Héctor Ramírez *Curriculum vitæ* *Last update: April, 2019.*

Present Position	**FPI PhD fellow in Theoretical Physics** **Instituto de Física Corpuscular (IFIC)** & **Department of Theoretical Physics** **University of Valencia**
	Parque Científico, C/Catedrático José Beltrán, 2. Paterna, 46980; Spain. (+34)96354498 — Hector.Ramirez@uv.es — vanhramirez@gmail.com — https://www.uv.es/rarohec/
Nationality	Mexican
Current residence	Spain
Research Interests	Cosmology: Inflation, Dark Energy, Modified Gravity, Scalar-Tensor Theories of Gravity, Primordial Black-Holes, Gravitational Waves

Education

PhD in Physics 2015-2019	**University of Valencia**, Spain. Supervisor: Dr. Olga Mena Project: Noncanonical models of inflation have been studied, both theoretically and phenomenologically. Also constraints on the inflationary parameters and analyses of the slow-roll hierarchy have been carried out.
MA in Advanced Physics 2013-2014	**University of Valencia**, Spain. Supervisor: Dr. Olga Mena Dissertation: *'The Hu-Sawicki Model of Modified Gravity'*
BA in Physics 2018-2013	**University of Veracruz**, Mexico. Supervisor: Dr. Sergio Lerma Dissertation: *'Quantum Chaos in the Dicke Model'*
2012	**Academic exchange semester, University of Valencia**, Spain.

Professional Experience

Long Research Stays

Apr - Jun, 2018	**Institute of Cosmology and Gravitation, University of Portsmouth** Studied general phenomenological implications of general scalar-tensor theories for inflation.
Jan - Mar, 2018	**Kavli IPMU, The University of Tokyo** Developed inflationary models from scalar-vector-tensor theories of gravity.
May - Aug, 2017	**Fermi National Accelerator Laboratory (Fermilab)** and **Kavli Institute for Cosmological Physics – The University of Chicago** Developed inflationary models from Horndeski Gravity.
Apr - Jun, 2015	**Abdus Salam International Center for Theoretical Physics (ICTP)** Carried out a forecast of CORE and for selected inflationary models.
Mar - May, 2014	**NEXT Experiment**, ***Instituto de Física Corpuscular (IFIC)*** Carried out a gamma particle production simulation for the NEXT experiment.

Teaching

Classical Mechanics 2017-2019	Department of Theoretical Physics, University of Valencia. **Teaching Assistant**: Resolution of problems, examinations and grading.
Introductory Physics 2015-2018	Department of Theoretical Physics, University of Valencia. **Teaching Assistant**: Resolution of problems, occasional lectures, examinations and grading.

Journal referee

2017 -	Referee for *Physical Review Letters*, American Physical Society (USA).
2016 -	Referee for *Physical Review D*, American Physical Society (USA).

Publications

2018

L. Heisenberg, **H. Ramírez**, S. Tsujikawa,
"Inflation with mixed helicities and its observational imprint on CMB",
Phys. Rev. D **99** (2019) no.2, 023505.
arXiv:1812.03340 [gr-qc]

H. Ramírez, S. Passaglia, H. Motohashi, W. Hu and O. Mena,
"Reconciling tensor and scalar observables in G-inflation",
JCAP **1804** (2018) no.04, 039
arXiv:1802.04290 [astro-ph.CO].

2017

S. Gariazzo, O. Mena, V. Miralles, **H. Ramírez** and L. Boubekeur,
"The running of featureful primordial power spectra",
Phys. Rev. D **95** (2017) no.12, 123534
arXiv:1701.08977 [astro-ph.CO].

2016

S. Gariazzo, O. Mena, **H. Ramírez** and L. Boubekeur,
"Primordial power spectrum features in phenomenological descriptions of inflation",
Phys. Dark Univ. **17** (2017) 38
arXiv:1606.00842 [astro-ph.CO].

2015

M. Escudero, **H. Ramírez**, L. Boubekeur, E. Giusarma and O. Mena,
"The present and future of the most favoured inflationary models after Planck 2015",
JCAP **1602** (2016) no.02, 020
arXiv:1509.05419 [astro-ph.CO].

L. Boubekeur, E. Giusarma, O. Mena and **H. Ramírez**,
"Do Current Data Prefer a Non-minimally Coupled Inflaton?",
Phys. Rev. D **91** (2015) 103004
arXiv:1502.05193 [astro-ph.CO].

2014

L. Boubekeur, E. Giusarma, O. Mena and **H. Ramírez**,
"Phenomenological approaches of inflation and their equivalence",
Phys. Rev. D **91** (2015) 8, 083006
arXiv:1411.7237 [astro-ph.CO].

L. Boubekeur, E. Giusarma, O. Mena and **H. Ramírez**,
"On the current status of Modified Gravity",
Phys. Rev. D **90**, no. 10, 103512 (2014)
arXiv:1407.6837 [astro-ph.CO].

Awards and Fellowships

2015 - 2019 — **FPI Research fellow** by the *Ministry of Economy, Industry and Competitiveness* (MINECO)
Spanish Goverment

Jul - Sep, 2014 — **Research scholarship** granted by the University of Valencia
Valencia, Spain.

Jan - Jul, 2011 — **Grant for an abroad academic exchange semester** by the University of Veracruz
Carried out at the Faculty of Physics, *University of Valencia.*

2009 - 2011 — **Faculty award** due to academic excellence (received twice)
University of Veracruz

Talks

Conference talks

2018 Apr 18 — **Computing inflationary predictions in general scalar-tensor theories**
BritGrav18 meeting, *Institute of Cosmology and Gravitation, University of Portsmouth.*

Feb 13 — **Generalized slow-roll approach for Horndeski inflation**
Gravity and Cosmology 2018, *Yukawa Institute for Theoretical Physics, Kyoto University.*

2017 Sep 13 — Meeting on Fundamental Cosmology, *Centro de Estudios de Física del Cosmos de Aragón.*

	Aug 30	COSMO-17, *Paris Diderot University.*
		Do current data prefer a nonminimally coupled inflaton?
2016	May 25	Planck 2016, 'From the Planck Scale to the Electroweak Scale'; *University of Valencia.*

Seminars

		Inflation beyond GR
2018	Dec 12	2nd Valencia Winter Workshop on Theoretical Physics University of Valencia
	Oct 16	Theoretical seminar, Theory Group (hosted by Vincent Vennin). *APC* – Paris Diderot University
		Computing inflationary predictions in general scalar-tensor theories
	Mar 26	Webinar for the *Elusives* Network
	Mar 6	Astro Lunch Seminar, *Kavli Institute for the Physics and Mathematics of the Universe* The University of Tokyo
		Generalized slow-roll approach for Horndeski inflation
2017	Nov 2	Journal club seminar, Astrophysics group (hosted by Bruno Moraes and Will Hartley). University College London
	Nov 1	Theoretical Cosmology Meeting, *Institute of Cosmology and Gravitation* (hosted by David Wands). University of Portsmouth
	Sep 6	Group seminar, *Institute de Physique Théorique* (hosted by Filippo Vernizzi). CNRS, Saclay
	Aug 9	Group seminar, *Center for Computational Astrophysics (CCA)* (hosted by Francisco Villaescusa). Flatiron Institute, New York.
	Jun 8	Special seminar, *Lawrence Berkeley National Laboratory* (hosted by Shirley Ho). University of California at Berkeley
		Generalized slow-roll inflation
	Jul 27	Chalk talk series, *Fermilab Center for Particle Astrophysics.*
		Do current data prefer a nonminimally coupled inflaton?
	Feb 24	54th Schladming Winter School of Theoretical Physics: 'New Trends in Particle Physics, Quantum Gravity and Cosmology'.
		Single-Field Slow-Roll Inflation: a review and some particular aspects
2016	Feb 9	Students Seminar series, *(IFIC)* – University of Valencia
		Quantum Chaos in the Dicke Model
2013	May 7	Special seminar, *Faculty of Physics.* University of Veracruz.

Participations at Workshops and Schools

Workshops

2015	Jun 22-26	**Invisibles '15 workshop** Institute of Theoretical Physics, *Autonomous University of Madrid (UAM).*
	Apr 13-17	**Workshop on *'Off-the-Beaten-Track Dark Matter and Astrophysical Probes of Fundamental Physics*** Abdus Salam International Center for Theoretical Physics (ICTP)

Schools

2016	Feb 21-26	**54th Schladming Winter School of Theoretical Physics**: *'New Trends in Particle Physics, Quantum Gravity and Cosmology'*
2015	May 18-29	**First ICTP Advanced School on Cosmology** Abdus Salam International Center for Theoretical Physics (ICTP)

2014	Oct 6-10	**Tools for Cosmology: Class and Monte Python Codes** Course taught by Prof. Julien Lesgourgues *et al.* at ICC, Barcelona.
2013	Jul 22-2	**Latin American School of Physics, Marcos Moshinsky**: *'Non-Linear Dynamics in Hamiltonian Systems'*
2011	Jun 20-28	**VII National School on Nuclear and Particle Physics** Institute of Physics and Nuclear Sciences, National Autonomous University of Mexico (UNAM)

As well as special courses on **Inflation**, **Group Theory**, **Supersymmetry**, **Black Holes** and **Holography**.

Others

Computer knowledge	**Python**: Numpy, Scipy, Pandas, Matplotlib, GetDist, etc. Mathematical software: **Wolfram Mathematica**. Office suits: LaTeX, Microsoft Office, Apple iWork. Basic knowledge of **HTML** and **CSS**.
Languages	**Spanish**: Native; **English**: Fluent; **French**: B2 level. I have also taken **German** and **Italian** courses.
Sports	Highly active in organizing, managing and participating in sport teams, mainly on **football soccer** — I have joined and organized football teams in every place I have done a research stay.

References

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Teaching References:

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