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Title: *Homology cylinders in knot theory*

Abstract: Sutured manifolds defined by Gabai are useful objects to study knots and 3-manifolds. Homology cylinders are in an important position in the recent theory of mapping class groups of surfaces and finite-type invariants of 3-manifolds. We observe a relationship between them by focusing on sutured manifolds associated with a special class of knots which we call homologically fibered knots. Then we discuss the (non-)fiberedness problem of homologically fibered knots by using Johnson homomorphisms and clasper surgery theory.

This is a joint work with Hiroshi Goda (Tokyo University of Agriculture and Technology).