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Quadratic points on dynamical modular curves

This talk will be an overview of an ongoing project in arithmetic dynamics being developed jointly with John Doyle and Xander Faber. A recent algorithm for computing elements of bounded height in number fields was applied to the problem of finding preperiodic points for quadratic polynomials over number fields. Following extensive computations of preperiodic structures over quadratic fields we asked various questions suggested by the data. By using new techniques for studying quadratic points on algebraic curves we are now answering these questions and proving earlier conjectures.