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**Combining symmetry-mode analysis and magnetic symmetry to characterize a magnetic structure** ERIC GIBBS, BRANTON CAMPBELL, BYU, JUAN LOPES<sup>1</sup>, University of California San Bernardino — Group-theoretical symmetry-mode analysis has recently been demonstrated as an effective means of determining complicated displacive distortions of a known parent structure without any assumptions about crystallographic symmetry. After detecting the primary symmetry modes, it then proved advantageous to employ crystallographic symmetry to further constrain the subtle secondary parameters of the model. We employ an analogous combination of magnetic symmetry-modes and magnetic Shubnikov symmetry to characterize magnetic structures.

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