

Memoria Grupo AHEP 2017

Versión provisional, 16 de enero de 2018

Más información en: <http://astroparticles.es>

Publicaciones en revistas indexadas Web of Science en 2017

1. *A White Paper on keV Sterile Neutrino Dark Matter*
R. Adhikari et al [incluye a **S. Pastor** y **J.W.F. Valle**]
Journal of Cosmology and Astroparticle Physics **01** (2017) 025 (arXiv:1602.04816)
DOI: 10.1088/1475-7516/2017/01/025
2. *Measuring the leptonic CP phase in neutrino oscillations with nonunitary mixing*
Shao-Feng Ge, **P. Pasquini**, **M. Tórtola** y **J.W.F. Valle**
Physical Review D **95** (2017) 033005 (arXiv:1605.01670)
DOI: 10.1103/PhysRevD.95.033005
3. *Dirac neutrinos and dark matter stability from lepton quarticity*
S. Centelles Chuliá, E. Ma, **R. Srivastava** y **J.W.F. Valle**
Physics Letters B **767** (2017) 209-213 (arXiv:1606.04543)
DOI: 10.1016/j.physletb.2017.01.070
4. *Precise predictions for Dirac neutrino mixing*
G. Abbas, M. Zahiri Abyaneh y **R. Srivastava**
Physical Review D **95** (2017) 075005 (arXiv:1609.03886)
DOI: 10.1103/PhysRevD.95.075005
5. *Remarks on the Standard Model predictions for $R(D)$ and $R(D^*)$*
C.S. Kim, G. López-Castro, S.L. Tostado y **A. Vicente**
Physical Review D **95** (2017) 013003 (arXiv:1610.04190)
DOI: 10.1103/PhysRevD.95.013003
6. *Neutrino oscillations from warped flavor symmetry: predictions for long baseline experiments T2K, NOvA and DUNE*
P. Pasquini, **S. Centelles Chuliá** y **J.W.F. Valle**
Physical Review D **95** (2017) 095030 (arXiv:1610.05962)
DOI: 10.1103/PhysRevD.95.095030
7. *Unifying left-right symmetry and 331 electroweak theories*
M. Reig, **J.W.F. Valle** y **C.A. Vaquera-Araujo**
Physics Letters B **766** (2017) 35-40 (arXiv:1611.02066)
DOI: 10.1016/j.physletb.2016.12.049
8. *Non-renormalizable operators for solar neutrino mass generation in Split SuSy with bilinear R-parity violation*
M.A. Díaz, B. Koch y **N. Rojas**

- Nuclear Physics B **916** (2017) 402-413 (arXiv:1611.03468)
DOI: 10.1016/j.nuclphysb.2017.01.013
9. *Three-family left-right symmetry with low-scale seesaw mechanism*
M. Reig, J.W.F. Valle y **C.A. Vaquera-Araujo**
Journal of High Energy Physics **05** (2017) 100 (arXiv:1611.04571)
DOI: 10.1007/JHEP05(2017)100
 10. *QCD-improved limits from neutrinoless double beta decay*
C. Arbeláez, M. González, **M. Hirsch** y S.G. Kovalenko
Physical Review D **96** (2017) 015010 (arXiv:1611.06095)
 11. *Perspectives for detecting lepton flavour violation in left-right symmetric models*
C. Bonilla, M.E. Krauss, T. Opferkuch y W. Porod
Journal of High Energy Physics **03** (2017) 027 (arXiv:1611.07025)
 12. *CMB anomalies and the effects of local features of the inflaton potential*
A. Gallego Cadavid, A. Enea Romano, **S. Gariazzo**
European Physical Journal C **77** (2017) 242 (arXiv:1612.03490)
 13. *Gauge vectors and double beta decay*
R.M. Fonseca y **M. Hirsch**
Physical Review D **95** (2017) 035033 (arXiv:1612.04272)
 14. *Matter-parity as a residual gauge symmetry: Probing a theory of cosmological dark matter*
A. Alves, G. Arcadi, P.V. Dong, L. Duarte, F.S. Queiroz y **J.W.F. Valle**
Physics Letters B **772** (2017) 825-831 (arXiv:1612.04383)
 15. *Heavy Higgs Boson Production at Colliders in the Singlet-Triplet Scotogenic Dark Matter Model*
M.A. Díaz, **N. Rojas**, S. Urrutia-Quiroga y **J.W.F. Valle**
Journal of High Energy Physics **08** (2017) 017 (arXiv:1612.06569)
 16. *Probing CP violation with non-unitary mixing in long-baseline neutrino oscillation experiments: DUNE as a case study*
F.J. Escrihuela, D.V. Forero, O.G. Miranda, **M. Tórtola** y **J.W.F. Valle**
New Journal of Physics **19** (2017) 093005 (arXiv:1612.07377)
 17. *Cold dark matter plus not-so-clumpy dark relics*
R. Diamanti, S. Ando, **S. Gariazzo**, O. Mena y C. Weniger
Journal of Cosmology and Astroparticle Physics **06** (2017) 008 (arXiv:1701.03128)
 18. *The running of featureful primordial power spectra*
S. Gariazzo, O. Mena, V. Miralles, H. Ramírez y L. Boubekeur
Physical Review D **95** (2017) 123534 (arXiv:1701.08977)
 19. *Can we probe intrinsic CP and T violations and nonunitarity at long baseline accelerator experiments?*
J. Rout, **M. Masud** y P. Mehta
Physical Review D **95** (2017) 075035 (arXiv:1702.02163)

20. *Probing atmospheric mixing and leptonic CP violation in current and future long baseline oscillation experiments*
S.S. Chatterjee, P. Pasquini y **J.W.F. Valle**
Physics Letters B **771** (2017) 524-531 (arXiv:1702.03160)
21. *Probing light sterile neutrino signatures at reactor and Spallation Neutron Source neutrino experiments*
T.S. Kosmas, D.K. Papoulias, **M. Tórtola** y **J.W.F. Valle**
Physical Review D **96** (2017) 063013 (arXiv:1703.00054)
22. *Updated Global 3+1 Analysis of Short-BaseLine Neutrino Oscillations*
S. Gariazzo, C. Giunti, M. Laveder y Y.F. Li
Journal of High Energy Physics **06** (2017) 135 (arXiv:1703.00860)
23. *Resolving the atmospheric octant by an improved measurement of the reactor angle*
S.S. Chatterjee, P. Pasquini y **J.W.F. Valle**
Physical Review D **96** (2017) 011303 (arXiv:1703.03435)
24. *Fermionic triplet dark matter in an $SO(10)$ -inspired left right model*
C. Arbeláez, **M. Hirsch** y D. Restrepo
Physical Review D **95** (2017) 095034 (arXiv:1703.08148)
25. *Towards gauge coupling unification in left-right symmetric $SU(3)_c \times SU(3)_L \times SU(3)_R \times U(1)_X$ theories*
C. Hati, S. Patra, **M. Reig**, **J.W.F. Valle** y **C.A. Vaquera-Araujo**
Physical Review D **96** (2017) 015004 (arXiv:1703.09647)
26. *Cosmological searches for a non-cold dark matter component*
S. Gariazzo, M. Escudero, R. Diamanti y O. Mena
Physical Review D **96** (2017) 043501 (arXiv:1704.02991)
27. *DsixTools: the standard model effective field theory toolkit*
A. Celis, J. Fuentes-Martín, **A. Vicente** y J. Virto
European Physical Journal C **77** (2017) 405 (arXiv:1704.04504)
28. *Gauge-invariant implications of the LHCb measurements on Lepton-Flavour Non-Universality*
A. Celis, J. Fuentes-Martín, **A. Vicente** y J. Virto
Physical Review D **96** (2017) 035026 (arXiv:1704.05672)
29. *Minima of multi-Higgs potentials with triplets of $\Delta(3n^2)$ and $\Delta(6n^2)$*
I. de Medeiros Varzielas, S.F. King, C. Luhn y **T. Neder**
Physics Letters B **775** (2017) 303-310 (arXiv:1704.06322)
30. *Loop neutrino masses from $d=7$ operator*
R. Cepedello, **M. Hirsch** y J.C. Helo
Journal of High Energy Physics **07** (2017) 079 (arXiv:1705.01489)
31. *Predictive Pati-Salam theory of fermion masses and mixing*
A.E. Cárcamo Hernández, S. Kovalenko, **J.W.F. Valle** y **C.A. Vaquera-Araujo**
Journal of High Energy Physics **07** (2017) 118 (arXiv:1705.06320)

32. *From the trees to the forest: a review of radiative neutrino mass models*
Y. Cai, J. Herrero-García, M.A. Schmidt, **A. Vicente** y R.R. Volkas
Frontiers in Physics **5** (2017) 63 (arXiv:1706.08524)
33. *Generalized bottom-tau unification, neutrino oscillations and dark matter: Predictions from a lepton quarticity flavor approach*
S. Centelles Chuliá, E. Ma, **R. Srivastava** y **J.W.F. Valle**
Physics Letters B **773** (2017) 26-33 (arXiv:1706.00210)
34. *A Model of Comprehensive Unification*
M. Reig, **J.W.F. Valle**, **C.A. Vaquera-Araujo** y F. Wilczek
Physics Letters B **774** (2017) 667-670 (arXiv:1706.03116)
35. *Spontaneous CP violation in multi-Higgs potentials with triplets of $\Delta(3n^2)$ and $\Delta(6n^2)$*
I. de Medeiros Varzielas, S.F. King, C. Luhn y **T. Neder**
Journal of High Energy Physics **11** (2017) 136 (arXiv:1706.07606)
36. *Calculation of the local density of relic neutrinos*
P.F. de Salas, **S. Gariazzo**, J. Lesgourgues y **S. Pastor**
Journal of Cosmology and Astroparticle Physics **09** (2017) 034 (arXiv:1706.09850)
37. *Dark Matter and the elusive Z' in a dynamical Inverse Seesaw scenario*
V. De Romeri, E. Fernández-Martínez, J. Gehrlein, P.A.N. Machado y V. Niro
Journal of High Energy Physics **10** (2017) 169 (arXiv:1707.08606)
38. *Baryogenesis from oscillations of charmed or beautiful baryons*
K. Aitken, D. McKeen, A.E. Nelson y **T. Neder**
Physical Review D **96** (2017) 075009 (arXiv:1708.01259)
39. *Cornering the revamped BMV model with neutrino oscillation data*
S.S. Chatterjee, **M. Masud**, P. Pasquini y **J.W.F. Valle**
Physics Letters B **774** (2017) 179-182 (arXiv:1708.03290)

Ponencias y comunicaciones a congresos

1. *Non-unitary neutrino mixing in DUNE and T2HK*
M. Tórtola
DUNE Collaboration Meeting
CERN, Ginebra (Suiza), 23-26 enero
2. *Neutrinos and new physics*
J.W.F. Valle
CERN-EPFL-Korea Theory Institute “New Physics at the Intensity Frontier”
CERN, Ginebra (Suiza), 20 febrero - 3 marzo
3. *Overview: Prospects in neutrinoless double-beta decay and other lepton number violating searches*
M. Hirsch
Neutrinos: the quest for a new physics scale
CERN, Ginebra (Suiza), 27-31 marzo

4. *CP-odd invariants for multi-Higgs models: applications with discrete symmetry*
T. Neder
81st Annual Conference of the DPG and DPG Spring Meeting
Münster (Alemania), 27-31 marzo
5. *Plethysms and their applications in particle physics*
R.M. Fonseca
Bethe Forum on Discrete Symmetries
Bonn (Alemania), 3-7 abril
6. *P-odd Invariants for Multi- Higgs-Models and Applications to explicit, spontaneous, and geometric CP Violation*
T. Neder
Bethe Forum on Discrete Symmetries
Bonn (Alemania), 3-7 abril
7. *The effective number of neutrinos: standard and non-standard calculations*
S. Pastor
12th Iberian Cosmology Meeting (IberiCOS 2017)
Valencia, 10-12 abril
8. *Local density of relic neutrinos with minimal mass*
P.F. de Salas
12th Iberian Cosmology Meeting (IberiCOS 2017)
Valencia, 10-12 abril
9. *DsixTools, the SM Effective Field Theory code*
A. Vicente
New physics at the junction of flavor and collider phenomenology
Portoroz (Eslovenia), 18-21 abril
10. *Local density of relic neutrinos with minimal mass*
P.F. de Salas
14th Multidark Consolider Workshop
IFT, Madrid, 24-26 mayo
11. *Neutrinoless double beta decay beyond the mass mechanism*
M. Hirsch
Matrix Elements for the Double beta decay EXperiments (MEDEX 2017)
Praga (República Checa), 29 mayo - 2 junio
12. *Diagnosing new physics in $b \rightarrow s$ transitions*
A. Vicente
23rd International Symposium on Particles, Strings and Cosmology (PASCOS 2017)
IFT Madrid, 19-23 junio
13. *Impact of sterile neutrinos on $cLFV$ processes*
V. De Romeri
26th International Workshop on Weak Interactions and Neutrinos (WIN2017)
Irvine (Estados Unidos), 19-24 junio

14. *Neutrino clustering in the Milky Way*
S. Gariazzo
26th International Workshop on Weak Interactions and Neutrinos (WIN2017)
Irvine (Estados Unidos), 19-24 junio
15. *Neutrino pathways to cosmology*
J.W.F. Valle
Workshop on Advances in Theoretical Cosmology in Light of Data
Estocolmo (Suecia), 3-28 julio
16. *Neutrinos: current status and future prospects*
J.W.F. Valle
Jorge Fest Conference
Lisboa (Portugal), 10 julio
17. *Low-scale seesaw & LHC*
M. Hirsch
Jorge Fest Conference
Lisboa (Portugal), 10 julio
18. *Gauge groups & Lagrangians*
R. Fonseca
Jorge Fest Conference
Lisboa (Portugal), 10 julio
19. *Enhancement of the relic neutrino density in the Milky Way*
P.F. de Salas
XXXVI Reunión Bienal de la Real Sociedad Española de Física
Santiago de Compostela, 17-21 julio
20. *Neutrino mass and new physics at the energy frontier*
J.W.F. Valle
Neutrinos at the High Energy Frontier
Univ. Massachusetts, Amherst (Estados Unidos), 18-20 julio
21. *Local density of relic neutrinos with minimal mass*
S. Pastor
15th Int. Conference on Topics in Astroparticle and Underground Physics (TAUP2017)
Sudbury (Canadá), 24-28 julio
22. *Three-flavour neutrino oscillations and beyond*
M. Tórtola
15th Int. Conference on Topics in Astroparticle and Underground Physics (TAUP2017)
Sudbury (Canadá), 24-28 julio
23. *Neutrino clustering in the Milky Way*
S. Gariazzo
18th Lomonosov Conference on Elementary Particle Physics
Moscú (Rusia), 24-30 agosto

24. *Upcoming relic neutrino experiments*
S. Gariazzo
Meeting on Fundamental Cosmology
CEFCA, Teruel, 11-13 septiembre
25. *The neutrino landscape*
J.W.F. Valle
Workshop on Neutrino, Dark Matter and Beyond the Standard Model Physics (LAUNCH 17)
MPIK Heidelberg (Alemania), 14-15 septiembre
26. *Neutrino pathways to dark matter*
J.W.F. Valle
International workshop on WIMP dark matter and beyond
Shanghai Jiao Tong University (China), 17-18 septiembre
27. *Neutrinos in cosmology*
S. Pastor
Cosmology School in the Canary Islands
Fuerteventura, 18-22 septiembre
28. *Probing neutrino oscillations with large volume telescopes (póster)*
P.F. de Salas
Perspectives in Astroparticle physics from High Energy Neutrinos (PAHEN)
Nápoles (Italia), 25-26 septiembre
29. *Probing the revamped A_4 symmetry at long-baseline neutrino experiments*
M. Masud
19th International Workshop on Neutrinos from Accelerators (NUFACT 2017)
Uppsala (Suecia), 25-30 septiembre
30. *Cosmology and sterile neutrinos*
S. Gariazzo
Collider Physics and the Cosmos
Galileo Galilei Institute, Florencia (Italia), 9-13 octubre
31. *Global analysis of neutrino oscillation parameters*
C.A. Ternes
RENATA meeting at the IX CPAN days
Santander, 23-24 octubre
32. *Global fits to neutrino oscillations: current status and robustness*
M. Tórtola
Colloquium Towards CP violation in neutrino Physics
Praga (Rep. Checa), 2-3 noviembre
33. *Neutrino mass hierarchy: current status*
S. Gariazzo
VI Postgraduate Meeting on Theoretical Physics
Valencia, 29 noviembre – 1 diciembre

34. *Can one ever prove that neutrinos are Dirac particles?*
R. Srivastava
VI Postgraduate Meeting on Theoretical Physics
Valencia, 29 noviembre – 1 diciembre
35. *Loop neutrino masses from $d=7$ operators*
R. Cepedello
VI Postgraduate Meeting on Theoretical Physics
Valencia, 29 noviembre – 1 diciembre
36. *Sensitivity to CPT-violation at DUNE*
C.A. Ternes
VI Postgraduate Meeting on Theoretical Physics
Valencia, 29 noviembre – 1 diciembre
37. *Comprehensive Unification*
M. Reig
VI Postgraduate Meeting on Theoretical Physics
Valencia, 29 noviembre – 1 diciembre
38. *Neutrino clustering in the Milky-Way and prospects for PTOLEMY*
S. Gariazzo
Kick-off meeting of the PTOLEMY Project
Laboratori Nazionali del Gran Sasso (Italia), 11-12 diciembre

Proceedings publicados

1. *Imprint of non-standard interactions on the CP violation measurements at long baseline experiments*
M. Masud y P. Mehta
First Workshop on Beyond Standard Model Physics at IISER Mohali
IISER Mohali, Chandigarh (India), 6-9 abril 2016
Pramana **89** (2017) 62
2. *Neutrino Oscillation Present: Session Summary*
C. Mariani y M. Tórtola
9th Neutrino Oscillation Workshop (NOW 2016)
Otranto (Italia), 4-11 septiembre 2016
Proceedings of Science **PoS(NOW2016)019**
3. *Measuring the Leptonic CP Phase in Neutrino Oscillations with Non-Unitary Mixing*
P. Pasquini, Shao-Feng Ge, M. Tórtola y J.W.F. Valle
9th Neutrino Oscillation Workshop (NOW 2016)
Otranto (Italia), 4-11 septiembre 2016
Proceedings of Science **PoS(NOW2016)026**
4. *The effective number of neutrinos: standard and non-standard*
S. Pastor
9th Neutrino Oscillation Workshop (NOW 2016)

Otranto (Italia), 4-11 septiembre 2016
Proceedings of Science **PoS(NOW2016)085**

5. *Neutrino physics from A to Z : Two lectures at Corfu*

J.W.F. Valle

Curso para estudiantes de doctorado (2 horas)

16th Hellenic School and Workshops on Elementary Particle Physics and Gravity (CORFU2016)

Corfú (Grecia), 31 agosto – 12 septiembre 2016

Proceedings of Science **PoS(CORFU2016)007**

Tesis de máster

1. *Neutrino masses in extended gauge theories*

Mario Reig López

Máster en Física Avanzada

Universidad de Valencia

Dirigida por José W.F. Valle y Mariam Tórtola

Fecha lectura: 25 julio

Tesis doctoral

1. *Electroweak breaking and neutrino mass*

César M. Bonilla Díaz

Universidad de Valencia

Dirigida por José W.F. Valle

Fecha lectura: 12 septiembre

Cursos impartidos

1. *Course: Computer tools in particle physics*

A. Vicente

Curso para estudiantes de doctorado (5.5 horas)

IFIC Valencia, 22-26 mayo

2. *Neutrino mass and new physics*

J.W.F. Valle

Curso para estudiantes de doctorado (3 horas)

ISAPP 2017: Neutrinos in Physics, Astrophysics and Cosmology

Arenzano (Italia), 13-24 junio

3. *Neutrinos in cosmology*

S Pastor

Curso para estudiantes de doctorado (3 horas)

ISAPP 2017: Neutrinos in Physics, Astrophysics and Cosmology

Arenzano (Italia), 13-24 junio

4. *Neutrino mass models*

A. Vicente

Curso para estudiantes de doctorado (2 horas)

17th JINR-ISU Baikal Summer School on Physics of Elementary Particles and Astrophysics

Bol'shie Koty (Rusia), 13-20 julio

5. *Neutrinos in cosmology*

S Pastor

Curso para estudiantes de doctorado (4 horas)

29th Indian-Summer School of Physics: Topics in Particle Cosmology

Praga (Rep. Checa), 4-9 septiembre

Coloquios y seminarios impartidos

- *The lepton flavor violation road to new physics*
A. Vicente
Max-Planck-Institut für Physik, Munich (Alemania), 30 marzo
- *Neutrino oscillations in the three-flavor framework and beyond*
M. Tórtola
Technische Universität Dortmund (Alemania), 20 abril
- *New Physics in B-meson decays*
A. Vicente
CFTP, Instituto Superior Técnico, Lisboa (Portugal), 8 junio
BCTP, Universität Bonn (Alemania), 30 octubre
- *The effective number of neutrinos: standard and non-standard calculations*
S. Pastor
RWTH Univ. Aquisgrán (Alemania), 13 julio
Univ. Ferrara (Italia), 30 noviembre
- *DsixTools, the SM Effective Field Theory code*
A. Vicente
Excellence Cluster Universe, Garching (Alemania), 25 octubre
- *Direct detection of relic neutrinos*
S. Gariazzo
Univ. Turín (Italia), 21 diciembre