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Mathematical Sciences Bldg, University of Missouri, Columbia, MO 65211. *Phase Retrieval by
Projections.*

Signal reconstruction has been a longstanding problem in engineering with numerous applications, such as: X-ray crystallography, electron microscopy and much more. More recently the mathematical study of signal reconstruction without phase or phase retrieval has shown that in some instances a signal can be retrieved using the norms of one-dimensional projections and in other scenarios higher dimensional projections are necessary. Such is the case in crystal twinning. Surprisingly, new results show that the bound for phase retrieval with vectors is the upper bound for phase retrieval by projections. Also, numerous other new results regarding phase retrieval by projections will be discussed. (Received January 27, 2014)