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Positivity for Cluster Algebras Associated to Surfaces

An important class of cluster algebras is defined using triangulations of 2-dimensional surfaces with boundary. The simplest case are cluster algebras of Dynkin type A which correspond to triangulated polygons, but any surface with boundary gives rise to cluster algebra.

In this talk, I will present an expansion formula for these algebras using certain paths on the triangulations on the surface. In particular, this formula provides a proof of a conjecture of Fomin and Zelevinsky on the positivity of the coefficients in these expansions.