

## Irrationality and monodromy for cubic threefolds

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**Abstract.** Let  $\mathcal{M}$  denote the moduli space of smooth cubic threefolds. We prove that the monodromy  $\pi_1(\mathcal{M}) \rightarrow \mathrm{Sp}(10; \mathbb{Z})$  of the third cohomology groups on the fibres of the universal family does not factor through the genus-five mapping class group. This gives a geometric group theory perspective on the well-known irrationality of cubic threefolds, and provides evidence for a corresponding symplectic non-rationality conjecture.

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