

Monopole Floer homology for webs and foams

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As generalizations of links and surfaces, webs are embedded trivalent graphs, and foams are certain singular cobordisms between webs. These objects appear in various contexts, such as knot homology, representation theory, and combinatorics. In this talk, I will describe a construction of monopole Floer homology for webs that is functorial under foam cobordisms. The construction involves both real and orbifold Seiberg–Witten theory. The approach is based on Kronheimer and Mrowka’s monopole Floer homology; there is an interesting analogy between this monopole web homology and the instanton web homology introduced by Kronheimer and Mrowka. (Talk based on arxiv 2311.03336)