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Katharine A Ott* (kott@virginia.edu), PO Box 400137, University of Virginia,
Charlottesville, VA 22904. *Mellin and global optimization techniques for singular integrals in two
dimensions.*

In this talk we discuss sharp invertibility properties for the boundary version of the the tangential derivative of the single layer potential operator associated with the Lamé system in the class of curvilinear polygons on the Lebesgue scale of p integrable functions, $1 < p < \infty$. These results are relevant for wellposedness issues for the regularity problem associated with the Lamé system on the aforementioned class of domains. Our approach relies on a careful analysis of the spectra of certain singular integral operators using Mellin transform and interval analysis techniques, and ultimately leading to computer aided proofs. (Received September 19, 2007)