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Alathea I. Jensen* (alatheajensen@gmail.com). *Self-Polar Polytopes*. Preliminary report.

The only set which is equal to its own polar set is the unit ball, but there are many sets which are orthogonal transformations of their polar sets. We will investigate polytopes which are equal to their negative polar sets. These polytopes were first studied by Lovász as a means of establishing the chromatic number of distance graphs on spheres, and they can also be used to construct triangle-free graphs with arbitrarily high chromatic number. We will also investigate polytopes which are equal to other orthogonal transformations of their polar sets. We will discuss the existence, construction, and facial structure of self-polar polytopes, as well as the place of these polytopes within the broader set of self-dual polytopes. (Received February 03, 2018)