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Ethan K Murphy* (ethan.kane.murphy@gmail.com), Rensselaer Polytechnic Institute, Biomedical Engineering Dept - 7049 JEC, 110 8th St., Troy, NY 12180, **David Isaacson**, Rensselaer Polytechnic Institute, Mathematics Department, Troy, NY 12180, **Gary Saulnier**, Rensselaer Polytechnic Institute, Electrical Engineering Department - JEC, Troy, NY 12180, and **Jon Newell**, Rensselaer Polytechnic Institute, Biomedical Engineering Dept - 7049 JEC, 110 8th St., Troy, NY 12180. *Comparisons of reconstruction methods in electrical impedance tomography on a mammography geometry.*

We present a comparison among several reconstruction methods in electrical impedance tomography on a 60 electrode system arranged in a mammography geometry. The data was collected using the ACT4 system developed at RPI. The methods in the comparison include Calderon's approach, a one-step Newton's method, and an iterative Newton implementation using both the average-gap and the complete electrode models. An implementation of the finite element method allows for an iterative approach and for improved modeling of the domain shape. (Received September 21, 2009)