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Marlos A.G. Viana* (viana@uic.edu). *Spectral Analysis of Dihedral Data.*

The notion of data indexed by planar rotations and reversals defined by the dihedral groups is introduced and formulated within the context of the canonical decomposition theorem for finite groups and its (dihedral) Fourier analysis equivalence. It is shown that the methodology can be used to determine exploratory summaries of the data that often reflect a number of analytic properties of interest, and systematically obtain the analysis of those summaries within the context of quadratic forms, when appropriate. (Received January 26, 2010)