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Photoproduction of η and η' mesons on proton and neutron

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New high-precision total and differential cross sections for η and η' photoproduction on the proton obtained by the A2 Collaboration at the Mainz Microtron are presented. The total cross section for η photoproduction demonstrates a cusp at the energy W$\sim$1.9~GeV. Furthermore, we present a new version of the ηMAID model for η and η' photoproduction. The model includes 23 nucleon resonances parameterized with Breit-Wigner shapes. The background is described by vector and axial-vector meson exchanges in the t channel using the Regge phenomenology. Parameters of the resonances were obtained from a fit to the new experimental data of the A2 Collaboration and available data from CBELSA/TAPS, CLAS, and GRAAL Collaborations for η and η' photoproduction on protons and neutrons. Dominant role of $1/2^-$ resonances is discussed. The cusp is explained as a threshold effect due to the opening $\eta' p$ decay channel of the $N(1895)1/2^-$ resonance.

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