EDITORIAL

Although the effects of the CoVid pandemic have subsided, academic activities have not yet resumed their normal course and this perhaps constitutes an obstacle for a more active participation of students in the different research projects. However, in spite of the above, research activities continue with the enthusiasm of both teachers-researchers and undergraduate and graduate students. Thus, we are pleased to present the 39th issue of the Bolivian Journal of Physics (RBF).

This issue of the RBF consists of three scientific articles submitted to a rigorous process of international arbitration as is the norm of this publication. Researchers, undergraduate and graduate students of the Theoretical Physics area of the Physics Research Institute (IIF) of UMSA contribute with these papers, while the social interaction project Bolivian Physics Olympiad and Bolivian Astronomy and Astrophysics Olympiad contribute with data and important achievements of this project throughout 24 versions of these events.

The opening article of this issue is a detailed and complete analysis of Hartley's electronic circuit, whose dynamic richness is shown by Callejas-Icuña *et al.* (2021). The experimental, theoretical and numerical aspects of this system are described, where we can highlight among other things the construction of an impedance meter that was essential for the dynamic characterization of the circuit from an experimental perspective. A large number of integrations numerically support the experimental measurements obtained.

The second refereed contribution is a very interesting article for its content and spotlights the work of Landivar (2021) a young and brilliant physics student at UMSA. The article deals with the coupling of the Maxwell-Chern-Simmons' electromagnetic theory to a gravitational field in order to generalize the fulfillment of the Klein-Gordon equation in an arbitrary space-time and in the presence of an optical medium. Subsequently, the author analyzes the consequences of this generalization in a flat space-time and additionally in the Sitter family.

The third refereed article is of Velasco Villarroel & Sanjinés Castedo (2021), who study from a quantum perspective, the dynamics of a charged particle moving in a one-dimensional lattice by the hopping mechanism due to the effects of a Coulombic field and another charged particle which is considered as an impurity. For their analysis, they use the pseudo-spectral method adapted to a strong-bond Hamiltonian with first-neighbor interactions. The authors also performed the analysis of this system using the semi classical approximation, finding reasonably good similarity with the quantum results. Furthermore, the authors distinguish a "far" dynamics from a "near" dynamics which are related to the distance between the charged particle and the impurity, having associated inhomogeneity and quasi-homogeneity of the Coulombic field in the respective regions.

Finally, in the physics education section, Bustos *et al.* (2021) present a historical review of the Bolivian Physics Olympiad and the Astronomy and Astrophysics Olympiad highlighting the educational work and the impact achieved by the Olympiad project in the improvement of physics education. It is worthy of mention that this project won first place in the category of Social Interaction in the 1st Virtual Fair of Research, Innovation and Social Interaction (INVESTIGA UMSA 2020), organized by the Department of Research, Postgraduate and Social Interaction (DIPGIS, UMSA).

We hope that you enjoy the contents of this issue of the RBF and that it may motivate the reader to further explore the work presented in these pages. We also invite the scientific community to send their papers for publication in the RBF.

REFERENCIAS

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