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Spherical-oblate shape coexistence in ^{94}Zr and the SPIDER Coulomb-excitation campaign at LNL

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Low-energy Coulomb excitation is a powerful tool for studying collective properties and shape evolution in atomic nuclei. At the INFN Legnaro National Laboratories (LNL), we have been conducting a long-term experimental campaign using the SPIDER detector, an array of segmented silicon detectors specifically designed for Coulomb-excitation experiments. SPIDER has been used in combination with both the GALILEO gamma-ray spectrometer and, more recently, the AGATA gamma-tracking array.

In this talk, I will briefly introduce the SPIDER detector and provide an overview of the Coulomb-excitation measurements performed at LNL with the GALILEO and AGATA setups. I will then focus on the specific case of ^{94}Zr , which represents our most recently completed analysis. This study marked the first application of the quadrupole sum rules method in the Zr isotopic chain and provided clear evidence of spherical-oblate shape coexistence in ^{94}Zr . The experimental results will be discussed in the context of state-of-the-art nuclear models and quantum phase transitions.

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