider an inverse scattering problem with a random potential. We assume that our far-field data at multiple angles and all frequencies are generated by a single realization of the potential. From the frequency-correlated data our aim is to demonstrate that one can recover statistical properties of the potential. More precisely, the potential is assumed to be Gaussian with a covariance operator that can be modelled by a classical pseudodifferential operator. Our main result is to show that the principal symbol of this covariance operator can be determined uniquely. What is important, our method does not require any approximation and we can analyse also the multiple scattering. This is joint work with Matti Lassas and Pedro Caro.