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Lian Duan* (l.duanzwz@gmail.com). *Comparison of 3-dimensional Galois representations by computational method.*

The Faltings-Serre method is an effective method used in comparison of Galois representations. It is widely used to verify the equivalence between Galois representations induced by elliptic curves or modular forms. However, besides of examples of GL2 representations, there are not many applications of this method for higher dimensional representations due to the increase of complexity and the limit of current hardware. In this talk, we will discuss an improvement of this method for GL3 Galois representations over a family of quadratic extensions. As an application, we give a computational proof of one specific case of the conjecture of van Geemen and Top. (Received September 16, 2019)