Surfaces and isotopies in 4-manifolds via banded unlinks.

There are a number of well-established ways to represent knotted surfaces and isotopies between them in $S^4$, including motion pictures with movie moves, or broken surface diagrams with Roseman moves. In this talk we will discuss another method of representing surfaces in 4-space via banded unlinks, which can also be used to describe surfaces in an arbitrary oriented 4-manifold $X$. We will present a set of moves which are sufficient to relate any two banded unlink presentations of isotopic surfaces in $X$, which generalizes a theorem in $S^4$ due to Swenton. As an application of this theorem we prove that bridge trisections of surfaces in 4-manifolds are unique up to perturbations. This is joint work with Seungwon Kim and Maggie Miller. (Received August 20, 2019)