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Dominique Kemp* (ddkemp@math.wisc.edu). *Decoupling via scale-based approximations.*

The seminal work of Bourgain and Demeter introducing decoupling for the paraboloid simultaneously hinted at a possible path toward general decoupling. At small scales, nondegenerate smooth surfaces are approximated by paraboloids, and thus the decoupling for the former may be obtained. We continue this line of thought, using instead surfaces increasingly more general than the paraboloid for approximate decoupling. We are thus able to achieve partial progress toward the decoupling of degenerate manifolds in \mathbb{R}^3 not graphed by mixed homogeneous polynomials. (Received August 09, 2021)