

Abstract Submitted
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Generality of anomalous broadening in σ peaks of low-Z compounds TERRENCE JACH, JOHN VINSON, NIST, Gaithersburg, MD, MATTHIAS MUELLER, RAINER UNTERUMSBERGER, BURKHARD BECKHOFF, PTB, Berlin, Germany — X-ray emission spectra originating from N 1s core holes in some nitrates have displayed extreme broadening (> 4 eV) of a feature identified with the NO σ state. Simple band structure calculations of the valence band derived from this bond in a crystal show it to be quite narrow. Calculations of transitions that take into account many-body corrections in the GW approximation indicate that the final state has a large imaginary self-energy. We have discovered other compounds that demonstrate this effect experimentally, and we are able to show that they display giant lifetime fluctuations of a similar valence state. We have formulated a criterion of compounds for which this effect should be present.

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