

**Speaker:** Adam Boocher  
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Friday, April 25, 2008  
4:00 pm  
258 Hurley Hall

**Title:** Evolutions and the Eisenbud-Mazur Conjecture

**Abstract:**

Evolutions, related to Galois deformations, arise naturally in the study of Hecke algebras, as in the work of Wiles, Taylor-Wiles, and Flach related to the proof of Fermat's Last Theorem. Naturally a statement in number theory, the Eisenbud-Mazur conjecture states that all evolutions of certain local algebras are trivial. In 1997, Eisenbud and Mazur showed that their conjecture was equivalent to one concerning symbolic powers in regular rings. In particular they prove that an algebra  $R/I$  has no nontrivial evolutions if and only if the symbolic square  $I^{(2)}$  contains no minimal generator. In this talk I will describe the result of Eisenbud and Mazur and discuss cases where the conjecture is known to be true (and false!) This talk is based on my senior thesis.