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**Jennifer L Mueller\*** ([mueller@math.colostate.edu](mailto:mueller@math.colostate.edu)), Department of Mathematics, Colorado State University, Fort Collins, CO 80523. *Techniques for resolution enhancement in the D-bar method for electrical impedance tomography.*

Electrical impedance tomography (EIT) is an emerging medical imaging technique particularly suited for bedside lung imaging due to its real-time, non-ionizing, portable attributes. The D-bar method is a direct (non-iterative) reconstruction method based on inverse scattering techniques. Due to the severe ill-posedness of the inverse conductivity problem, achieving good spatial resolution is the biggest challenge in EIT. In this talk, the use of priors and a statistical post-processing technique is presented to significantly improve the resolution of the images. The method is demonstrated on archival human data collected on two patients at Children's Hospital Colorado with cystic fibrosis. (Received August 16, 2021)