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Hongkai Zhao* (zhao@math.uci.edu), Mathematics Department, UCI, Irvine, CA 92617. *Direct imaging algorithms for extended targets.*

We will introduce a few direct imaging algorithms for extended targets. Our imaging algorithm is based on a physical factorization of the scattered wave field. Singular value decomposition and a resolution based thresholding strategy is used to extract principal components of the shape space. These principal components are used to match appropriately chosen illumination vectors in the imaging function. Our algorithm does not need any iterations nor forward solver. I will demonstrate our algorithm for both near field and far field data as well as well for different boundary conditions. (Received February 25, 2007)