

Abstract Submitted
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Why baryons are Yang-Mills magnetic monopoles, validated by nuclear binding energies and proton and neutron masses JAY R. YABLON, MIT alumnus — Evidence is summarized from four recent papers that baryons including protons and neutrons are magnetic monopoles of non-commuting Yang-Mills gauge theories: 1) Protons and neutrons are “resonant cavities” with binding energies determined strictly by the masses of the quarks they contain. This is proven true at parts-per million accuracy for each of the ^2H , ^3H , ^3He , ^4He binding energies and the neutron minus proton mass difference. 2) Respectively, each free proton and neutron contains 7.64 MeV and 9.81 MeV of mass/energy used to confine its quarks. When these nucleons bind, some, never all, of this energy is released and the mass deficit goes into binding. The balance continues to confine quarks. ^{56}Fe releases 99.8429% of this energy for binding, more than any other nuclide. 3) Once we consider the Fermi vev one also finds an entirely theoretical explanation of proton and neutron masses, which also connects within experimental errors to the CKM quark mixing angles. 4) A related GUT explains fermion generation replication based on generator loss during symmetry breaking, and answers Rabi’s question “who ordered this?” 5) Nuclear physics is governed by combining Maxwell’s two classical equations into *one* equation using non-commuting gauge fields in view of Dirac theory and Fermi-Dirac-Pauli Exclusion. 6) Atoms themselves are core *magnetic* charges (nucleons) paired with orbital *electric* charges (electrons and elusive neutrinos), with the periodic table itself revealing an electric/magnetic symmetry of Maxwell’s equations often pondered but heretofore unrecognized for a century and a half.

Jay R. Yablon
MIT alumnus

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