

1075-35-57

Leonid Kunyansky* (leonk@math.arizona.edu), Department of Mathematics, University of Arizona, 617 N Santa Rita Ave., Tucson, AZ 85721. *Conductivity reconstruction using hybrid modalities with synthetic focusing.*

Reconstruction of conductivity by means of purely electrical measurements (as in the electric impedance tomography, or EIT) is known to be extremely unstable. In order to overcome this instability, one can try to modulate the electric currents by ultrasound waves. This idea is used, in particular, in Acousto-Electric tomography (AEIT) and in Magneto-Acousto-Electric tomography (MAET). Both modalities rely on the so-called synthetic focusing which allows one to obtain the measurements that would correspond to an acoustic beam focused into a point, from realistic measurements corresponding to propagating spherical fronts. In the talk I will present recent results on the use of synthetic focusing in AEIT and MAET. (Received August 18, 2011)