HARMONIC RECONSTRUCTION SYSTEMS

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Abstract. This paper considers group reconstruction systems (GRS’s), for finite dimensional real or complex Hilbert spaces $\mathcal{H}$, that are associated with unitary representations of finite abelian groups. The relation between these GRS’s and the generalized Fourier matrix is established. A special type of Parseval GRS, called harmonic reconstruction system (HRS), is defined. It is shown that there exist HRS’s that present maximal robustness to erasures given characterizations of certain families.

Key words. Reconstruction systems, Fusion frames, $g$-Frames, Maximal robustness to erasures, Group matrix, Generalized Fourier matrix.

AMS subject classifications. 42C15, 15B99, 20K15, 20C15, 15A03.