Tracking the evolution of nuclear structure in Neon isotopes toward the N = 20 Island of Inversion*

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We present recent results obtained in the ^{22}Ne + ^{238}U and ^{26}Mg + ^{238}U multi-nucleon transfer experiments performed at Legnaro National Laboratories with the AGATA-PRISMA setup [1-3], aiming at exploring the transition of light nuclei into the N = 20 Island of Inversion [4]. This study is primarily focused on the evolution of negative parity states from the *fp* shell, locating excited intruder configurations, and tracking the development of quadrupole and octupole collectivity in Ne and Mg isotopes. The AGATA γ array, coupled with the PRISMA magnetic spectrometer, allowed us to detect ion-γ coincidences and to achieve sub-picosecond lifetimes of excited states via the DSAM technique. Preliminary findings on the γ decay and lifetimes of neutron-rich $^{23-26}$Ne isotopes will be discussed along with state-of-the-art calculations, including very recent ab-initio predictions [5-8].

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