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**Qiang Shi\*** (qshi@emporia.edu), Department of Mathematics, CS and Economics, Emporia State University, 1200 Commercial Street, Emporia, KS 66801. *Clifford algebras and transmission boundary value problems for Dirac type operators across Lipschitz interfaces.*

We prove sharp well-posedness results for transmission boundary value problems for Dirac type operators on three-dimensional Lipschitz domains with data in  $L^p$ . A major role in our approach is played by the Cauchy-Clifford singular integral operator whose mapping properties dictate the natural range of  $p$ 's for which the problem is solvable uniquely. The Clifford algebra context allows us to treat in a unified fashion several seemingly unrelated problems which are of interest in mathematical physics. In particular, applications to Maxwell's equations are discussed. (Received September 06, 2006)