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Extended Vector Meson Dominance Model for Electromagnetic Nucleon Form Factors

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A detailed analysis of the electromagnetic form factors of nucleons could help in studying weak interactions with neutrinos due to the coincidence of the vector parts of the electromagnetic and weak currents. There are several theoretical approaches to study these form factors. In this talk the model of extended vector meson dominance with families of ρ and ω mesons with their radial excitations is discussed. The nucleon electromagnetic form factors in space- and time-like regions are studied taking into account new experimental data. A detailed description of the behavior of form factors, as well as the values of the electric and magnetic radii of the nucleon and the Zemach radii are obtained. The model discussed is an upgrade of the model [1].

[1] B. V. Martemyanov, Amand Faessler, and M. I. Krivoruchenko "Electromagnetic form factors of nucleons in the extended vector meson dominance model", Phys. Rev. C 82, 038201 (2010).

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