1135-11-355 **Shiang Tang***, 1400 east, 155 south, Salt Lake City, UT 84112. *Inverse Galois Theory and p-adic Galois representations.*

The classical Inverse Galois Problem asks whether every finite group can be realized as a Galois group over the rationals. In this talk, we introduce a variant of this problem: for a prime number p and a connected reductive algebraic group G, are there continuous homomorphisms from $\mathrm{Gal}(\overline{\mathbb{Q}}/\mathbb{Q})$ to $G(\overline{\mathbb{Q}}_p)$ with Zariski-dense images? There is a complete answer to this question. The method we use is Galois deformation theory, which became one of the central tools in modern number theory when Andrew Wiles announced his celebrated proof of Fermat's Last Theorem. (Received August 27, 2017)