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Michael Greenblatt*, Department of Mathematics, Statistics, and, Computer Science,
University of Illinois at Chicago, Chicago, IL 60607. *Maximal averages over hypersurfaces and the
Newton polyhedron.*

Using some resolution of singularities and oscillatory integral methods in conjunction with appropriate damping and interpolation techniques, L^p boundedness theorems for $p > 2$ are obtained for maximal averages over a wide range of hypersurfaces. These estimates are sharp in many situations, including the convex hypersurfaces of finite line type considered by Iosevich, Sawyer, and others.

As a corollary, we also give a generalization of the result of Sogge and Stein that for some finite p the maximal operator corresponding to a hypersurface whose Gaussian curvature does not vanish to infinite order is bounded on L^p . (Received July 31, 2010)