

Charge dipole polarization in ultramagnetized nuclei

Tuesday, October 13, 2020 7:15 PM (20 minutes)

Properties of ultramagnetized atomic nuclei relevant for supernovae, neutron star mergers, magnetar crusts and heavy-ion collisions are analyzed. Nuclear magnetic reactivity of Zeeman type is shown to dominate for field strengths below ten teratesla. Respective linear magnetic response is given as a combined reactivity of valent (outer shell) nucleons and can be described in terms of nuclear magnetic susceptibility. Valent protons and neutrons occupy [1] orbitals with minimum and maximum spin projection on a field axis, respectively. Consequently, charged (protons) and neutral (neutrons) nucleons are spatially separated. Effects of such charge dipole polarization in nuclear reactions are discussed.

1. V.N. Kondratyev // Phys. Lett. B 2018. V.782. P.167.

Primary author: KONDRATYEV, Vladimir

Presenter: KONDRATYEV, Vladimir

Session Classification: Poster session 1 (part 1)

Track Classification: Section 1. Experimental and theoretical studies of the properties of atomic nuclei.