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Exploring the spectroscopy of vibrational levels in the transitional rare earth region

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Abstract content
 (Max 300 words)
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Vibrational levels are well known in atomic nuclei but despite many decades of research, some of their properties still remains elusive. In particular, the low-lying rotational bands based on the second 0^+ state, which are traditionally understood as beta-vibrational bands nevertheless show properties at odds with this interpretation. For example, neutron transfer reactions in the $N \sim 90$ region do not support this interpretation. An alternative is that they can better be described as a “second vacuum”, or a coexisting minimum in the pairing degree of freedom. In a search for the picture that best describes the nature of the first excited 0^+ states in the 160 mass region ($N \sim 90$), a comprehensive analysis is being undertaken on the data taken using the Jurogam II array in Jyvaskyla, Finland for ^{157}Dy . The status of the analysis and results from this experiment will be discussed.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD)?

PhD

Main supervisor (name and email) and his / her institution

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Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

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