

Elliptic curves with non-split mod p^2 representations

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Abstract. Using the representation theory of $\mathrm{GL}_2(\mathbb{Z}/p^2\mathbb{Z})$, we exhibit a number of relations between the Jacobians of certain modular curves. As an application, we will discuss the viability of Mazur's methods to the study of the rational points on a certain modular curve of level p^2 .

