

1064-05-131

**Benjamin J Braun\*** (benjamin.braun@uky.edu), 715 Patterson Office Tower, University of Kentucky, Lexington, KY 40506, and **Matthew Zeckner**. *Deformation Retracts of Neighborhood Complexes of Stable Kneser Graphs*. Preliminary report.

In 2003, Anders Björner and Mark De Longueville proved that the neighborhood complex of the stable Kneser graph  $SG_{n,k}$  is homotopy equivalent to a  $k$ -sphere. Further, for  $n = 2$ , they showed that the complex deformation retracts to a subcomplex isomorphic to the associahedron. They went on to ask whether or not, for all  $n$  and  $k$ , the neighborhood complex of  $SG_{n,k}$  contains as a deformation retract the boundary complex of a simplicial polytope.

We give a positive answer to this question in the case  $k = 2$ . We also find in this case that, after partially subdividing the neighborhood complex, the resulting complex deformation retracts onto a spherical subcomplex that is invariant under the action induced by the automorphism group of  $SG_{n,2}$ . (Received September 03, 2010)