

MATH DEPARTMENT COLLOQUIUM



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3:30 – 4:30 PM
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Cohomological and geometric method in representations of finite groups

For a finite group G , the representations of G over complex number field can completely described by its characters, which can be described by its decomposition into irreducible characters. Over field of characteristic $p > 0$, although irreducible representations in many cases can be described, the irreducible representations is far from enough to understand other representations. Indecomposable representations are much harder to classify, the representation type can be wild. Cohomological and geometric method can be used to stratify the representation category into small pieces.

In this talk, I will talk on cohomological support varieties of representations of finite groups and how the associated cohomological variety can be used in to stratify the representation category and how this can be used in representations of algebraic groups over curves.

Lin earned his doctoral degree from the University of Massachusetts, Amherst. A Kansas State University faculty member since 1993, Lin was promoted to full professor in 2002. He researches representation theory of algebraic groups, quantum groups and Lie algebras, a branch of pure mathematics with deep connections to mathematical physics and quantum computing. Lin has published in top mathematical journals including *Inventiones Mathematicae*, *Advances in Mathematics* and *Transactions of AMS*. Lin's research has been supported by numerous grants from the National Science Foundation and the National Security Agency, and he was a member of Mathematical Science Research Institute. Lin has supervised and co-advised 10 doctoral students in mathematics at Kansas State University. He has been a visiting researcher at Oxford University in the United Kingdom, Aarhus University in Denmark and Osaka City University in Japan.