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Title: Equidistribution of Special Points on Shimura Varieties

Abstract: The André-Oort conjecture states that if a sequence of special points in a Shimura variety Y escapes all Hecke translates of proper Shimura subvarieties, viz. special subvarieties, then every irreducible component of the Zariski closure of the sequence is an irreducible component of Y . A much stronger version of this conjecture is that the Galois orbits of a sequence of special points satisfying the assumption above are equidistributed in connected components of Y . The latter conjecture would also imply the highly useful statement that the Galois orbits are dense in the analytic topology. Even more ambitiously, one would conjecture that orbits of large subgroups of the Galois group should be equidistributed as well. The Pila-Zannier strategy is the driving engine behind the spectacular recent progress on the André-Oort conjecture, but it does not shed any light on these stronger questions of equidistribution and analytic density.

The equidistribution conjecture is essentially known only for modular and Shimura curves following Dukes pioneering result in the 80's. I will discuss the relation of this problem to homogeneous dynamics and periodic torus orbits. I will then present two new theorems, for products of modular curves and for Kuga-Sato varieties, establishing partial results for the equidistribution conjecture by combining measure rigidity and a novel method to show that Galois/Torus orbits of special points do not concentrate on proper special subvarieties.