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Topology of the moduli space of real algebraic curves of genus 0 with n labeled points

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ABSTRACT

The Deligne-Mumford compactification $\overline{M}_{0,n}$ of the moduli space of algebraic curves of genus 0 with n labeled points is a smooth projective variety defined over $\mathbf{Q}$. The topology of the complex locus of this variety, $\overline{M}_{0,n}(\mathbf{C})$, is well understood, thanks to the works of Keel, Kontsevich-Manin, Getzler, and others.

I will concentrate on the less well-known topology of the real locus, $\overline{M}_{0,n}(\mathbf{R})$, which was studied in the works of Kapranov, Devadoss, Davis-Januskiewicz-Scott, and others. In particular, I will describe the structure of the rational cohomology algebra of this manifold, its Poincaré polynomial, and the homology operad, following my joint work with A. Henriques, J. Kamnitzer, and E. Rains.