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**Sarah Blackwell\*** (seblackwell@uga.edu), **Robion Kirby**, **Michael Klug**, **Vincent Longo**  
and **Benjamin Ruppik**. *Group Trisections and Smoothly Knotted Surfaces*. Preliminary report.

A trisection of a (smooth, connected, closed, oriented) 4-manifold induces a Van Kampen cube of fundamental groups coming from the pieces of the trisection, and more surprisingly, vice versa. That is, a cube of groups satisfying a few simple requirements produces a trisection of a 4-manifold [Abrams, Gay, Kirby]. One natural question to ask is whether the same holds for bridge trisections of smoothly knotted surfaces in 4-manifolds. In this talk I will show how algorithmically producing a trivial tangle from a surjection between free groups allows us to answer this question in the affirmative. Consequently, although smoothly knotted surfaces in the 4-sphere cannot be distinguished by fundamental groups, they can be distinguished by group trisections. Stallings folding, a technique that translates between surjections between free groups and directed graphs, guides the proof. This is joint work with Rob Kirby, Michael Klug, Vince Longo, and Benjamin Ruppik. (Received August 05, 2021)