Shimura curve computations

Abstract:

The study of the classical modular curves has long proved rewarding for mathematicians both theoretically and computationally, and an expanding list of conjectures have been naturally generalized to the setting of Shimura curves. However, only recently have the computational aspects of these curves been explored systematically. Indeed, Shimura curves–which naturally fit into a very abstract perspective–can also be made very concrete. In this talk, we provide several examples of Shimura curves and do some explicit computations with them, concluding with some discussion of the central (algorithmic) problems in this area.