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**Jack E Graver\*** (jegraver@syr.edu), Department of Mathematics, Syracuse University, Syracuse, NY 13244, and **Elizabeth J Hartung** (ejhartun@syr.edu), Department of mathematics, Syracuse University, Syracuse, NY 13244. *A catalog of self-dual plane graphs with maximum degree 4.*

Self-dual plane graphs have been studied extensively. In 1992, Archdeacon and Richter [*Construction and Classification of Self-Dual Spherical Polyhedral*, J. Comb. Theo. **B 54**, 37-63 (1992)] described a method for constructing all self-dual plane graphs; a second construction was produced by Servatius and Servatius [*Self-dual graphs*, Disc. Math. **149**, 223-232, (1996)]. In both cases the construction is inductive. In this paper, we construct a catalog of self-dual plane graphs with maximum degree 4 (self-dual spherical grids). Self-dual spherical grids fall into a finite number of parameterized, infinite families. The individual self-dual spherical grids in a family have the same basic shape, differing only in size. A catalog, as opposed to a method of construction, yields direct access to individual self-dual spherical grids without constructing all smaller self-dual spherical grids first. (Received February 21, 2009)