

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 relativity
- Cosmology

Publications

- 2017 R. Heras, *Readers weigh in on how to teach physics*, *Phys. Today* **70**, 11, 11 (invited paper).
2017 A. S. Goldhaber & R. Heras, *Dirac Quantization Condition Holds with Nonzero Photon Mass*, [arXiv:1710.03321](#).
2017 R. Heras, *Alternative routes to the retarded potentials*, *Eur. J. Phys.* **38** 055203.
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](#).
2014 R. Heras, *The wave equation in the birth of spacetime symmetries*, [arXiv: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](#).
2011 R. Heras, *Initial accelerations of pulsars caused by external kicks*, [arXiv:1103.1929](#).

Teaching

- 2016 *Introduction to Maxwell's equations and their symmetries*, Department of Physics and Astronomy, University College London, Summer 2016.
In the spirit of Feynman's physics X lectures at Caltech, this was a non-credit, no-homework, no-registration, tuition free course I offered to my fellow undergrads. Syllabus of the course available at: www.ricardoheras.com/teaching-em/.

Conferences & Seminars

- 06/2017 R. Heras, *The effect of the photon mass on the charge quantization*, Oxford Philosophy of Physics Graduate Seminar, Oxford University, UK [invited talk].
- 01/2016 R. Heras, *Neutron Stars: Extreme physics in the universe*, UCL-ICL physics undergraduate research conference, Blackett Laboratory, Imperial College, London, UK [talk].
- 03/2014 R. Heras, *Energy transformations in the birth of neutron stars*, Conference: The Structure and Signals of Neutron Stars, from Birth to Death, Florence, Italy [talk].
- 07/2012 R. Heras, *The Birth-Ultrafast-Magnetic-Field-Decay Model Applied to Isolated MSP's*, Conference: X-ray Binaries; Celebrating 50 years since the discovery of Sco X-1, Boston, USA [talk].
- 05/2012 R. Heras, *Hacia una gran unificación de las estrellas de neutrones*, IA-UNAM, Mexico City [invited talk].
- 08/2012 R. Heras, *Birth accelerations of neutron stars*, Conference: 28th General Assembly of the International Astronomical Union, Symposium 291, Beijing, China [poster].
- 04/2012 R. Heras, *Pulsars are Born as Magnetars*, International Conference on Electromagnetic Radiation from Pulsars and Magnetars, University of Zielona Gora, Poland [poster].
- 10/2011 R. Heras, *The magnetar origin of pulsars*, 54th Congreso Nacional de Física, Merida, Mexico [poster].

Schools & Workshops attended

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

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