ERRATUM

INDUCED ELECTROSTATIC SELF-INTERACTION IN THE SPACE–TIME OF A GLOBAL MONOPOLE WITH INNER STRUCTURE

[*Int. J. Mod. Phys. D* **18** (2009) 1085]

D. BARBOSA^{*,‡}, J. SPINELLY^{†,§} and E. R. BEZERRA DE MELLO^{*,¶}

^{*}*Departamento de Física-CCT,
 Universidade Estadual da Paraíba,
 Juvêncio Arruda S/N, C. Grande, PB, Brazil*

[†]*Departamento de Física-CCEN,
 Universidade Federal da Paraíba, 58.059-970,
 C. Postal 5.008, J. Pessoa, PB, Brazil*

[‡]*denis.fisico@fisica.ufpb.br*

[§]*jspinelly@uepb.edu.br*

[¶]*emello@fisica.ufpb.br*

Received 21 September 2010

In this paper we correct previous result obtained in published paper.

In the analysis of electrostatic self-energy on a point-like electric-charged particle induced by a global monopole space–time considering the ballpoint pen model for the region inside,¹ we found, among several other interesting results, that near the boundary this self-energy presents logarithmic divergent results in both regions, i.e. for $r \leq r_0$ and $r \geq r_0$, where r_0 is the radius of monopole. However, in recent paper Ref. 2, we have observed that these conclusions are not correct. In fact, in the analysis for large value of l , of the coefficients inside the summations of Eqs. (44) and (56) of Ref. 1, we have missed out extra terms in both expressions. These extra terms exactly cancel the $1/l$ behavior previously obtained, giving as correct expressions, coefficients proportional to $1/l^2$, which provide finite results for $r = r_0$. So, we conclude that there is no logarithmic divergent contribution on the induced self-energy in the ballpoint pen model.

The rest of our results, especially the most important one related with the behavior of self-energy near the monopole's center, and also the behavior of self-energy for large distances from the monopole, remain correct.

Acknowledgment

We would like to thank Aram A. Saharian for helpful discussion.

References

1. D. Barbosa, J. Spinelly and E. R. Bezerra de Mello, *Int. J. Mod. Phys. D* **18** (2009) 1085.
2. D. Barbosa, U. de Freitas and E. R. Bezerra de Mello, Induced self-energy on a static scalar charged particle in the spacetime of a global monopole with finite core, arXiv:1009.0195 [hep-th].