

# Séminaire de théorie des nombres Londres-Paris

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## A Serre-type conjecture for the weights of tame $n$ -dimensional modulo $p$ Galois representations

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**Abstract :** I will discuss the weights in a Serre-type conjecture for  $n$ -dimensional mod  $p$  Galois representations  $\rho$  of the absolute Galois group of  $\mathbb{Q}$  that are tamely ramified at  $p$ . The weight in this context is an irreducible mod  $p$  representation of  $\Gamma = GL_n(\mathbb{F}_p)$ . The conjecture predicts the weights in which  $\rho$  arises in terms of the reduction mod  $p$  of a characteristic 0 representation of  $\Gamma$  associated to  $\rho$  restricted to the inertia subgroup at  $p$ . It refines, and is more conceptual than, a previous conjecture of Ash, Doud, Pollack, and Sinnott. Some theoretical evidence arising from automorphic representations on  $GL_4$  is discussed.