Logic Seminar

UNIVERSITY OF NOTRE DAME
Department of Mathematics

Speaker: **Alex Wilkie**
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Tuesday, December 7, 2010
12:50 pm
117 Hayes-Healy Hall

Title: Some Model Theory for Analytic Functions

Abstract:

General model-theoretic criteria for quantifier elimination and model completeness of first order theories; QE for the real ordered field.

A review of Noetherian rings and modules; the Hilbert Basis Theorem; power series rings, the formal Division Theorem, Weierstrass Preparation Theorem and van den Dries/Denef Preparation Theorem.

Analytic functions in many variables on the reals and complexes. Analytic Division Theorem and Preparation Theorem.

Flatness and the deduction of the Analytic van den Dries/Denef Preparation Theorem from the formal version. (There is a lot of algebra here and, though beautiful, it might be omitted if time is pressing.)

Defintion of the first order structure $\mathbb{R}_{an}$ and failure of QE(Osgood's example). The QE of the theory of this structure with a symbol for division following essentially the van den Dries/Denef method but using the model-theoretic criteria discussed above. O-minimality as a consequence.

Other topics au choix.