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Title: Topologically unknotted and smoothly knotted 2-spheres in 4-manifolds

Abstract: A result of Freedman says that every locally flat embedded 2-sphere in the 4-sphere whose complement has infinite cyclic fundamental group bounds a locally flat embedded 3-ball. An intriguing open question in 4-manifolds asks whether this statement also holds in the smooth category. There are closed simply connected 4-manifolds that do contain infinitely many inequivalent 2-spheres that do not bound a smoothly embedded 3-ball although they do bound a locally flat embedded one. We will describe a construction of such embeddings in this talk.