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Jeremy M Schwend* (jschwend@math.wisc.edu), 2921 Fish Hatchery Rd Apt 214, Fitchburg, WI 53713. *Optimal $L^p \rightarrow L^q$ Estimates for Euclidean Averages Over Prototypical Hypersurfaces in \mathbb{R}^3 .*

We look at a case study on the effects of a manifold having vanishing curvature, through the convolution operator. We find the precise range of $(\frac{1}{p}, \frac{1}{q})$ for which local averages along graphs of a class of two-variable polynomials in \mathbb{R}^3 are bounded (at least in the restricted-weak sense) from L^p to L^q , given the hypersurfaces have Euclidean surface measure. We derive these results for a model class of polynomials bearing a strong connection to the general real-analytic cases. Techniques and ideas used here have since shown promise being applied to other operators, such as the Fourier Restriction operator. (Received January 20, 2020)