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Measurements of the E1-strength in Fe and Ni nuclei around the threshold

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The γ -ray emission from the nuclei $^{62,64}\text{Fe}$ following Coulomb excitation at bombarding energy of 400-440 AMeV was measured with special focus on E1 transitions in the energy region 4-8 MeV. The unstable neutron-rich nuclei $^{62,64}\text{Fe}$ were produced at the FAIR-GSI laboratories and selected with the FRS spectrometer. The γ decay was detected with AGATA HPGE tracking array. From the measured γ -ray spectra the summed

E1 strength is extracted and compared to microscopic quasi-particle phonon model calculations. The trend of the E1 strength with increasing neutron number is found to be fairly well reproduced with calculations that assume a rather complex structure of the 1^- states (three-phonon states) inducing a strong fragmentation of the E1 nuclear response below the neutron binding energy.

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