

Tate modules of Abelian varieties with wild potential good reduction

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Abstract

Abelian varieties over \mathbb{Q}_p give rise to p -adic representations of $G_{\mathbb{Q}_p}$ via their associated Tate modules. We are interested in the inverse problem, that is, to determine when such a representation arises from an Abelian variety over \mathbb{Q}_p . M. Volkov has given an answer in the case of elliptic curves for $p \geq 5$ and Abelian varieties with tame potential good reduction. In this talk we will discuss the case of wild potential good reduction. We will present a full classification of the 3-adic representations arising from elliptic curves over \mathbb{Q}_3 with potential good reduction. Then, we will discuss the case of surfaces over \mathbb{Q}_p for $p = 3, 5$.