Satyan L Devadoss* (devadoss@sandiego.edu) and Mia Smith. Colorful Graph Associahedra. Preliminary report.

Given a graph $G$, there exists a simple convex polytope called the graph associahedron whose face poset is based on the connected subgraphs of $G$. Motivated by ideas in algebraic topology and computational geometry, we define the colorful graph associahedron based on an assignment of a color parameter. We show it to be a simple abstract polytope, provide its construction based on the classical permutohedron and prove various combinatorial and topological properties. (Received September 08, 2016)