Analysis and Differential Geometry Colloquium

Inverse problems for nonlinear hyperbolic equations

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Abstract: We consider the inverse problem of determining coefficients of nonlinear hyperbolic equations from measurements of wave responses. The problem has wide applications for example in general relativity (the Einstein equations) and seismology (the elastic wave equations). It is known that the nonlinear interaction of waves could generate new responses and such interactions have been studied using plane waves in the literature. In this talk, we analyze the nonlinear response and give a precise characterization using microlocal methods, and show how nonlinearity helps us to solve the inverse problem.

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Mathematics and Science Center: W303

Mathematics
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