

## Perez Martinez Aurora Maria

Position: Senior Researcher/Senior Professor  
Period covered: 2017



### I Scientific Work

- Study of lowly rotation magnetized white dwarfs.
- Study of Neutrino propagation in magnetized media, pulsar kicks.
- Study of neutral vector boson condensation en presence of magnetic field

### II Conferences and educational activities 2017

LASNPA & WONP-NURT 2017, 2017-10-23. Work presented: “Anisotropic emission of neutrinos from magnetized quark stars: Pulsar kicks”.

Stars 2017, and SMFNS2017 7-13 May. co-works presented: “On slowly rotating magnetized white dwarfs”; “Neutral vector boson in a constant magnetic field”; “Kicks of magnetized stars induced by anisotropy emission of neutrinos”.

Symposium of Cuban Physical Society 21-28 March 2017. Work presented: “Anisotropy in the emission of neutrinos from Quark stars”.

#### *II b Work With Students.*

- Supervision of the master thesis of Diana Alvear Terrero “Rotación de Enanas Blancas magnetizadas” discussed May 19 2017
- Supervision of the master thesis of Lismary Suarez González Phase transition and boson condensate of neutral and charged bosons in presence of magnetic field.
- Supervision of the PhD thesis of Gretel Quintero Angulo. Condensate of neutral and charged bosons in presence of magnetic field. Astrophysical applications: Jets and Boson Stars.

#### *II c Diploma thesis supervision*

- Diploma thesis of Physics of Samantha Lopez, Havana University. Havana

#### *II d Other Teaching Duties*

Theaching postgraduate course of Topics of Astrophysics. Faculty of Physics Havana University – ICIMAF, 2015-2016.

### *II e. Work With Postdocs*

Work in collaboration with D. Manreza Paret in topics related to:

- Rotating magnetized compact objects.
- Kick of magnetized quark stars

## **III. Service activities**

### *II a. Within ICRANet*

- Discussion of topics of common interest with Kuantay Boshkayev about rotating White Dwarfs

### *III b. Outside ICRANet*

- Collaboration with Gabriella Piccinelli from FES Aragon UNAM, Angel Sanchez from Facultad de Ciencias UNAM, Alejandro Ayala from Instituto de Ciencias Nucleares UNAM and Daryel Manreza Paret from Havana University in the field: neutrino propagation in magnetized dense media and kicks of magnetized quark stars.
- Collaboration with Gabriella Piccinelli from FES Aragon UNAM, Quantum Faraday rotation for weak magnetic field and astrophysical and cosmological applications.
- Collaboration with Daryel Manreza Paret from Havana University. "Rotating White Dwarfs"
- **Seminar** at the Department of Theoretical Physics Fermi National Laboratory FERMILAB, "Impact of the magnetic field in EoS, the structure and velocities of the Quark Stars. Fermilab, Illinois, July 2017".

## **IV. Other**

Visit Fermi National Laboratory FERMILAB, 1-14 July 2017

### **Organization of conferences and school:**

- Symposium of Cuban Physical Society 2017
- International conferences: stars2017/smfns2017 May 2017

**Reviewer** of papers of the European Physical Journal A and International Journal of Modern Physics A

## List of Publications

- Thermodynamic properties of a neutral vector boson gas in a constant magnetic field G. Quintero Angulo, A. Pérez Martínez, and H. Pérez Rojas  
Phys. Rev. C 96, 045810 [\\DOI:https://doi.org/10.1103/PhysRevC.96.045810](https://doi.org/10.1103/PhysRevC.96.045810)
- Effects of magnetic fields and slow rotation in white dwarfs Diana Alvear Terrero, D. Manreza Paret, Aurora María Pérez Martínez.. International Journal of Modern Physics D. Vol. 27, 2018, Pp. 19. <http://dx.doi.org/10.1142/S0218271818500165>
- On rotating white dwarfs within Hartle formalism in general relativity Diana Alvear Terrero, D. Manreza Paret, Aurora María Pérez Martínez. Magnetized and Astronomische Nachrichten. 2017, DOI: <http://onlinelibrary.wiley.com/doi/10.1002/asna.201713435>
- Charged fermion gas polarization in strong magnetic fields D. Manreza Paret, A. Perez Martinez, Alejandro Ayala G. Piccinelli A. Sanchez Astronomische Nachrichten. 2017 DOI: 10.1002/asna.201713449
- Anisotropic equation of state of charged and neutral vector boson gases in a constant magnetic field: Astrophysical implications G. Quintero Angulo, A. Pérez Martínez H. Pérez Rojas Astronomische Nachrichten. 2017 DOI:10.1002/asna.201713448
- Ondas del espacio-tiempo: el nobel de física 2017 D. Manreza Paret A. Pérez Martinez Rev. Cub. Fis. 34, 143 (2017)
- Quantum relativistic electron gas expanding in one dimension. H. Perez Rojas, E. Rodriguez Querts, A. Perez Martinez Int. J. Mod. Phys. Conf. Ser. 45, 1760045 (2017) [9 pages] <https://doi.org/10.1142/S201019451760045X>

### Proceedings

- On Slowly Rotating Magnetized White Dwarfs Diana Alvear Terrero, Daryel Manreza Paret, Aurora Pérez Martínez International Journal of Modern Physics: Conference Series Vol. 45 (2017) 1760025 (7 pages) <https://doi.org/10.1142/S2010194517600254>
- Quantum Relativistic Electron Gas Expanding in One Dimension Hugo Pérez Rojas, Elizabeth Rodríguez Querts, Aurora Pérez Martínez Int. J. Mod. Phys. Conf. Ser. 45, 1760045 (2017) [9 pages] <https://doi.org/10.1142/S201019451760045X>
- Quantum Faraday Effect in the Universe Lidice Cruz Rodríguez, Aurora Pérez Martínez, Gabriella Piccinelli, Elizabeth Rodríguez Querts Int. J. Mod. Phys. Conf. Ser. 45, 1760046 (2017) [8 pages] <https://doi.org/10.1142/S2010194517600461>
- Condensation of Neutral Vector Bosons with Magnetic Moment. Gretel Quintero Angulo, Aurora Pérez Martínez, Hugo Pérez Rojas, Int. J. Mod. Phys. Conf. Ser Vol. 45 (2017) 1760047 [9 pages] DOI: 10.1142/S2010194517600473