

Ricardo Heras

Curriculum Vitae

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Personal

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My papers [ADS](#), [ArXiv](#)

Education

2010 – 2013 **Preparatoria Abierta SEIEM**, Toluca, Mexico.
High School studies.
2014 – **University College London**, London, UK.
MSci candidate in Astrophysics.

Research Interests

- High energy astrophysics
- Magnetic monopoles
- Field theory
- Pulsar astrophysics
- Foundations of special relativity

Publications

- 2017 R. Heras, *Alternative routes to the retarded potentials*, *Eur. J. Phys.* (in press).
- 2017 R. Heras, *Commentary: How to teach me physics: Tradition is not always a virtue*, *Phys. Today* **70**, 3, 10 (invited paper).
- 2017 R. Heras, *Four easy routes to the Lorentz transformations: addendum to 'Lorentz transformations and the wave equation'*, *Eur. J. Phys.* **38** 019401.
- 2016 R. Heras, *The Helmholtz theorem and retarded fields*, *Eur. J. Phys.* **37** 065204.
- 2016 R. Heras, *Lorentz transformations and the wave equation*, *Eur. J. Phys.* **37** 025603.
- 2016 R. Heras, *Magnetorotational instabilities and pulsar kick velocities*, *New Astron.* **43** 6.
- 2014 R. Heras, *Voigt's transformations in the beginning of the relativistic era*, [arXiv:1411.2559](https://arxiv.org/abs/1411.2559).
- 2014 R. Heras, *The wave equation in the birth of spacetime symmetries*, [arXiv:1407.3425](https://arxiv.org/abs/1407.3425).
- 2013 R. Heras, *Individualism: The legacy of great physicists*, *Commentary & Reviews, Phys. Today Online (October)*. Named the most viewed article of 2013 in Physics Today's online edition.
- 2013 R. Heras, *Birth accelerations of neutron stars*, *Proc. IAU, Symp.* **291**, 399.
- 2012 R. Heras, *Pulsars are Born as Magnetars*, *ASP Conf. Ser.* **466**, 253.
- 2011 R. Heras, *The magnetar origin of pulsars*, [arXiv:1104.5060](https://arxiv.org/abs/1104.5060).
- 2011 R. Heras, *Initial accelerations of pulsars caused by external kicks*, [arXiv:1103.1929](https://arxiv.org/abs/1103.1929).

Teaching

- 2016 *Classical Electrodynamics and Symmetry principles in Maxwell's Equations: A non-traditional course*, Department of Physics and Astronomy, University College London, summer 2016. Syllabus, lecture slides and notes available at: www.ricardoheras.com/emcourse/

Conferences

Talks

- 01/2016 R. Heras, *Neutron Stars: Extreme physics in the universe*, UCL-ICL physics undergraduate research conference, Blackett Laboratory, Imperial College, London, UK.

- 03/2014 R. Heras, *Energy transformations in the birth of neutron stars*, The Structure and Signals of Neutron Stars, from Birth to Death, Florence, Italy.
- 07/2012 R. Heras, *The Birth-Ultrafast-Magnetic-Field-Decay Model Applied to Isolated MSP's*, X-ray Binaries; Celebrating 50 years since the discovery of Sco X-1, Boston, USA.

Posters

- 08/2012 R. Heras, *Birth accelerations of neutron stars*, 28th General Assembly of the International Astronomical Union, Symposium 291, Beijing, China.
- 04/2012 R. Heras, *Pulsars are Born as Magnetars*, International Conference on Electromagnetic Radiation from Pulsars and Magnetars, University of Zielona Gora, Poland.
- 10/2011 R. Heras, *The magnetar origin of pulsars*, 54th Congreso Nacional de Física, Merida, Mexico.

Schools & Workshops attended

- 01/2015 *Jerusalem 32nd Winter School in Theoretical Physics: 100 Years to General Relativity*, Israel Institute for Advanced Studies, Jerusalem, Israel.
- 04/2014 Workshop: *The Structure and Signals of Neutron Stars, from Birth to Death*, The Galileo Galilei Institute for Theoretical Physics, Arcetri, Florence, Italy.
- 01/2014 Astrophysics School: *Look & Listen: Electromagnetic and Gravitational Waves Signals from Compact Objects*, Playa del Carmen, Mexico.

Seminars & Colloquia

- 06/2017 R. Heras, *The effect of the photon mass on the charge quantization*, Oxford, UK (invited).
- 10/2012 R. Heras, *Puede un estudiante hacer investigación?*, ITT, Toluca, Mexico (invited).
- 09/2012 R. Heras, *Estrellas de neutrones: Física extrema en el universo*, FC-UNAM, Mexico City (invited).
- 05/2012 R. Heras, *Hacia una gran unificación de las estrellas de neutrones*, IA-UNAM, Mexico City (invited).

Awards & Personal Grants

- 09/2016 State Youth Prize 2015. Award given by the State of Mexico's government to young students for their academic merit [£2000].
- 01/2015 Grant from the Israel Institute for Advance Studies to participate in the *Jerusalem 32nd Winter School in Theoretical Physics: 100 Years to General Relativity* [£680].
- 04/2014 Grant from the Galileo Galilei Institute for Theoretical Physics to participate in the workshop: *The Structure and Signals of Neutron Stars, from Birth to Death* [£800].
- 01/2014 Grant from IA-UNAM to participate in the *Astrophysics School Look & Listen: Electromagnetic and Gravitational Wave Signals from Compact Objects* [£500].
- 08/2012 International Astronomical Union (IAU) grant to participate in the *28th General Assembly of the International Astronomical Union* [£230].
- 01/2012 COMECYT award for outstanding student in science and technology [£1000].
- 2011-2012 Grant from COMECYT to participate in three conferences [£1600].

July 2017