

On the Faltings-Serre method

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Résumé

We will describe, following Serre, a method first developed by Faltings to compare representations of a group, and we will also describe a related method due to Livné. We will see how it can be applied to the comparison of Galois representations in an effective way. In particular cases, for example when comparing the Galois representations attached to elliptic curves and modular forms over an imaginary quadratic field, all can be put together in an algorithm for deciding the equality of such representations.