

# Harvard-M.I.T. Algebraic Geometry Seminar

## GV-SHEAVES, FOURIER-MUKAI TRANSFORM, AND GENERIC VANISHING

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The classical Kodaira and Kawamata-Viehweg vanishing theorems have very useful partial analogues, called Generic Vanishing Theorems (first discovered by Green and Lazarsfeld), when the positivity hypotheses on line bundles are weakened. I will explain how abstract Fourier-Mukai functors and homological algebra allow one to relate in a formal sense generic vanishing theorems to classical vanishing theorems. In particular I will generalize (and provide algebraic proofs of) the previously known generic vanishing results to obtain statements under a natural weakening of the hypotheses of Kodaira vanishing. I will also show how the same techniques can be used in many other directions, e.g. in the study of moduli spaces of vector bundles, of regularity on abelian varieties, or of cohomological characterizations of Jacobians.

Tuesday, October 10th  
3:00 p.m.  
Harvard Science Center 507

<http://www-math.mit.edu/ags/>