# Temple University Mathematics Colloquium

## Robert Guralnick

University of Southern Californa

will speak on

## Strongly Dense Subgroups of Algebraic Groups

ABSTRACT: Let $G$ be a simple algebraic group. A free finitely generated subgroup $H$ of $G$ is called strongly dense in $G$ if every nonabelian subgroup of $H$ is Zariski dense in $G$. We will discuss joint work with Breuillard, Green and Tao which shows that strongly dense subgroups exist (over sufficiently large fields) and some recent improvements on this by Brueillard, Guralnick and Larsen. This has applications to finding Cayley graphs of finite simple groups of Lie type and some results on generation of finite simple groups of Lie type. Using these ideas, we can also improve on results of Borel and Deligne-Sullivan related to the Hausdorff-Banach-Tarski paradox.

Monday, March 4, 2013
Lecture at 4:00 pm
Coffee, tea, and refreshments from 3:40 pm
Room 617, Wachman Building
Department of Mathematics