1048-57-34 **Satyan L Devadoss*** (satyan.devadoss@williams.edu) and **Stefan Forcey**. *Graph Multiplihedra.*

Given a graph G, we construct a convex polytope whose face poset is based on marked subgraphs of G. This polytope yields a natural generalization of the multiphihedron, classically known to capture associativity information between spaces. We show features of this polytope appear in works related to quilted disks, bordered Riemann surfaces, operadic structures, and higher category theory. Indeed, certain examples of graph multiplihedra are related to Minkowski sums of simplices and cubes and others to the permutohedron. (Received December 19, 2008)