

Abstract Submitted
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Isolating symmetry components of the Mg and Al DOS using momentum-transfer dependent Inelastic X-ray Scattering TIM FISTER, Physics Department University of Washington, Seattle WA, GERALD SEIDLER, JOHN REHR, ALEKSI SOININEN, University of Helsinki, JULIE CROSS, ALBERT MACRANDER, Advanced Photon Source, Argonne National Labs — We have used the non-resonant inelastic x-ray scattering (NRIXS) from core electrons to measure the dynamic structure factor of the Mg and Al L-edges for momentum transfers (q) ranging from 0.8 – 10.1 \AA^{-1} . Changing q alters the measured energy loss spectrum by allowing new, dipole-forbidden transitions to different symmetry final states. Here, we highlight the connection between dynamic structure factor and the projected components of the density of states (ldos) using a modified version of FEFF that incorporates multipole transitions. In addition to *ab initio* theoretical agreement with the observed q -dependence, we present preliminary efforts toward obtaining an experimentally-derived ldos.

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