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Topological 4-manifolds with RAAG fundamental groups

For a non-simply connected 4-manifold M, the basic homotopy invariants are the fundamental group $\pi := \pi_1(M)$, the second homotopy group $\pi_2(M)$, the equivariant intersection form s_M, and the first k-invariant $k_M \in H^3(\pi; \pi_2(M))$. These four invariants give the quadratic 2-type of M,

$$Q(M) := [\pi_1(M), \pi_2(M), s_M, k_M].$$

In 2009, Hambleton, Kreck and Teichner showed that the quadratic 2-type determines the classification of topological 4-manifolds with geometrically 2-dimensional fundamental groups. In this talk, I'll present my joint work with Ian Hambleton in which we prove a similar result for topological spin 4-manifolds with certain fundamental groups called right-angled Artin groups (or RAAGs). A RAAG is a finitely generated group whose relators consist solely of commutators between generators.