CORRECTION

CLIFFORD ALGEBRA IN CLASSICAL ELECTRODYNAMICAL HYDROGEN ATOM MODEL (Adv. Appl. Cliff. Alg. 7, (1), 25-34 (1997))

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Abstract

A new model of the hydrogen atom spectrum description in the framework of classical electrodynamics, not quantum mechanics, is proposed. Sommerfeld formula for the fine structure of the hydrogen atom spectrum is obtained on the basis of Maxwell, not Dirac equation. The connection of the new model with the Dirac theory is investigated. The unitary operator connecting the stationary Dirac and Maxwell equations is obtained. The exotic (bosonic) explicit form of the Dirac γ -matrices obeying the Clifford - Dirac algebra is presented.

[I.] In formula (3) the charges should be written as

$$\rho_e = -\varepsilon\mu\partial_0 E^0 + \vec{E} \operatorname{grad}\varepsilon, \quad \rho_{mag} = \varepsilon\mu\partial_0 H^0 + \vec{H} \operatorname{grad}\mu.$$

[II.] In formula (6) the divergence equations should be written as

$$\operatorname{div}\varepsilon\vec{E}_B = \varepsilon\mu\omega E_A^0 + \vec{E}_B \operatorname{grad}\varepsilon, \quad \operatorname{div}\mu\vec{H}_A = -\varepsilon\mu\omega H_B^0 + \vec{H}_A \operatorname{grad}\mu.$$

[III.] In formula (7) the divergence equations should be written as

$$\operatorname{div}\varepsilon\vec{E}_A = -\varepsilon\mu\omega E_B^0 + \vec{E}_A \operatorname{grad}\varepsilon, \quad \operatorname{div}\mu\vec{H}_B = \varepsilon\mu\omega H_A^0 + \vec{H}_B \operatorname{grad}\mu.$$

One can easily verify that these corrections are merely technical ones (this is the fault of the authors, not of the journal) by having a look at our other publications on this subject [1-5], where everything is o.k.

References

- [1] Simulik V. M. and Krivsky I. Yu., An electrodynamical version of the hydrogen spectrum, in Proceedings. of the 28th European Group for Atomic Spectroscopy Conference, Graz., Austria, 1996, edited by L. Windholz (European Physical Society, Paris), p. 41-42.
- [2] Simulik V. M. and Krivsky I. Yu., On a bosonic structure of electron and muon, in Proceedings. of the 29th European Group for Atomic Spectroscopy Conference, Berlin, 1997, edited by H.-D. Kronfeldt (European Physical Society, Paris), p. 154-155.
- [3] Simulik V. M. and Krivsky I. Yu., Theoretical derivation of atomic spectra in the classical electrodynamical model of atom, in Proceedings. of the 29th European Group for Atomic Spectroscopy Conference, Berlin, 1997, edited by H.-D. Kronfeldt (European Physical Society, Paris), p. 198-199.
- [4] Simulik V. M., Hydrogen spectrum in classical electrodynamics, Ukrainian Phys. Journ., 1997, **42**, N4, P.406-407.
- [5] Simulik V. M., Solutions of the Maxwell equations describing the hydrogen spectrum, Ukrainian Math. Journ., 1997, **49**, N7, P.958-970.