

An unconditional proof of the abelian equivariant Iwasawa main conjecture

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Abstract

The equivariant Iwasawa main conjecture (EIMC) can be seen as a refinement and generalisation of the Iwasawa main conjecture for totally real fields proven by Wiles. The former has been proven independently by Ritter and Weiss and by Kakde. However, these proofs assume the conjectural vanishing of a certain μ -invariant, which is only known in certain cases. In this talk, I will outline an unconditional proof of the EIMC in the abelian case. A crucial ingredient is the recent groundbreaking work of Dasgupta and Kakde on the strong Brumer-Stark conjecture. If time allows, I will also discuss an extension of this result to certain non-abelian cases and an application to a strong form of the Coates–Sinnott conjecture on the annihilation of higher K-groups of rings of integers (away from 2). This is joint work with Andreas Nickel.