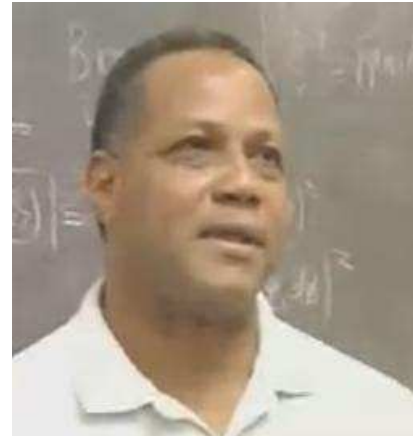


## Mosquera Cuesta Herman Julio

Position: Assistant Professor ICRA-BR

Period covered: 30 September – 1 December 2008



### I Scientific Work

Papers published in 2007

1) Quark matter magnetization: Phase transition or upper limit of magnetic field?

A. Perez Martinez, H. Perez Rojas, H. J. Mosquera Cuesta, M. Orsaria

Published in Int. J. Mod. Phys. D16:255-260 (2007)

2) Is the Bardeen-Petterson effect responsible for the warping and precession in NGC 4258?

Anderson Caproni, Zulema Abraham, Mario Livio, Herman J. Mosquera Cuesta

Published in Mon. Not. Roy. Astron. Soc. 379:135-142 (2007)

3) Nonlinear electrodynamics and the Pioneer 10/11 spacecraft anomaly

Jean Paul Mbelek, Herman J. Mosquera Cuesta, M. Novello, Jose M. Salim

Published in Europhys. Lett. 77:19001 (2007)

4) General relativistic effects of strong magnetic fields on the gravitational force: A Driving engine for bursts of gamma rays in SGRs?

Manuel Malheiro, Subharthi Ray, Herman J. Mosquera Cuesta, Jishnu Dey

Published in Int. J. Mod. Phys. D16:489-499 (2007)

5) Natal pulsar kicks from back reaction of gravitational waves

Herman J. Mosquera Cuesta

Published in Journal of Magnetohydrodynamics, Plasma & Space Research, Vol 12, Number 1 / 2, 97-110 (2007)

Papers published in 2008

1) Confronting the Hubble Diagram of Gamma-Ray Bursts with Cardassian Cosmology

Herman J. Mosquera Cuesta, Habib Dumet M., Cristina Furlanetto

Published in JCAP 0807:004 (2008)

2) Hubble Diagram of Gamma-Rays Bursts calibrated with Gurzadyan-Xue Cosmology

H. J. Mosquera Cuesta, H. Dumet M., C. Furlanetto, H. G. Khachatryan, S. Mirzoyan, G. Yegorian

Published in Astronomy and Astrophysics 487, 47-54 (2008)

3) Nonlinear electrodynamics and the variation of the fine structure constant

Jean Paul Mbelek, Herman J. Mosquera Cuesta

Published in Mon. Not. Roy. Ast. Soc. 389, 199-204 (2008)

4) Neutrino mass spectrum from gravitational waves generated by double neutrino spin-flip in supernovae

Herman J. Mosquera Cuesta, Gaetano Lambiase

e-Print: arXiv:0809.0526 [astro-ph]

Published in Astrophysical Journal 689, 371 (2008)

5) Anisotropic Pressures in Very Dense Magnetized Matter

A. Perez Martinez, H. Perez Rojas, H. J. Mosquera Cuesta

e-Print: arXiv:0711.0975 [astro-ph]

Published Int. Journ. Mod. Phys. D 17, No. 11, 1-17 (2008)

6) Neutrino mass spectrum from gravitational waves generated by spin-gravity coupling

Herman J. Mosquera Cuesta, Gaetano Lambiase

To Be Published by Int. Journ. Mod. Phys. D (2008)

7) Gravitational wave signal of the short rise fling of galactic run away pulsars

Herman J. Mosquera Cuesta, Carlos A. Bonilla Quintero

e-Print: arXiv:0711.3046 [astro-ph]

Published in Journal of Cosmology and Astroparticle Physics (08/ ... November/2008)

## II Conferences and educational activities

### Conferences and Other External Scientific Work:

1) First Cesare Lattes Meeting on GRBs Black Holes and Supernovae

ICRaNet, Rio de Janeiro, February 26 - March 03, 2007

2) Xth Italo-Korean Meeting on Relativistics Astrophysics, Black Holes, Gamma-Ray Bursts and Cosmology

ICRANet, June 25-30, 2007 - Pescara, Italia

3) 4th Italian-Sino Workshop on Relativistic Astrophysics

ICRA-Net, July 20-30, 2007 - Pescara, Italia

4) International Workshop on Relativistic Astrophysics 2007 - IWARA 2007

João Pessoa, PB, October 3-6, 2007

5) XIII Brazilian School on Cosmology and Gravitation

Rio de Janeiro, July 20 – August 02, 2008

6) Scienighe 2008, Padova, Italy, September 7-10, 2008

### Work With Students (currently one student)

We are studying the dynamical role of neutrinos when they are trapped inside the proto-neutron star. First, we consider the neutrino escaping process as a source of gravitational waves. It appears feasible to produce gravitational waves when the neutrinos start to push out the enshrouding PNS matter.

### Diploma thesis supervisions

#### Master Science Thesis Dissertations Concluded

1) Diagrama de Hubble de surtos de raios-gama e cosmologia com dimensoes espaciais extras: Confrontando o Modelo Cardassiano

Student: Habib S. Dumet M. -- (Setembro 06, 2007)

2) Novas fontes de ondas gravitacionais: O caso dos pulsares galácticos acelerados

Student: Carlos A. Bonilla Quintero -- (Novembro 28, 2007)

### Other Teaching Duties

#### Mini-Courses in "Programa Mínimo de Cosmologia ICRA-BR" (Minimum program for cosmology)

1) Astrofísica de Ondas Gravitacionais (Gravitational waves astrophysics)

Campos dos Goytacazes, RJ, Brasil (2007)

Fortaleza, CE, Brasil (2008)

2) Astrofísica de Objetos Compactos (Astrophysics of compact objects)

Campos dos Goytacazes, RJ, Brasil (2007)

Fortaleza, CE, Brasil (2008)

### Work With Postdocs

At the moment, I am collaborating with a couple of post-docs:

Roberto Guida (at ICRA-BR), Rio de Janeiro, Brasil

Christian Corda (Universidad de Barcelona), Barcelona, España.

### III Service activities

#### Within ICRA-Net:

#### Participation in the Organization of International events

1) First Cesare Lattes Meeting on GRBs Black Holes and Supernovae

ICRA-Net, Rio de Janeiro, February 26 - March 03, 2007

#### Outside ICRANet:

##### Participation in the Organization of International events

- 2) Primer Congreso Colombiano de Astronomía y Astrofísica – COCOA 2008  
Medellín, Colombia, August 12-15 (2008)

#### IV Other

##### Chapters in Books 2007

- 1) Quantum magnetic collapse of a neutron gas: No magnetar formation

A. Perez Martinez, H. Perez Rojas, H. J. Mosquera Cuesta

Published in Trends in Pulsar Research

Nova Science Publishers, Inc., New York (2007)

- 2) Natal pulsar kicks from back reaction of gravitational waves

Herman J. Mosquera Cuesta

Published in Trends in Pulsar Research

Nova Science Publishers, Inc., New York (2007)