

# IP/DIFFERENTIAL GEOMETRY/PDE SEMINAR

TUESDAY, FEBRUARY 24, 2015

LOW 115

4–5PM

Asymptotics for the wave equation on differential forms on  
Kerr-de Sitter space

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As the simplest model for non-scalar waves on a geometric class of spacetimes including Schwarzschild-de Sitter and Kerr-de Sitter black holes, we study the wave equation on differential forms of any degree, which as a very special case includes Maxwell's equations. We prove that waves decay exponentially in time to stationary, 'resonant' states, and identify the space of resonant states in a canonical way with certain cohomology groups of the underlying spacetime. Combined with a framework developed in a recent paper, this immediately implies the global solvability of suitable quasilinear wave equations on differential forms, and is strongly tied to the black hole stability problem. Joint work with Andras Vasy.

For more information about this seminar, visit the DG/PDE Seminar Web page (from the Math Department home page, [www.math.washington.edu](http://www.math.washington.edu), follow the link **Seminars, Colloquia, and Conferences**).

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