

# Philadelphia Area Number Theory Seminar

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## Families of Galois groups and harmonic families of automorphic forms

**Abstract:** A number of questions in Galois theory can be phrased as follows: how "large" (in various senses) can the Galois group  $G$  of an extension of the rational numbers be, if the extension is only allowed to ramify at a "small" set of primes? If we assume that  $G$  is abelian, class field theory gives us a complete answer, but the question is open in almost every nonabelian case, because there is no known way to systematically and explicitly construct such extensions in full generality.

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