

Cohomology rings of character varieties

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Abstract: I will give an introduction and present some recent progress towards understanding the cohomology rings of character varieties of Riemann surfaces, such as the proof of the $P=W$ conjecture and the computation of the zero-dimensional COHA. In the case of punctured sphere I will present an explicit description relating the cohomology rings to the Hilbert scheme of C^2 , refining conjectures of Hausel-Letellier-Rodriguez-Villegas and Chuang-Diaconescu-Donagi-Pantev.