

RESULTS ABOUT THE CHOW RING OF MODULI OF STABLE CURVES OF GENUS THREE

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In this talk, we will discuss some results concerning the Chow ring of $\overline{\mathcal{M}}_3$, the moduli stack of stable curves of genus three.

We will start by describing the state of the art regarding the intersection theory of moduli stacks of (stable) curves, listing some important results and computations in the field.

Then, we will briefly introduce the notion of the equivariant intersection theory, listing the property we need and explaining some example. The reference for this part is [1].

Subsequently, we will discuss the strategy we want to apply to compute the Chow ring of the moduli stack of $\overline{\mathcal{M}}_3$, namely introducing the so-called "patching lemma" and explaining what are the issues with it and how to solve them. In doing so, we will apply the strategy for the case of $\overline{\mathcal{M}}_2$ to better understand the potential (and also the limitations) of this strategy. The same strategy was used in [2] to compute the integral Chow ring of $\overline{\mathcal{M}}_{2,1}$.

Finally, we will describe how the strategy applies in the case of $\overline{\mathcal{M}}_3$ and explain what issues have to be solved in order to conclude the computation.

REFERENCES

- [1] EDIDIN, D. AND GRAHAM, W., *Equivariant Intersection Theory*, Inv. math. 131, 595-634, 1998
- [2] DI LORENZO, A. AND PERNICE, M. AND VISTOLI, A., *Stable cuspidal curves and the Chow ring of $\overline{\mathcal{M}}_{2,1}$* , Preprint on arXiv: <https://arxiv.org/abs/2108.03680>