Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-35-540 **Gavin J Waters*** (waters@math.udel.edu), 305 Ewing Hall, University of Delaware, Newark, DE 19711. *$W^{2,p}$ estimates of the heat equation in a domain $\bar{\Omega} \subset \mathbb{R}^n$ and their requirements on the regularity of $\partial\Omega$.*

Incorporating the Hardy-Littlewood maximal functions we show an alternative geometric approach of the $W^{2,p}$ estimates of the heat equation in a domain $\bar{\Omega} \subset \mathbb{R}^n$. As a result the restrictions placed on $\partial\Omega$ using classical methods no longer need the $C^{1,\alpha}$ smoothness. We instead look at the mean curvature of the boundary in an L^p-space. (Received September 21, 2004)