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Combinatorial solutions to T-systems with principal coefficients.

The A_∞ T-system is a system of formal variables satisfying the Octahedron relation without boundary conditions. Given a valid set of initial data, many combinatorial solutions have been considered, e.g. dimer solution, non-intersecting path solution. Any T-system can also be interpreted as a particular subtree of a cluster pattern without coefficients.

In this talk, we consider A_∞ T-systems with principal coefficients. Two combinatorial solutions, dimer solutions and non-intersecting path solutions, are introduced. They are generalizations of the solutions in coefficient-free cases. In theory of cluster algebra, this special choice of coefficients gives solutions to all cluster patterns and Y-patterns with arbitrary coefficients on the octahedron quiver, specializations include T-systems with coefficients discussed in Speyer's 2007, Lambda determinants in Di Francesco's 2013 and pentagram maps. (Received January 13, 2015)