

Counterexamples to the Faber conjecture

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Faber and Pandharipande formulated a “trinity” of conjectures regarding the tautological rings of moduli spaces of curves. Specifically, they conjectured that there is Poincaré duality in the tautological ring of the space of n -pointed genus g curves that are either (i) stable, or (ii) of compact type, or (iii) with rational tails. I will explain that there are now two known counterexamples to this conjecture: in the stable case, it fails when $g = 2$ and $n \geq 20$ (this is due to joint work with Orsola Tommasi), and in the compact type case, it fails when $g = 2$ and $n \geq 8$.