1073-52-77 **Tamás Kálmán*** (`kalman@math.titech.ac.jp`). *Tutte's polynomial for hypergraphs and polymatroids.*

Given an integer-valued submodular set function μ, I will define two polynomial invariants of the corresponding polymatroid that generalize the valuations $T(x,1)$ and $T(1,y)$ of the Tutte polynomial of matroids. The definitions use extensions of Tutte's notions of internal and external activity to the integer lattice points in the base polytope B_μ. I will state several properties of the new polynomials (including deletion-contraction formulas and a conjectural relation to the h-vector of root polytope triangulations) for a class of polymatroids derived from hypergraphs. If we further specialize to hypergraphs that can be drawn as plane bipartite graphs, we obtain a version of the planar duality rule for T, as well as a connection to Tutte's Tree Trinity Theorem. Some of these results are joint with Alex Postnikov. (Received July 27, 2011)