1061-35-114 **Emilio Marmolejo-Olea*** (emili@matcuer.unam.mx), A:P: 273-3 Admon. 3, Cuernavaca, Morelos 62251, MEXICO, Cuernavaca, Mexico, and **Irina Mitrea**, **Marius Mitrea** and **Qiang Shi**. *Transmission Boundary Problems for Dirac operators on Lipschitz domains and Applications to Maxwell's and Helmholtz's Equations.*

The transmission boundary value problem for a perturbed Dirac operator on arbitrary bounded Lipschitz domains in R3 is formulated and solved in terms of layer potentials of Clifford- Cauchy type. As a byproduct of this analysis, an elliptization procedure for the Maxwell system is devised which allows us to show that the Maxwell and Helmholtz transmission boundary value problems are well-posed as a corollary of the unique solvability of this more general Dirac transmission problem. (Received April 09, 2010)