Model Theory Seminar

UNIVERSITY OF NOTRE DAME
Department of Mathematics

Speaker: **Isaac Goldbring**
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Tuesday, April 26, 2016
2:00 pm
Room: 125 Hayes-Healey Hall

Title: Revisiting the first-order theories of McDuff's II_1 factors

Abstract:
McDuff was the first to provide a family of continuum many pairwise-nonisomorphic separable II_1 factors. In a recent preprint, Boutonnet, Chifan, and Ioana proved that any ultrapowers of any two distinct McDuff examples are also nonisomorphic. As a result, this shows that McDuff's examples are also pairwise non-elementarily equivalent, thus settling the question of how many first-order theories of II_1 factors there are. From the model-theoretic point of view, this resolution of the question is not satisfying as we do not see an explicit family of sentences that distinguish the McDuff examples. In this talk, I will present a partial resolution to this problem by discussing the following result: If M_α and M_β are two of McDuff's examples, where $\alpha, \beta \in 2^\omega$ are such that $\alpha|k = \beta|k$ but $\alpha(k) \neq \beta(k)$, then there must exist a formula of quantifier-complexity at most $5k + 3$ on which they disagree. The proof uses Ehrenfeucht-Fraisse games. The talk represents joint work with Bradd Hart.