
Speaker: Richard Rast
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Tuesday, December 1, 2015
2:00 PM
125 Hayes-Healy Hall

Title: A new notion of cardinality for countable theories

Abstract:

We will discuss the notion of "potential cardinality" for first-order theories in countable languages, which is the cardinality of the class of formally consistent canonical Scott sentences which imply that theory. We show that if one theory is Borel reducible to another, then the potential cardinality of the first is bounded by that of the second. We also show that computing the potential cardinality is frequently practically possible, even when the associated isomorphism relation is not Borel. This gives us new and concrete tools for showing the nonexistence of a Borel reduction. We will also discuss some applications of this technique, including the first confirmed examples of complete first-order theories whose isomorphism relations are not Borel, but which are not Borel complete. This talk will be self-contained, including all relevant definitions.