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Calculating the classical algebraic topology of a 4-manifold from a trisection diagram.

The notion a *trisected 4-manifold*, introduced in 2012 by Gay and Kirby, allows one to study a smooth, oriented 4-manifold from the perspective of some of its 2- and 3-dimensional submanifolds. In particular, the smooth structure of a 4-manifold can be encapsulated in three sets of isotopy classes of simple closed curves on a closed surface in what is called a *trisection diagram*. I will provide a brief background on trisections and trisection diagrams, and then show how to compute the homology and intersection form of a 4-manifold X from the homological information in any trisection diagram for X . (Received September 20, 2017)