Homeomorphisms of contractible manifolds

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I will discuss joint work with Randal-Williams on contractible compact manifolds and their homeomorphism groups. In dimension $d \leq 3$, any contractible d-manifold is homeomorphic to the disk D^d, and it was proved by Alexander in 1923 that the group of all homeomorphisms of D^d, restricting to the identity on the boundary, is contractible. In dimension $d > 3$ there are plenty of examples of contractible compact manifolds with non-simply connected boundary, which are therefore not homeomorphic to D^d. In joint work with Randal-Williams we prove that, at least for $d \geq 6$, such manifolds nevertheless have contractible homeomorphism groups relative to their boundary.

A key tool is embedding calculus, developed by Michael Weiss and others.