

## A generalisation of the deformation variety

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Abstract: Given an ideal triangulation of a 3-manifold with torus boundary components, a point of the deformation variety is an assignment of complex numbers to the dihedral angles of the tetrahedra subject to Thurston's gluing equations. From this, one can recover a representation of the fundamental group of the manifold into the isometries of 3-dimensional hyperbolic space. However, the deformation variety depends crucially on the triangulation: there may be entire components of the representation variety which can be obtained from the deformation variety with one triangulation but not another, and it is unclear how to choose a "good" ideal triangulation that avoids these problems. I will describe the "extended deformation variety", a generalisation which solves this issue while retaining many of the desirable features of the deformation variety. In particular, for any triangulation of a small manifold with a single torus boundary component, the extended deformation variety recovers all irreducible, non-dihedral representations. For more general manifolds, there is an algorithm to construct a triangulation for which the same result holds.