

# In-beam $\gamma$ -ray measurement of Pb-184

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## In-beam $\gamma$ -ray measurement of Pb-184

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The excited states in Pb-184 were first observed at Accelerator Laboratory of the University of Jyväskylä in in-beam gamma-ray experiment using the recoil-decay tagging technique by Cocks et al. [1]. They assigned transitions belonging to a cascade of E2 transitions and forming a rotational band associated with prolate shape. In order to further probe the structure of the beyond mid-shell nucleus Pb-184, we have conducted a new in-beam study using the JUROGAMII+RITU+GREAT+TDR [2-4] instrumentation employing reaction  $^{104}\text{Pd}(^{83}\text{Kr},3n)^{184}\text{Pb}$  with beam energy 354MeV. The improved experimental set-up allowed us to record  $\sim 130$  times higher statistics compared to work by Cocks et al. In this presentation, we will show preliminary data that suggest the extension of the yrast band up to spin 14+ and provides evidence for transitions associated with non-yrast structures. Identification of the non-yrast states can provide stringent test for theoretical models in this region and probe the shape coexistence in neutron-deficient Pb isotopes beyond the N=104 mid-shell.

## References

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- [3] Page, R., et al. Nucl Instrum Methods Phys Res B, 204:634–637, 2003. ISSN 0168-583X.
- [4] Lazarus, I., et al. IEEE Trans. Nucl. Sci., 48(3):567–569, 2001. ISSN 0018-9499.

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