

STARK-HEEGNER POINTS AND THE CLASS NUMBER ONE PROBLEM FOR FAMILIES OF REAL QUADRATIC FIELDS

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The determination by Heegner, Baker and Stark of the complete list of imaginary quadratic orders of class number one relies critically on the theory of complex multiplication. In this talk, we explain how a conjectural extension of this theory to real quadratic fields based on the notion of rigid analytic elliptic cocycles can be used to yield similar lists for some explicit families of real quadratic orders with small regulators. This applies for instance to discriminants of the form n^2+4 , n^2-4 or $4n^2+1$. Joint work with Henri Darmon.