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Siegel-Veech constants of certain cover constructions

Siegel-Veech constants are quantities describing counting problems (of saddle-connections, cylinders, etc.) on flat surfaces and, after the works of many mathematicians (including Aggarwal, Chen, Eskin, Kontsevich, Moller, Sauvaget, Zagier, Zorich just to mention a few), we know that these constants are related to several interesting mathematical objects such as quasi-modular forms, Lyapunov exponents, slopes of holomorphic bundles, intersection numbers, ...

In this talk, we shall explain how a precise control of the monodromy actions of the orbifold fundamental group of connected components of strata of Abelian differentials on relative cohomology groups allow to compute (and get some surprising phenomena about) the Siegel-Veech constants of loci of cyclic covers of translation surfaces. This is based on a joint work with D. Aulicino, A. Calderon, N. Salter and M. Schmoll.