Review of: "Conservation of Baryon and Lepton Number is an Effect of Electric and Magnetic Charges"

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Potential competing interests: No potential competing interests to declare.

This work is exciting; the author, in a new definition of isospin, supposed all the leptons and quarks have isospin partners and that all the octets consist of four isospin doublets.

(i) The isospin partner of the up quark is the down quark.

(ii) The isospin partner of the charm quark is the strange quark.

(iii) The isospin partner of the top quark is the bottom quark.

(iv) The isospin partner of the charged lepton is its corresponding neutrino.

The author explained baryon and lepton number conservation as an effect of the electromagnetic duality by a new gauge symmetry of quantum and predicted the quantum numbers of an octet of magnetic monopoles. Also, the author concluded that both leptons and quarks have nonzero magnetic isospin, as a new quantum number.

Comments:

1. The author should brief his new definition of isospin in part 3 more completely.
2. It seems that the assumption of equation 2 cannot be comprehensive. Why does the equation Y = B + S for fermions get, in general, Y = B – L?
3. In section 4, the author says that under the Y=B-L assumption, which I am not convinced of, both baryon number B and lepton number L are conserved independently, and based on this, is suggested a U(1)×U(1) gauge symmetry is associated with B and L numbers. I think it's not clear to readers. Please explain this.
4. Why is it reasonable to associate a U(1)×U(1) gauge symmetry with hypercharge Y and hypocharge X, $U(1)_Y \times U(1)_X$?
5. I think proving that X is independent of L and B is not convincing. How is it reasonable only for symmetry reasons to assume that fermionic magnetic monopoles exist in octets and that the total magnetic charge, magnetic isospin, chromomagnetic color, and hypocharge of each of the magnetic fermion octets are zero?