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Andras Vasy*, Department of Mathematics, Building 380, Stanford University, 450 Serra Mall, Stanford, CA 94305-2125. *Diffraction at corners for the wave equation on differential forms.*

In this talk I will describe the propagation of singularities for the wave equation on differential forms with natural (i.e. relative or absolute) boundary conditions on Lorentzian manifolds with corners, which in particular includes a formulation of Maxwell's equations. These results are analogous to those obtained by the speaker for the scalar wave equation, and for the wave equation for systems with Dirichlet or Neumann boundary conditions. The main novelty is thus the presence of natural boundary conditions, which effectively make the problem non-scalar, even 'to leading order', at corners of codimension at least two.

The main tool used is microlocal energy estimates via positive commutators, using Melrose's totally characteristic (or b-) pseudodifferential operators as microlocalizers. (Received September 17, 2009)