

Exposé plénier

9 **Euler systems and their applications**

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Euler systems are one of the most powerful tools for proving cases of the Bloch–Kato conjecture, and other related problems such as the Birch and Swinnerton-Dyer conjecture.

I will recall a series of recent works (joint with Loeffler et al.) giving rise to Euler systems in the cohomology of certain Shimura varieties, and explicit reciprocity laws relating the Euler systems to values of L -functions of automorphic forms. I will then discuss some arithmetic applications of these results, e.g. to the Birch—Swinnerton-Dyer conjecture for modular abelian surfaces over \mathbf{Q} , and to the Iwasawa Main conjecture for the symmetric square of a rational elliptic curve.