



Speaker: Laurent Bienvenu
CNRS - University Paris 7

Thursday, March 29, 2012
1:00 PM
125 Hayes-Healy Hall

Title: From bi-immunity to absolute undecidability

Abstract:

An infinite subset of the natural numbers is said to be bi-immune if neither it nor its complement contains a computable infinite subset. In the setting of generic computability, where sets of density 0 are considered negligible, the natural analogue of bi-immunity is the so-called absolute undecidability: a subset of the natural numbers is absolutely undecidable if neither it nor its complement contains a computable infinite subset of positive density (i.e., computable subsets of zero density are now allowed). While it is known that not every non-zero Turing degree contains a bi-immune set, it was previously unknown whether every non-zero Turing degree contained an absolutely undecidable set (a question of Jockusch). Using elementary coding theory, we will give a positive answer to this question [this is joint work with Adam Day and Rupert Hölzl].