# Deformations of Fukaya categories of surfaces

Severin Barmeier

Deformation theory formalizes the idea of "varying parameters" in an algebraic or geometric object such as an associative algebra, a variety, or a triangulated category. In order to describe deformations of triangulated categories, one has to overcome several obstacles, both theoretical and conceptual. I will explain how for partially wrapped Fukaya categories of surfaces, all of these obstacles can be overcome. These categories lie at the crossroads of symplectic geometry, representation theory and the theory of noncommutative curves and the description of their deformation theory uses insights from all of these perspectives. All abstract A-infinity deformations can be explained in terms of partial orbifold compactifications of the underlying surface, giving rise to a theory of Fukaya categories of orbifold surfaces. This result also sheds new light on the role of stop data in the relationship between A-infinity deformations and partial compactifications of symplectic manifolds, outlined in Seidel's ICM 2002 address.