



INSTITUTO GALEGO
DE FÍSICA
DE ALTAS ENERXÍAS

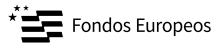
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2024

Low-lying spectroscopy of 200

M. Lozano-González, B. Fernández-Domínguez,
J. Lois-Fuentes, F. Delaunay

USC-IGFAE and LPC-Caen

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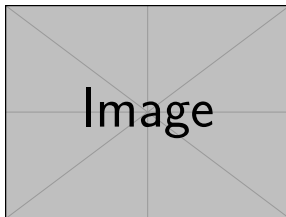
A recap on spectroscopic factors

Spectroscopic factors shed light on the occupancy of single-particle states:

$$\left. \frac{d\sigma}{d\Omega} \right|_{\text{exp}} = C^2 S \cdot \left. \frac{d\sigma}{d\Omega} \right|_{\text{s.p.}}, \quad \sum C^2 S = (2j + 1) \text{ in IPSM}$$

Experimentally:
Reduction of $\sim 65\%$!

- **Short-range** correlations: tensor forces,...
- **Long-range:** vibrations, giant resonances,...



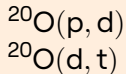
L. Lapikás, Nuclear Phys. A 553 (1993)

Experimental setup

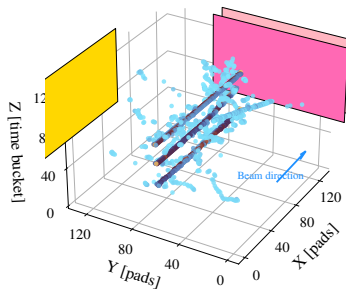
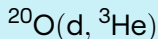
E796 was performed at LISE (GANIL) back in March 2022 under these experimental conditions:

- Beam: ^{20}O @ 35 AMeV
- Gas: 90 % D_2 and 10 % iC_4H_{10}
- Silicons: two front layers and one left. 500 μm -thick

Neutron removal



Proton removal



Results: (in)elastic scattering

These are the excitation energy spectra for protons and deuterons.

