

TWISTS OF SHIMURA CURVES AND APPLICATIONS

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ABSTRACT. The classical modular curves of level N are important objects in the study of elliptic curves and modular forms. Shimura curves are a natural generalization of classical modular curves which may be formed using quaternion algebras. In this talk, we will give a short introduction to Shimura curves and their twists. We will then describe some techniques for determining if Atkin-Lehner twists of Shimura curves have rational points. Finally, we will give applications to the study of rational points on varieties, CM elliptic curves and supersingular elliptic curves.