

**Upstate New York Online Number Theory Colloquium**

**Time and Date:** 12:00 EST June 8, 2020

**Speaker:** Chandrashekhhar Khare

**Title:** Serre-type conjectures for projective representations

**Abstract:** We consider automorphy of many representations of the form  $\bar{\rho} : G_K \rightarrow PGL_2(k)$  with  $K$  a CM field and  $k = F_3, F_5$ . In particular we prove (under some mild conditions) that for  $F$  totally real, a surjective representation  $\bar{\rho} : G_F \rightarrow PGL_2(F_5)$  with totally odd sign character arises from a Hilbert modular form of weight  $(2, \dots, 2)$ . This is joint work with Patrick Allen and Jack Thorne.