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A New Electromagnetic Cabibbo-Kobayshi-Maskawa Quark Mixing Matrix[1] THOMAS WARD, Techsource Incorporated, 20251 Century Blvd., Suite 440, Germantown, MD 20874 — A new electromagnetic neutral-current quark mixing matrix V_{CKM}^{EM}, analog to the well-known Cabibbo-Kobayashi-Maskawa (CKM) weak charge-current matrix V_{CKM}^{Weak}, is proposed to account for the strange quark content of the neutron and proton and part of the anomalous axial vector magnetic moments. A phenomenological formulation of the magnetic dipole moments that include strange quark contributions is shown to account for the magnetic moments at an uncertainty level of 0.3 ppm. 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 CKM quark mixing matrix. The role of strange quark isospin symmetry breaking (ISB) terms are briefly discussed within the framework of conventional nuclear physics of two-body NN M1 interactions in charge independence breaking (CIB), charge symmetry breaking (CSB), the photo-disintegration of the deuteron and radiative *np* capture.

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