

## **abstract**

JOINT IAS/PU NUMBER THEORY SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

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Suppose that  $\rho$  is a three-dimensional modular mod  $p$  Galois representation whose restriction to the decomposition groups at  $p$  is irreducible and generic. If  $\rho$  is modular in some (Serre) weight, then a representation-theoretic argument shows that it also has to be modular in certain other weights (we can give a short list of possibilities). This goes back to an observation of Buzzard for  $GL_2$ . Previously we formulated a Serre-type conjecture on the possible weights of  $\rho$ . Under the assumption that the weights of  $\rho$  are contained in the predicted weight set, we apply the above weight cycling argument to show that  $\rho$  is modular in precisely all the nine predicted weights. This is joint work with Matthew Emerton and Toby Gee.