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**Exploring Local Distortion Modes Via Single-Crystal Diffuse Scattering.** Branton J. Campbell, Harold T. Stokes, Dept. of Physics & Astronomy, Brigham Young Univ., Provo, UT 84602, USA.

Diffraction studies of long-range order often permit one to unambiguously determine the structure of a low-temperature distorted phase in considerable detail. In contrast, short and intermediate-range distortions lead to weak diffuse peaks that can be difficult to detect, even at advanced neutron and synchrotron x-ray facilities. When there are not enough well-defined peaks to reliably develop a distortion model, the ability to quickly enumerate and test potential candidate structures against limited experimental data is essential. Here, we present the straight-forward use of the ISODISPLACE software package to characterize local atomic displacements in important material systems.