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Margaret Nichols* (nicholism@buffalo.edu). *Taut sutured handlebodies as twisted homology products.*

Sutured manifolds provide a framework for studying the complexity of H_2 of a 3-manifold, as measured by the Thurston norm; minimal complexity here corresponds to the sutured manifold being taut. We explore a method for certifying tautness, by showing that the sutured manifold is homologically simple - a so-called ‘rational homology product’. Most sutured manifolds do not have this form, but do always take the more general form of a ‘twisted homology product’, which incorporates a representation of the fundamental group. The question then becomes, how complicated of a representation is needed to realize a given sutured manifold as such?

We explore the case of sutured handlebodies, and see even among the simplest class of these, twisting is required. We give examples for which, when restricted to solvable representations, the twisting representation cannot be ‘too simple’. (Received August 20, 2019)