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Gang Bao* (bao@math.msu.edu), Department of Mathematics, Michigan State University, East Lansing, MI 18824-1027, and **Junshan Lin** (warrenprince@gmail.com). *Inverse scattering via near-field imaging*. Preliminary report.

The talk is concerned with our recent study of the inverse scattering problem from near-field or far-field boundary measurements. A novel approach will be discussed on solving the interface determination problem, which is ruled on a perfect conductor. When near-field information is available, the approach is shown to be able to break the diffraction limit. When the interface is of multiscale, a multiple frequency method may be developed. The speaker will also discuss various issues related to the topic. (Received September 21, 2010)