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Exceptional fillings of once-punctured torus bundles

Let M be a hyperbolic 3-manifold which is a bundle over the circle with a once-punctured torus as fibre. Its monodromy is conjugate in $\mathrm{SL}(2,\mathbb{Z})$ to the canonical form $\pm R^{a_1}L^{b_1}\cdots R^{a_n}L^{b_n}$ with positive exponents, where $n>0$ and R and L are the upper and lower triangular matrices generating $\mathrm{SL}(2,\mathbb{Z})$. We show that when $n>5$, there is only one non-hyperbolic Dehn filling of the bundle (namely the Dehn filling with slope isotopic to the boundary of the fibre). This concretizes a result of Bleiler and Hodgson which showed the existence of such a lower bound. The bound is sharp, as there are bundles with $n=5$ which admit two exceptional fillings.

This is joint work with David Futer (Michigan State University).