Sensitivity of the γ -decay of the Pygmy Dipole Resonance to nuclear deformation



TECHNISCHE UNIVERSITÄT DARMSTADT

10th QPT Workshop

O. Papst¹, J. Isaak¹, N. Pietralla¹, D. Savran², V. Werner¹.

¹Technische Universität Darmstadt, Department of Physics, Institute for Nuclear Physics, Darmstadt, Germany, ²GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt, Germany.



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Dipole excitations in nuclei







Dipole excitations in nuclei



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Experiments: (γ, γ') , i. e. Nuclear Resonance Fluorescence (NRF) using bremsstrahlung $R_{4/2}$ (S-DALINAC, gELBE), (FEL-)Compton backscattering (HI γ S).

Experimental data on the Pygmy Dipole Resonance



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Nuclear Resonance Fluorescence (NRF)



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Nuclear Resonance Fluorescence (NRF)





Cross sections for ¹⁵⁰Nd





Average branching ratios R_{exp} for ¹⁵⁰Nd







Average branching ratios $R_{\rm exp}$ for ¹⁵⁰Nd







Average branching ratios R_{exp} for different isotopes









R_{exp} vs *P*-factor for different isotopes







Discussion points



- Development of average branching ratios R_{exp}
 - vs. excitation energy
 - vs. P-factor
- $R_{\rm exp} \approx 0.5$ constant?
- Tail of GDR? (*K* = 1?)
- Expected signature of nuclear deformation?
 - Splitting of the PDR?
- Is K a good quantum number?



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