

Geometric structures and Higgs bundles

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Teichmüller space is the space of complex analytic structures on a fixed topological surface. Its theory is intricately related to that of hyperbolic structures and, via Fuchsian representations, to the study of representations of the fundamental group of the surface.

Higher Teichmüller theory is currently an active area of research and aims to generalise parts of this story to more general types of geometric structures.

I will describe how a powerful tool from algebraic geometry, namely the theory of Higgs bundles, can be brought to bear on questions within this area.

The talk is partly based on my joint work [1] with S. Bradlow, B. Collier, O. García-Prada and A. Oliveira.

References

- [1] BRADLOW, S., COLLIER, B., GARCIA-PRADA, O., GOTHEN, P. B. AND OLIVEIRA, A., *A general Cayley correspondence and higher Teichmüller spaces*, [arXiv:2101.09377](https://arxiv.org/abs/2101.09377) [math.AG].

Invited Algebraic Geometry Session