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Coulomb Excitation of Pear-shaped Nuclei

Monday, 13 May 2019 09:30 (30 minutes)

We have carried out measurements, using Miniball, of the γ-ray de-excitation of ^{222,228}Ra and ^{222,224,226}Rn nuclei Coulomb-excited by bombarding ^{60}Ni and ^{120}Sn targets. The beams of radioactive ions, having energies of between 4.25 and 5.08 MeV.A, were provided by HIE-ISOLDE at CERN. The purpose of these measurements is to determine the intrinsic quadrupole and octupole moments in these nuclei and look for other cases of permanent octupole deformation to those of ^{224,226}Ra already reported[1,2]. Another aim of this experiment is to determine the level schemes of ^{224,226}Rn in order to characterise these isotopes as octupole vibrational or octupole deformed. We present here the preliminary results from these measurements, including the implications for EDM searches.

[1] Gaffney L P et al. 2013 Nature **497** 199
[2] Wollersheim H J et al. 1993 Nuclear Physics A **556** 261

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