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Title A dual graph approach to minimal-genus surfaces and the Thurston norm

Abstract: Consider a surface S in the exterior of a link L . When is S a minimal-genus Seifert surface for L ? More generally, if S is properly embedded in a compact oriented 3-manifold M , when is S Thurston norm-minimising? Classical work of Thurston and Gabai shows that finitely many taut sutured manifold hierarchies determine the Thurston norm of a compact oriented irreducible 3-manifold with toroidal boundary. We begin by reviewing Gabai's theory of sutured manifolds and taut sutured manifold hierarchies. We then explain how the information encoded by these hierarchies can be extracted explicitly via the new dual graph construction.