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Nicholas P Robbins* (nrobbins@gettysburg.edu), Gettysburg College, 300 North Washington St., Gettysburg College, PA 17325. *Scalar Field Dark Matter and Spiral Structures of Galaxies: Higher Order Effects and Gravitational Lensing*. Preliminary report.

H. Bray recently suggested that density waves in scalar field dark matter caused by their wave nature is the source of spiral structures in disk galaxies using just the zeroth and second order spherical harmonic. We examine the contribution of fourth order spherical harmonics to the spiral structure.

We also determine the gravitational lensing properties of these models of galaxy scale dark matter. (Received September 21, 2011)