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Vadim A Markel* (vmarkel@penmedicine.upenn.edu), 603W Goddard Laboratories, 3710 Hamilton Walk, Philadelphia, PA 19104. *Investigation of the super-resolution phenomenon in nonlinear inverse problems.*

It is well known that the spatial resolution of images obtained by solving the linearized inverse scattering problem is restricted by the so-called diffraction limit. However, multiple scattering results in nonlinearity of the inverse problem. In this case, the above limit on the spatial resolution of images cannot be proved as easily. The limit of spatial resolution in nonlinear inverse scattering problems is still an open question. I will consider several exactly solvable toy problems in which spatial resolution can be defined precisely and then investigated. (Received September 25, 2018)