

1014-35-1621      **Hongkai Zhao\*** ([zhao@math.uci.edu](mailto:zhao@math.uci.edu)), Department of Mathematics, University of California,  
Irvine, CA 92697. *A direct imaging algorithm for extended targets using active arrays.*

We present a direct imaging algorithm for both the location and geometry of extended targets. Our algorithm is based on a physical factorization of the response matrix of an active array. A resolution and noise level based thresholding is used for regularization. Our algorithm is extremely simple and efficient since no forward solver or iterations are needed. Multiple-frequencies can be used to improve the stability of our algorithm. We demonstrate the efficiency and robustness with respect to both measurement noise and random background. (Received September 28, 2005)