

## **E0 Transitions Present and Future**

*Tuesday, 2 November 2021 10:00 (30 minutes)*

Interpretations of the collective behaviour of nuclei have long been dependent on our understanding of E2 nuclear matrix elements. Owing to mastery of the electromagnetic force and its spherical tensor we claim confident in quadrupole properties of the nucleus. Despite this confidence there are frequent discrepancy in assignments often owing to interpretations made with incomplete information.

As we look more frequently at the interpretation of shape coexistence across a broader swathe of the nuclear chart, E0 matrix elements have become a key observable in our experiments.

However in contrast to E2 matrix elements, our interpretations of E0 transitions are often flawed and inconsistent, and theoretical models frequently fail to reproduce E0 strength. A greater wealth of knowledge and detailed study is clearly required.

In this talk I will highlight the current state on E0 knowledge in the field, discuss some recent interesting E0 measurement and present some early concept ideas for a future electron spectrometer.

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