

Abstract Submitted
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A New EM CKM Matrix: Implications of the Nucleon Strange Quark Content, Anomalous Magnetic Moments of Nucleons and Electric and Magnetic Nucleon Form Factors THOMAS WARD, Techsource Incorporated — A new electromagnetic neutral-current quark mixing matrix, analog to the well-known Cabibbo-Kobayashi-Maskawa (CKM) weak charge-current matrix, is proposed to account for the strange quark content of the neutron and proton and part of the anomalous axial vector magnetic moments. The EM-CKM matrix is shown to be equivalent to the weak-CKM matrix following an EM to weak gauge symmetry transformation, demonstrating the universality of the Standard Model (SM) CKM quark mixing matrix. The electric and magnetic form factors are reformulated using a new QCD three quark nucleon gyromagnetic factor, Dirac and Pauli form factors and anomalous kappa factors. The old 1943 Jauch form factors which have been systematically used and developed for many years is shown to be in stark disagreement with the new global set of experimental polarized electron-proton scattering data whereas the reformulated SM parameter set of this study is shown to agree very well, lending strong support for this new EM SM approach.

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