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Title: Configuration categories of surfaces and applications to knot theory

Abstract: The configuration category is a fine invariant of smooth manifolds that records the homotopy types of the configuration spaces of this manifold together with the data of collisions between points. In good cases, knowing the configuration categories of two manifolds is good enough to compute the homotopy type of the space of embeddings between them thanks to a technology called manifold calculus due to Goodwillie and Weiss. When the manifold is an algebraic variety over the complex numbers, I will give an algebro-geometric model for the configuration category using the theory of log-schemes. This implies the collapse of the Goodwillie–Weiss spectral sequence in some cases. One consequence of this collapse is an explicit computation of the universal finite type invariant of long knots in a 3-manifold of the form surface times  $\mathbb{R}$ . This is joint work with Pedro Boavida de Brito and Danica Kosanovic.