

Speaker: Christopher Skinner

Title: Euler systems, relative cohomology, and holomorphic forms

Abstract: Euler systems – essentially organized collections of Galois cohomology classes for arithmetically interesting p -adic Galois representations have been one of the most successful tools for establishing the conjectured relation between special values of L-functions and the ranks and orders of Selmer groups. For example, the Euler system of Heegner points is at the heart of the work of Kolyvagin on the rank of elliptic curves and the orders of their Tate-Shafarevich groups. In this talk I will describe recent work providing many new examples of Euler systems with cyclotomic variation. As a replacement of the motivic origin of prior examples, we find the Galois extensions in the relative cohomology of Shimura varieties. The control needed to establish the norm relations and make precise connections with L-values is provided by recent results in integral p -adic Hodge theory, allowing explicit connection with holomorphic automorphic forms.