

ON NEUMANN-POINCARÉ OPERATORS AND SELF-ADJOINT TRANSMISSION PROBLEMS

BADREDDINE BENHELLAL
CARL VON OSSIETZKY UNIVERSITÄT OLDENBURG

ABSTRACT. In this talk, we discuss the self-adjointness in L^2 -setting of the operators acting as $-\operatorname{div}(h\nabla \cdot)$, with piecewise constant functions h having a jump along a Lipschitz hypersurface Σ , without explicit assumptions on the sign of h . We establish a number of sufficient conditions for the selfadjointness of the operator with $H^{\frac{3}{2}}$ -regularity in terms of the jump value and the regularity and geometric properties of Σ . An important intermediate step is a link with Fredholm properties of the NeumannPoincaré operator on Σ , which is new for the Lipschitz setting.

Based on joint work with Konstantin Pankrashkin.

Email address: badreddine.benhellal@uni-oldenburg.de