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Eric L Grinberg* (eric.grinberg@umb.edu), Department of Mathematics, UMass Boston, 100 Morrissey Blvd, Boston, MA 02125. *Volume-Area Cross Section Comparisons in the Context of Group Symmetry*. Preliminary report.

The classical Busemann-Petty problems and the many variants they have spawned ask if cross-sectional area or volume inequalities for bodies in a homogenous space induce corresponding inequalities in other dimensions. One of the special themes involves imposing a group symmetry condition on the class of cross-sections used and the bodies measured. Foundational results of Minkowski and Funk can be said to correspond to symmetry manifested by the two element group. We discuss results known for larger groups and propose expanding the realm of cross-sections and domains to include symmetries for groups that are larger still. Typically, these are matrix groups acting on spheres and other symmetric spaces. (Received January 25, 2022)