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FUCHSIAN MODULI ON A RIEMANN SURFACE —ITS POISSON STRUCTURE AND POINCARÉ-LEFSCHETZ DUALITY

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The moduli space of Fuchsian projective connections on a closed Riemann surface admits a Poisson structure. The moduli space of projective monodromy representations on the punctured Riemann surface also admits a Poisson structure which arises from the Poincaré-Lefschetz duality for cohomology. We shall show that the former Poisson structure coincides with the pull-back of the latter by the projective monodromy map. This result explains intrinsically why a Hamiltonian structure arises in the monodromy preserving deformation.

Introduction. It has been known that a Hamiltonian structure arises in the theory of monodromy preserving deformation of meromorphic differential equations. See [**KO**], [**O**]. However it has not yet been known why such a Hamiltonian structure does arise. Our result in the present paper will explain the reason clearly and intrinsically. Rather it will be even self-evident from our point of view why such a Hamiltonian structure arises.

In this introduction we shall explain only idea of the present paper. As for rigorous statements written by using precise notation, see the later sections.

Let M be a closed Riemann surface of genus $g \geq 0$. Let m be a positive integer such that $n = m + 3g - 3$ is positive. In the previous paper [**I**] we constructed a moduli space $\mathscr{E}$ of a certain class of Fuchsian differential equations L on M such that L has m-generic singular points and n-apparent singular points and such that L has *fixed* characteristic exponents at each generic singular point. As for the definition of generic singular point and apparent singular point, see §1. Let B be the configuration space of m-points in M. We have the natural projections $\varpi : \mathscr{E} \to B$ which assigns to each differential equation in $\mathscr{E}$ its generic singular points.

In [**I**] we also constructed a moduli space of projective monodromy representations of the punctured Riemann surface $M \backslash \{m\text{-points}\}$. More precisely, we constructed a space R together with a projection