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**Tamás Kálmán\*** ([kalman@math.titech.ac.jp](mailto:kalman@math.titech.ac.jp)). *A new type of combinatorics in knot theory.*

Given a bipartite graph  $G$ , I will outline the construction of its root polytope  $Q_G$  and that of its two hypertree polytopes which are (essentially) cross-sections of  $Q_G$ . I will explain how these objects are related to low-dimensional topology on two fronts: A) If the plane bipartite graph  $G$  is the Seifert graph of the special alternating link  $L_G$ , then the Homfly polynomial of  $L_G$  contains the common  $h$ -vector of all triangulations of  $Q_G$ . This is joint work with Hitoshi Murakami. B) The hypertree polytopes of a plane bipartite graph are recovered as the Euler characteristic of certain sutured Floer homology groups. This result is joint with András Juhász and Jake Rasmussen. (Received July 27, 2011)