



Speaker: Jacob Heidenreich
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Tuesday, April 24, 2012
1:30 PM
125 Hayes-Healy Hall

Title: Relativized Stability Theory

Abstract:

The purpose of this talk is to develop the stability theory of how a model can be built over a part of that structure. For example, in the case of the Baldwin-Lachlan theorem, the model of an uncountable theory is determined up to isomorphism over a strongly minimal sub-part. However in our new setting the model may not be categorical, but still 'nice', over a possibly ill-behaved sub-part. If we take the two-sorted theory of an infinite dimensional vector space over a Real Closed Field the vector space sort is not categorical over the sort of the Real Closed Field, but it is classifiable over the Real Closed Field by a single dimension. We develop 'Morley Rank Modulo a Predicate' (PMR) and define an independence relation based on this rank. In the above example the vector space sort has 'relativized Morley Rank 1' over the Real Close Field. We will look at the situation where every definable subset has PMR and deduce properties of this independence relation in this setting. Finally, we will look at several illustrative examples, apply this technology to some interesting classical structures, and look at open problems in this direction of research.