Francois Labourie

Title: An algebra of observables for cross ratios

Abstract: We define a Poisson Algebra called the swapping algebra using the intersection of curves in the disk. We interpret a subalgebra of the fraction swapping algebra – called the algebra of multifractions – as an algebra of functions on the space of cross ratios and thus as an algebra of functions on the Hitchin component as well as on the space of SL(n;R)-opers with trivial holonomy. We finally relate our Poisson structure to the Drinfel'd-Sokolov structure and to the Atiyah- Bott-Goldman symplectic structure for classical Teichm¨uller spaces and Hitchin components