

# *Model Theory Seminar*



**Speaker:** **Jacob Tsimerman**  
Harvard University

Tuesday, November 15, 2011  
1:30 pm  
125 Hayes-Healy Hall

**Title:** o-minimality and Transcendence theory

**Abstract:**

Schanuel's conjecture states that for  $n$  complex numbers  $x_1, \dots, x_n$  which are linearly independent over the rationals, the transcendence degree of  $\mathbb{Q}(x_1, e^{x_1}, x_2, e^{x_2}, \dots, x_n, e^{x_n})$  is at least  $n$ . While this conjecture is still open, Ax (1971) proved an analogue of this statement for analytic functions, now known as the Ax-Schanuel theorem. We will explain the proper analogue of Ax-Schanuel for the  $j$ -function and more general uniformization maps in the case of Shimura varieties, and then describe how one can use the theory of o-minimality and a point-counting result of Pila-Wilkie to prove Ax-Schanuel and some of its generalizations.