On automorphisms of moduli spaces of parabolic vector bundles

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Parabolic vector bundles were introduced by Mehta and Seshadri in the 1970's in order to generalize to curves with cusps the classical Narasimhan-Seshadri correspondence between stable vector bundles on smooth projective curves and unitary representations of their fundamental groups. Let C be a smooth complex projective curve and fix distinct points $p_1, \ldots, p_n \in C$. A *parabolic vector bundle* on $\big(C, p_1, \ldots, p_n\big)$ is a vector bundle E on C with the additional data of a flag on the fiber over each parabolic point p_i. A choice of weights $\mathcal{A}$ for the parabolic flags yields a notion of slope-stability, and there is a projective moduli space $\mathcal{M}_{\mathcal{A}}$ of semistable parabolic vector bundles having a fixed determinant line bundle. Different choices of weights usually yield different moduli spaces, coming from variation of GIT.

In this talk, we will consider the case when $C \cong \mathbb{P}^1$ is the complex projective line, the vector bundles have rank 2, and the flags are given by parabolic directions $V_i \subset E_{p_i}$ over each parabolic point. In this special case, the weight vector $\mathcal{A} = (a_1, \ldots, a_n)$ consists of an n-uple of real numbers $0 \leq a_i \leq 1$, and the different moduli spaces $\mathcal{M}_{\mathcal{A}}$ are well described. Under some restrictions on the weights, we determine and give a modular interpretation of the automorphism groups of $\mathcal{M}_{\mathcal{A}}$. This is a joint work with Thiago Fassarella, Inder Kaur and Alex Massarenti.