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S. Zubin Gautam* (sgautam@math.ucla.edu), Department of Mathematics, UCLA, Los Angeles, CA 90095-1555. *On the unboundedness of bilinear Fourier multipliers associated to domains with curvature.* Preliminary report.

For D a domain in \mathbb{R}^{2d} satisfying a suitable sectional curvature condition, we prove that the bilinear Fourier multiplier operator with symbol χ_D is unbounded from $L^p(\mathbb{R}^d) \times L^q(\mathbb{R}^d)$ to $L^r(\mathbb{R}^d)$ outside the local- L^2 setting. In particular, we obtain unboundedness when D is a convex domain; this extends existing results of Diestel-Grafakos and Grafakos-Reguera. (Received August 10, 2008)