

## Cáceres Uribe Diego Leonardo

Position: PhD. Student  
Period covered: 2011 - 2015



### I Scientific Work

Soft gamma ray repeaters (SGRs) and anomalous X-ray pulsars (AXPs) are compact objects that can be explained as massive fast rotating white dwarfs. The stability properties of white dwarfs can account for the observed periods (2-12 secs) of these objects and their rotational energy loss can explain the high luminosities in x and gamma ray bands. I am focused on the magnetospheric emission of these objects, in order to explain the emission in X and gamma rays, taking into account the backflow of positrons coming from the magnetosphere and from the interaction between gamma-ray curvature photons and the intense magnetic fields ( $B \sim 10^8 - 10^9$  G).

I also worked on the stability of magnetized white dwarfs, in particular, the microscopic instabilities coming from the Inverse-beta decay, the Pycnonuclear reactions and General Relativity.

### II Conferences and educational activities

*II a Conferences and Other External Scientific Work*

*Assistance to meetings organized by Icria such as:*

1. *13<sup>th</sup> Marcel Grossman Meeting, July 1-7, 2012. Stockholm, Sweden.*
2. *IRAP PhD. Erasmus Mundus School. September 3 – 21, 2012. Nice, Frances.*
3. *1<sup>st</sup> Scientific ICRANet Meeting in Armenia, June 30 – July 4, 2014. Yerevan, Armenia.*
4. *14<sup>th</sup> Marcel Grossman Meeting, July 12-18, 2015. Rome, Italy*

*Participation with oral presentation in the following events:*

- *“On the stability of highly magnetized white dwarfs”. Diego Leonardo Cáceres Uribe, Jorge Armando Rueda Hernández and Remo Ruffini. 2<sup>nd</sup> Bego Rencontres, Université Nice Sophia Antipolis. 16-31 May 2013, Nice, France.*

- “High Magnetic Fields in White Dwarfs”. Diego Leonardo Cáceres Uribe, Jorge Armando Rueda Hernández and Remo Ruffini. *The 13<sup>th</sup> Italian-Korean Symposium on Relativistic Astrophysics. 15-19 July 2013, Seoul-Korea, 2013.*
- “Magnetospheric emission of soft gamma-ray repeaters (SGRs) and anomalous x-ray pulsars (AXPs) within the white dwarf model”. *The 27<sup>th</sup> Texas symposium on relativistic astrophysics. 8 – 13 December, 2013, Texas, United States of America.*
- “Soft Gamma-Ray Repeater and Anomalous X-Ray Pulsars as Highly Magnetized Massive Highly Rotating White Dwarfs”. Diego Leonardo Cáceres Uribe, Jorge Armando Rueda Hernández and Remo Ruffini. *3<sup>rd</sup> Bego Rencontres, Université Nice Sophia Antipolis. 8 – 19 September 2014, Nice, France.*
- “On the Spin-Down of Anomalous X-Ray Pulsars and Soft Gamma-Ray Repeater as Pulsar White Dwarfs”. Diego Leonardo Cáceres Uribe, Jorge Armando Rueda Hernández and Remo Ruffini. *4<sup>th</sup> Marcel Grossman Meeting, July 12-18, 2015. Rome, Italy.*

## **2015 List of Publications**

1. “Dynamical instability of white dwarfs and breaking of spherical symmetry under the presence of extreme magnetic fields”. J. G. Coelho, R. M. Marinho Jr., M. Malheiro, R. Negreiros, D. L. Cáceres, J. A. Rueda and R. Ruffini [arXiv: 1306.4658v2]. *The Astrophysical Journal*, Volume 794, Issue 1, 86 (2014).
2. “On the stability of ultra-magnetized white dwarfs”. Diego L. Cáceres, Jorge A. Rueda and Remo Ruffini. *Journal of the Korean Physical Society*. Volume 65, Issue 6, pp. 846-849.
3. “On the rotation-power of Anomalous X-ray Pulsars and Soft Gamma-ray Repeater”. Jaziel Coelho, Rafael C. R. de Lima, Diego L. Cáceres, Manuel Malheiro, Jorge A. Rueda and Remo Ruffini. Submitted to *Astrophysical Journal*.
4. “Thermal X-ray emission from Massive, Fast Rotating, highly magnetized White Dwarfs”. Diego L. Cáceres, Jaziel G. Coelho, Sheyse M. de Carvalho, Rafael C. R. de Lima, Jorge A. Rueda, Remo Ruffini. To be submitted.