Speaker: Patrick Allen

Title: R = T in the absence of minimal lifts

Abstract: The strong form of Serre's conjecture states that an irreducible, odd, mod p Galois representation arises from a modular form of certain minimal level and weight. An example of Serre shows that you can't also demand the modular form to have minimal nebentypus, and Carayol explained that this problem only arises for certain dihedral representations when p is 2 or 3. When p is 3, these same dihedral representations are problematic for computing presentations of certain Galois deformation rings. We will consider what one can say about minimal R = T theorems for these cases, explaining a link between some derived structure on the Galois side with the orbifold structure on the modular side. This is joint work in progress with Preston Wake.