

PGL_2 -equivariant strata of point configurations in \mathbb{P}^1

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Abstract. We compute the integral Chow ring of the quotient stack $[(\mathbb{P}^1)^n/PGL_2]$, which contains $\mathcal{M}_{0,n}$ as a dense open, and determine a natural \mathbb{Z} -basis for the Chow ring in terms of certain ordered incidence strata. We further show that all \mathbb{Z} -linear relations between the classes of ordered incidence strata arise from an analogue of the WDVV relations in $A^\bullet(\overline{\mathcal{M}}_{0,n})$. Next we compute the classes of unordered incidence strata in the integral Chow ring of the quotient stack $[\text{Sym}^n \mathbb{P}^1/PGL_2]$ and classify all \mathbb{Z} -linear relations between the strata via these analogues of WDVV relations. Finally, we compute the rational Chow rings of the complement of a union of unordered incidence strata.

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