1093-35-183   **Peter Hintz***, Department of Mathematics, Stanford University, Building 380, 450 Serra Mall, Stanford, CA 94305-2125, and **Andras Vasy**, Department of Mathematics, Stanford University, Building 380, 450 Serra Mall, Stanford, CA 94305-2125. *Semilinear wave equations on asymptotically de Sitter, Kerr-de Sitter and Minkowski spacetimes.*

In this talk I will discuss the small data solvability of suitable semilinear wave and Klein-Gordon equations on geometric classes of spaces, which include so-called asymptotically de Sitter and Kerr-de Sitter spaces, as well as asymptotically Minkowski spaces. These spaces allow general infinities, called conformal infinity in the asymptotically de Sitter setting; the Minkowski type setting is that of non-trapping Lorentzian scattering metrics introduced by Baskin, Vasy and Wunsch. Our results are obtained by showing the *global* Fredholm property, and indeed invertibility, of the underlying linear operator on suitable L^2-based function spaces, which also possess appropriate algebra or more complicated multiplicative properties. The linear framework is based on the b-analysis, in the sense of Melrose, introduced in this context by Vasy to describe the asymptotic behavior of solutions of linear equations. An interesting feature of the analysis is that *resonances*, namely poles of the inverse of the Mellin transformed b-normal operator, which are 'quantum' (not purely symbolic) objects, play an important role. (Received August 13, 2013)