# (Equationless geometric) quadratic Chabauty

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Chabauty's method, first presented 1941, is still being used to compute or bound the rational points of specific curves when the rank of the Mordell Weil group of their Jacobian is strictly smaller than their genus. The quadratic variant of this method extends the applicability when the Jacobian has non-trivial Néron-Severi group. This makes it a good candidate to study rational points on the 'non-split' modular curves, as done for $X_{ns}^+(13) = X_s^+(13)$ in 2019. We'll explain this $p$-adic method, in the geometric version, and in particular how to apply it to modular curves without computing explicit equations, only using the moduli interpretation. This is joint work with Bas Edixhoven, and ongoing with Sachi Hashimoto, Davide Lombardo, Nicolas Mascot and Pierre Parent.