

1061-35-150

**Richard B. Melrose** and **Andras Vasy\***, Department of Mathematics, 450 Serra Mall, Stanford University, Stanford, CA 94305-2125, and **Jared Wunsch**. *On the gain of Sobolev regularity of diffracted waves.*

I will describe recent results in joint work with Richard Melrose and Jared Wunsch on wave propagation on manifolds with corners. These show that – under an appropriate non-focusing assumption – singularities diffracted from an edge, i.e., loosely speaking, singularities that are not propagated along limits of rays transversely reflected from adjacent boundary hypersurfaces, are smoother in a Sobolev sense than the main singularities of the solution. This, as well as natural generalizations, should have applications to inverse problems, allowing one to ignore diffracted waves from corners in certain cases. Some special, 2-dimensional, cases have been analyzed by Ivrii and Gerard-Lebeau. (Received April 12, 2010)