

# Topology of moduli spaces

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## **Project**

The notion of a moduli space is central in algebraic geometry: for more than a century, people have studied moduli of curves, abelian varieties, K3 surfaces, arrangements, etc. Much of my research has centered on the study of the topology of such moduli spaces. A particular focus point has been the moduli space of curves, which is also of significant interest in topology, as it can be seen as the classifying space of the diffeomorphism group of a surface. This allows one to study the moduli space of curves using a blend of homotopical and algebro-geometric techniques.

In recent years, I have also become interested in arithmetic statistics — applications of the topology of moduli spaces to analytic number theory over function fields.