

COURSE ANNOUNCEMENT  
*MODEL THEORY OF GROUPS*  
MATH 223M, UCLA, SPRING 2018  
MWF 10:00AM–10:50AM, MS 6118

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**Description.** We will discuss several important subjects in the model theory of groups, along with some applications.

- Groups definable in tame structures, e.g. algebraic or real Lie groups, viewed more generally as groups definable in algebraically closed fields and real closed fields, respectively. This will involve some ideas both from the algebraic group theory and topological dynamics, in the context of NIP groups (which includes both stable and o-minimal structures) - a topic of current active research in model theory. As an application, we can classify fields definable in the complex numbers or in the reals, along with obtaining some group theoretic versions of Szemerédi's regularity lemma.
- Recognition of groups from generically given operations (Weil's group chunk theorem, Hrushovski's group configuration theorem, stabilizer theorems and approximate groups). Here we can discuss a theorem of Elekes-Szabo and related results in combinatorics as an application.

Everything will be defined from scratch, so no need to worry if you don't recognize some of the words above. We might cover additional material depending on the audience.