## SOME EXAMPLES OF SMALL IRREDUCIBLE EXOTIC 4-MANIFOLDS WITH FREE ABELIAN FUNDAMENTAL GROUP

Abstract: Several authors have constructed infinite sets of pairwise non-diffeomorphic closed oriented 4-manifolds that share the Q-cohomology ring with  $2\mathbb{CP}^2 \# k \overline{\mathbb{CP}}^2 \# (S^1 \times S^3)$  for k = 3, 4, 5, 6. In this talk, I will discuss how to pin down their homeomorphism type. More precisely, I will explain the notion of equivariant intersection form of a closed oriented 4-manifold and how to compute it for 4-manifolds that are produced using torus surgeries. Classification results by Freedman-Quinn, Stong-Wang and Hambleton-Kreck-Teichner then allow us to pin down the homeomorphism type of such 4-manifolds, including the infinite sets mentioned before. This is joint work with Rafael Torres and Daniele Zuddas.