

1015-31-179

Tatyana Shaposhnikova* (tasha@math.ohio-state.edu), Department of Mathematics, 231 West 18th Avenue, Columbus, OH 43210. *Higher regularity in the layer potential theory.*

We consider classical boundary integral equations of the harmonic double and single layer potential theory. Selecting an appropriate class of Lipschitz graph surfaces, we obtain higher regularity results for the solutions of these integral equations in fractional Sobolev spaces. We show that our geometrical conditions are sharp. We also derive new solvability results for the Dirichlet and Neumann problems in weighted Sobolev spaces under minimal regularity assumptions on the boundary. This is a joint work with Vladimir Maz'ya. (Received February 04, 2006)