

Boundary Dehn twists on 4-manifolds and Milnor fibrations of surface singularities ^{1h0'}

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Abstract: A 4-manifold with boundary on a Seifert-fibered space admits a 'boundary Dehn twist' diffeomorphism, obtained by a fibered version of the classical 2-dimensional Dehn twist. This diffeomorphism arises naturally as (a power of) the monodromy of Milnor fibrations of surface singularities. In this talk I will discuss non-triviality results for boundary Dehn twists on symplectic fillings of Seifert-fibered spaces, using tools from Seiberg—Witten theory. Some applications include:

- The ADE singularities are the only weighted-homogeneous isolated hypersurface singularities in complex dimension 2 whose monodromy has finite order in the smooth mapping class group.
- There are exotic \mathbb{R}^4 's which admit exotic (compactly-supported) diffeomorphisms.

Joint with Hokuto Konno, Jianfeng Lin and Anubhav Mukherjee.