

# Identification of Quadrupole Transitions at Absorption Edges

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In recent years, several techniques have been put forward to identify electric quadrupole transitions in x-ray absorption spectroscopy and scattering. Such transitions are of fundamental interest, and allow, via the quadrupole selection-rules, sensitivity to valence states that are typically accessible only via soft x-ray spectroscopy. This talk describes some recent experimental results from the SRS, Daresbury Laboratory, in which pre-edge quadrupole features in Gd<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub> have been strongly enhanced, allowing unambiguous identification. Future possibilities for studies using this new approach will be outlined.