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Michael E Taylor* (met@math.unc.edu), Mathematics Dept., CB 3250, University of North Carolina, Chapel Hill, NC 27599. *The Gauss-Green Formula.*

The Gauss-Green formula provides a useful tool for scattering theory. Works of De Giorgi and Federer established this formula for a large class of domains (finite perimeter domains), with smooth integrands. The formula also has many uses in PDE, for rough integrands, on smoothly bounded domains. For scattering by rough obstacles, one need such a formula for rough integrands and rough boundaries. Ad hoc techniques have sufficed for Lipschitz domains, and also for a class of Reifenberg-flat domains, but to go beyond this one needs new techniques. The speaker will discuss results on this, arising in joint work with Steve Hofmann and Marius Mitrea. (Received August 19, 2006)