Logic Seminar

UNIVERSITY OF NOTRE DAME
Department of Mathematics

Speaker: Isaac Goldbring
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Tuesday, February 10, 2015
2:00 PM
125 Hayes-Healy Hall

Title: Towards a model-theoretic proof of a result of Junge and Pisier

Abstract:

An operator space is a closed subspace of B(H), the bounded operators on a Hilbert space H. For reasons that I will explain during the talk, operator spaces are viewed as the non-commutative analogs of Banach spaces and have much more exotic behavior than their commutative counterpart. A fundamental result of Junge and Pisier states that there are "many" operator spaces in the sense that, for every n at least 3, the space of n-dimensional operator spaces is not separable in the so-called strong topology. A corollary of this result is that there is no universal separable operator space. In this talk, I will explain a strategy for giving a purely model-theoretic/descriptive set-theoretic proof of this latter fact. (Currently there is only one step in the proof that relies on serious operator space techniques.) Key ingredients to this strategy are a study of the model-completion of the theory of operator spaces (joint work with Martino Lupini) and a proof that ! an important class of operator spaces, the so-called 1-exact operator spaces, is not uniformly definable by a sequence of types (joint work with Thomas Sinclair).