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EURICA Isomer and Beta-delayed Gamma-ray Spectroscopy in the Vicinity of the ^{170}Dy Valence Maximum and Future Studies at DESPEC

Wednesday, 7 September 2016 11:10 (25 minutes)

This presentation will report on the experimental results from EURICA experiments focussed on the isomer-decay spectroscopy of nuclei in the region of the prolate-deformed, ^{170}Dy valence maximum. In particular the excitation energies of the ground state ($K=0+$) and gamma ($K=2+$) band members will be presented [1,2] together with isomer spectroscopy of the neighbouring Tb nuclei [3]. These results allow a mapping of the quadrupole collectivity and deformation across the maximum for Np.Nn values between $50 < Z < 82$ and $82 < N < 126$ and also allow an evaluation of the mixing between the ground state and gamma-vibrational structures. Additional results on isomer decay studies in N=100 nuclei will also be presented which demonstrate evidence for a deformed sub-shell closure at N=100 and the possible importance of β_6 deformation in the deformed single-particle ordering in this region [4,5]. Finally a short presentation of some future possible research activities with the DESPEC LaBr3 fast-timing array [6] will be discussed.

REFERENCES:

- [1] H.Watanabi et al., Phys. Lett. B760 (2016) p641
- [2] P.A.Soderstrom et al., submitted to Physics Letters B.
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- [5] Z. Patel et al., Phys. Lett. B753 (2016) p182
- [6] Oliver J. Roberts et al., Nucl. Inst. Meth. Phys. Res. A748 (2014) p91; P.H.Regan et al., Rad. Phys. Chem. 116 (2015) p38.

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