



Contribution ID: 111

Type: Oral

Investigation of γ -softness: Lifetime measurements in $^{104,106}\text{Ru}$

Friday, July 21, 2023 2:20 PM (15 minutes)

Lifetimes of the 2_1^+ , 4_1^+ , 6_1^+ , 2_γ^+ and 3_γ^+ states in $^{104,106}\text{Ru}$ were measured using the recoil-distance Doppler shift technique and the Cologne Plunger device [1]. Low-lying excited states in both nuclei were populated in a $^{104}\text{Ru}(^{18}\text{O}, ^{18}\text{O})^{104}\text{Ru}^*$ inelastic scattering and in a $^{104}\text{Ru}(^{18}\text{O}, ^{16}\text{O})^{106}\text{Ru}$ two-neutron transfer reaction at the Cologne FN Tandem accelerator. The experimental energy levels and deduced electromagnetic transition probabilities are discussed in the context of γ -softness and the mapped interacting-boson model with input from the microscopic self-consistent mean-field calculation using a Gogny interaction [2]. The newly obtained results for the γ band, give a more detailed insight about the triaxial behavior of $^{104,106}\text{Ru}$. The results will be discussed in the context of γ soft and rigid triaxial behavior which is present in the neutron-rich Ru isotopes [3].

[1] A. Dewald, O. Möller, and P. Petkov, Progress in Particle and Nuclear Physics 67, 786 (2012).

[2] K. Nomura, R. Rodríguez-Guzmán, and L. M. Robledo, Phys. Rev. C 94, 044314 (2016).

[3] A. Esmaylzadeh, A. Blazhev, K. Nomura, J. Jolie, M. Beckers, C. Fransen, R.-B. Gerst, A. Harter, V. Karayonchev, L. Knafla, M. Ley, and F. von Spee, Phys. Rev. C 106, 064323 (2022).

Primary authors: ESMAYLZADEH, Arwin; BLAZHEV, A. (IKP Universität zu Köln, Germany); Dr NOMURA, Kosuke; JOLIE, J. (IKP Universität zu Köln, Germany); BECKERS, Marcel; Dr FRANSEN, Christoph; GERST, Rosa-Belle; HARTER, Andreas (IKP, Universitaet zu Koeln); KARAYONCHEV, V. (IKP Universität zu Köln, Germany); KNAFLA, Lukas; Mr LEY, M. (Institut für Kernphysik, Universität zu Köln, 50937 Köln, Germany); Mr SPEE, Franziskus

Presenter: ESMAYLZADEH, Arwin

Session Classification: Session 16

Track Classification: Experimental Nuclear Structure