

Memoria Grupo AHEP 2016

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Organización de conferencias y participación en comités

- *19th International Conference From the Planck Scale to Electroweak Scale (PLANCK 2016)*
Valencia, 23-27 mayo 2016
203 participantes, 22 ponencias invitadas y 153 contribuciones orales
Comité organizador local:
M. Hirsch (chair), **S. Pastor**, **J.W.F. Valle**, F.J. Botella O. Vives y V. Mitsou
- *22nd International Symposium on Particles, Strings and Cosmology (PASCOS 2016)*
Quy Nhon (Vietnam), 10-16 julio 2016
J.W.F. Valle en el Scientific Program Committee
- *6th Workshop on flavor symmetries and consequences in accelerators and cosmology (FLASY16)*
Valparaíso (Chile), 28-30 septiembre 2016
J.W.F. Valle en el Comité organizador y el International Advisory Board

Publicaciones en revistas indexadas ISI Web of Science en 2016

1. *IDMS: inert dark matter model with a complex singlet*
C. Bonilla, D. Sokolowska, J.L. Díaz-Cruz, M. Krawczyk y N. Darvishi
Journal of Physics G **43** (2016) 065001 (arXiv:1412.8730)
2. *Vacuum stability with spontaneous violation of lepton number*
C. Bonilla, **R.M. Fonseca** y **J.W.F. Valle**
Physics Letters B **756** (2016) 345-349 (arXiv:1506.04031)
3. *Warped flavor symmetry predictions for neutrino physics*
P. Chen, G.J. Ding, **A.D. Rojas**, **C.A. Vaquera-Araujo** y **J.W.F. Valle**
Journal of High Energy Physics **01** (2016) 007 (arXiv:1509.06683)
4. *Updating neutrino magnetic moment constraints*
B.C. Cañas, O.G. Miranda, A. Parada, **M. Tórtola** y **J.W.F. Valle**
Physics Letters B **753** (2016) 191-198 (arXiv:1510.01684)
5. *Diboson anomaly: heavy Higgs resonance and QCD vectorlike exotics*
D. Aristizábal Sierra, J. Herrero-García, D. Restrepo y **A. Vicente**
Physical Review D **93** (2016) 015012 (arXiv:1510.03437)
6. *Bounds on neutrino-scalar Yukawa coupling*
P. Pasquini y O.L.G. Peres
Physical Review D **93** (2016) 053007 (arXiv:1511.01811)
7. *QCD running in neutrinoless double beta decay: Short-range mechanisms*
M. González, **M. Hirsch** y S.G. Kovalenko
Physical Review D **93** (2016) 013017 (arXiv:1511.03945)

8. *Electroweak breaking and neutrino mass: "invisible" Higgs decays at the LHC (Type II seesaw)*
C. Bonilla, J.C. Romão y **J.W.F. Valle**
 New Journal of Physics **18** (2016) 033033 (arXiv:1511.07351)
9. *A constrained supersymmetric left-right model*
M. Hirsch, M.E. Krauss, T. Opferkuch, W. Porod y F. Staub
 Journal of High Energy Physics **03** (2016) 009 (arXiv:1512.00472)
10. *Generalized $\mu - \tau$ reflection symmetry and leptonic CP violation*
 P. Chen, G.J. Ding, **F. González-Canales** y **J.W.F. Valle**
 Physics Letters B **753** (2016) 644-652 (arXiv:1512.01551)
11. *LHC diphoton resonance from gauge symmetry*
 S.M. Boucenna, S. Morisi y **A. Vicente**
 Physical Review D **93** (2016) 115008 (arXiv:1512.06878)
12. *Dynamical seesaw mechanism for Dirac neutrinos*
J.W.F. Valle y **C.A. Vaquera-Araujo**
 Physics Letters B **755** (2016) 363-366 (arXiv:1601.05237)
13. *Neutrino propagation in the galactic dark matter halo*
P.F. de Salas, **R.A. Lineros** y **M. Tórtola**
 Physical Review D **94** (2016) 123001 (arXiv:1601.05798)
14. *Neutrino oscillations and the seesaw origin of neutrino mass*
 O.G. Miranda y **J.W.F. Valle**
 Nuclear Physics B **908** (2016) 436-455 (arXiv:1602.00864)
15. *Long-range contributions to double beta decay revisited*
 J.C. Helo, **M. Hirsch** y T. Ota
 Journal of High Energy Physics **06** (2016) 006 (arXiv:1602.03362)
16. *Precision tools and models to narrow in on the 750 GeV diphoton resonance*
 F. Staub, P. Athron, L. Basso, M.D. Goodsell, D. Harries, M.E. Krauss, K. Nickel, T. Opferkuch,
 L. Ubaldi, **A. Vicente** y A. Voigt
 European Physical Journal C **76** (2016) 516 (arXiv:1602.05581)
17. *Flavor physics scenario for the 750 GeV diphoton anomaly*
C. Bonilla, M. Nebot, R. Srivastava y **J.W.F. Valle**
 Physical Review D **93** (2016) 073009 (arXiv:1602.08092)
18. *Consistency of WIMP Dark Matter as radiative neutrino mass messenger*
 A. Merle, M. Platscher, **N. Rojas**, **J.W.F. Valle** y **A. Vicente**
 Journal of High Energy Physics **07** (2016) 013 (arXiv:1603.05685)
19. *String completion of an $SU(3)_c \otimes SU(3)_L \otimes U(1)_X$ electroweak model*
 A. Addazi, **J.W.F. Valle** y **C.A. Vaquera-Araujo**
 Physics Letters B **759** (2016) 471-478 (arXiv:1604.02117)

20. *Non-abelian gauge extensions for B-decay anomalies*
S.M. Boucenna, A. Celis, J. Fuentes-Martín, **A. Vicente** y J. Virto
Physics Letters B **760** (2016) 214-219 (arXiv:1604.03088)
21. *Classifying CP transformations according to their texture zeros: theory and implications*
P. Chen, G.J. Ding, **F. González-Canales** y **J.W.F. Valle**
Physical Review D **94** (2016) 033002 (arXiv:1604.03510)
22. *New ambiguity in probing CP violation in neutrino oscillations*
O.G. Miranda, **M. Tórtola** y **J.W.F. Valle**
Physical Review Letters **117** (2016) 061804 (arXiv:1604.05690)
23. *Lepton Flavor Violation in the singlet-triplet scotogenic model*
P. Rocha-Morán y **A. Vicente**
Journal of High Energy Physics **07** (2016) 078 (arXiv:1605.01915)
24. *Naturally light neutrinos in Dirac model*
C. Bonilla y **J.W.F. Valle**
Physics Letters B **762** (2016) 162-165 (arXiv:1605.08362)
25. *A flipped 331 model*
R.M. Fonseca y **M. Hirsch**
Journal of High Energy Physics **08** (2016) 003 (arXiv:1606.01109)
26. *CP violation from flavor symmetry in a lepton quarticity dark matter model*
S. Centelles Chuliá, R. Srivastava y **J.W.F. Valle**
Physics Letters B **761** (2016) 431-436 (arXiv:1606.06904)
27. *Relic neutrino decoupling with flavour oscillations revisited*
P.F. de Salas y **S. Pastor**
Journal of Cosmology and Astroparticle Physics **07** (2016) 051 (arXiv:1606.06986)
28. *Realistic $SU(3)_c \otimes SU(3)_L \otimes U(1)_X$ model with type-II Dirac neutrino seesaw mechanism*
M. Reig, **J.W.F. Valle** y **C.A. Vaquera-Araujo**
Physical Review D **94** (2016) 033012 (arXiv:1606.08499)
29. *Scalar-mediated double beta decay and LHC*
L. Gonzalez, J.C. Helo, **M. Hirsch** y S.G. Kovalenko
Journal of High Energy Physics **12** (2016) 130 (arXiv:1606.09555)
30. *Two-loop Dirac neutrino mass and WIMP dark matter*
C. Bonilla, E. Ma, E. Peinado y **J.W.F. Valle**
Physics Letters B **762** (2016) 214-218 (arXiv:1607.03931)
31. *Quasi-Dirac neutrinos at the LHC*
G. Anamiati, **M. Hirsch** y E. Nardi
Journal of High Energy Physics **10** (2016) 010 (arXiv:1607.05641)
32. *Lepton number violation in 331 models*
R.M. Fonseca y **M. Hirsch**
Physical Review D **94** (2016) 115003 (arXiv:1607.06328)

33. *Phenomenology of an $SU(2) \times SU(2) \times U(1)$ model with lepton-flavour non-universality*
S.M. Boucenna, A. Celis, J. Fuentes-Martín, **A. Vicente** y J. Virto
Journal of High Energy Physics **12** (2016) 059 (arXiv:1608.01349)
34. *Constraining flavor changing interactions from LHC Run-2 dilepton bounds with vector mediators*
F.S. Queiroz, C. Siqueira y **J.W.F. Valle**
Physics Letters B **763** (2016) 269-274 (arXiv:1608.07295)
35. *The weak mixing angle from low energy neutrino measurements: A global update*
B.C. Cañas, E.A. Garcés, O.G. Miranda, **M. Tórtola** y **J.W.F. Valle**
Physics Letters B **761** (2016) 450-455 (arXiv:1608.02671)
36. *331 models and grand unification: From minimal $SU(5)$ to minimal $SU(6)$*
F.F. Deppisch, C. Hati, S. Patra, U. Sarkar y **J.W.F. Valle**
Physics Letters B **762** (2016) 432-440 (arXiv:1608.05334)
37. *QCD corrections and long-range mechanisms of neutrinoless double beta decay*
C. Arbeláez, M. González, **M. Hirsch** y S.G. Kovalenko
Physical Review D **94** (2016) 096014 (arXiv:1610.04096)

Ponencias y comunicaciones a congresos

1. *Majorana neutrino masses - A story of trees and loops*
M. Hirsch
6th Int. Workshop on High Energy Physics in the LHC Era
Valparaíso (Chile), 6-12 enero
2. *Neutrinos: the ghost particles*
S. Pastor
III Jornadas de Engenharia Física
Instituto Superior Técnico, Lisboa (Portugal), 2-3 marzo
3. *Neutrinos theory*
M. Hirsch
XLIV International Meeting on Fundamental Physics
IFT Madrid, 4-7 abril
4. *Particle theory of neutrinoless double beta decay*
M. Hirsch
Meeting on the Next Generation ^{76}Ge Experiment
Múnich (Alemania), 25-27 abril
5. *Beyond standard CP violation at T2K and DUNE*
M. Tórtola
DUNE Collaboration Meeting
South Dakota School of Mines and Technology, Rapid City (EEUU), 19-22 mayo
6. *Scotogenic models: problems and solutions*
N. Rojas
19th Int. Conference From the Planck Scale to Electroweak Scale (PLANCK 2016)
Valencia, 23-27 mayo

7. *Extended gauge groups and neutrinoless double beta decay*
R.M. Fonseca
19th Int. Conference From the Planck Scale to Electroweak Scale (PLANCK 2016)
Valencia, 23-27 mayo
8. *New physics in B-meson decays*
A. Vicente
19th Int. Conference From the Planck Scale to Electroweak Scale (PLANCK 2016)
Valencia, 23-27 mayo
9. *Measuring CP violation in the presence of neutrino physics BSM*
M. Tórtola
19th Int. Conference From the Planck Scale to Electroweak Scale (PLANCK 2016)
Valencia, 23-27 mayo
10. *Neutrino oscillations in the galactic dark matter halo*
R.A. Lineros
19th Int. Conference From the Planck Scale to Electroweak Scale (PLANCK 2016)
Valencia, 23-27 mayo
11. *Neutrino propagation in the galactic dark matter halo*
R.A. Lineros
6th Roma International Conference on Astroparticle (RICAP 16)
Frascati (Italia), 21-24 junio
12. *The current neutrino physics landscape*
J.W.F. Valle
Humboldt Kolleg “From the Vacuum to the Universe”
Kitzbühel (Austria), 26 junio – 1 julio
13. *Implications of non-unitary lepton mixing matrix using a new parametrization which separates “new-physics” from “standard” physics (póster)*
F.J. Escrivuela
XXVII Int. Conference on Neutrino Physics and Astrophysics (Neutrino 2016)
Londres (Reino Unido), 4-9 julio
14. *Neutrino mass and invisible Higgs decays*
C. Bonilla
7th workshop on Higgs Hunting
París (Francia), 31 agosto – 2 septiembre
15. *The effective number of neutrinos: standard and non-standard*
S. Pastor
9th Neutrino Oscillation Workshop (NOW 2016)
Otranto (Italia), 4-11 septiembre
16. *Neutrino nature in mH-models and the invisible Higgs decays*
C. Bonilla
Workshop on Multi-Higgs Models
Lisboa (Portugal), 6-9 septiembre

17. *Neutrinos as fundamental probes in the Universe*
 J.W.F. Valle
 FÍSICA 2016 – 20^a Conferência Nacional de Física
 Braga (Portugal), 8-10 septiembre
18. *Neutrino physics landscape 2016*
 J.W.F. Valle
 6th Workshop on flavor symmetries and consequences in accelerators and cosmology (FLASY16)
 Valparaíso (Chile), 28-30 septiembre
19. *Lepton number violation, neutrino masses and LHC*
 M. Hirsch
 6th Workshop on flavor symmetries and consequences in accelerators and cosmology (FLASY16)
 Valparaíso (Chile), 28-30 septiembre
20. *A gauge explanation for the B-meson anomalies*
 A. Vicente
 6th Workshop on flavor symmetries and consequences in accelerators and cosmology (FLASY16)
 Valparaíso (Chile), 28-30 septiembre
21. *Scotogenic Models and Radiative Z_2 Symmetry Breaking*
 N. Rojas
 6th Workshop on flavor symmetries and consequences in accelerators and cosmology (FLASY16)
 Valparaíso (Chile), 28-30 septiembre
22. *Warped flavor symmetry predictions for neutrino physics*
 C. Vaquera-Araujo
 6th Workshop on flavor symmetries and consequences in accelerators and cosmology (FLASY16)
 Valparaíso (Chile), 28-30 septiembre
23. *Axions and the CMB*
 S. Gariazzo
 Axions & IAXO in Spain
 Zaragoza, 27-28 octubre
24. *Neutrino pathways to dark matter*
 J.W.F. Valle
 Dark Matter from aeV to ZeV: 3rd IBS-MultiDark-IPPP Workshop
 Durham (Reino Unido), 21-25 noviembre
25. *Reviewing dark matter searches with radio waves*
 R.A. Lineros
 Dark Matter from aeV to ZeV: 3rd IBS-MultiDark-IPPP Workshop
 Durham (Reino Unido), 21-25 noviembre
26. *Neutrino oscillations in the galactic dark matter halo*
 P. Fernández de Salas
 Dark Matter from aeV to ZeV: 3rd IBS-MultiDark-IPPP Workshop
 Durham (Reino Unido), 21-25 noviembre

27. *Quasi-Dirac neutrinos at the LHC*
G. Anamiati
VIII CPAN days
Zaragoza, 28-30 noviembre
28. *REd NAcional Temática de Astropartículas (RENATA)*
S. Pastor
VIII CPAN days
Zaragoza, 28-30 noviembre
29. *A gauge explanation for the B-meson anomalies*
A. Vicente
1st ComHEP: Colombian Meeting on High Energy Physics
Medellín (Colombia), 28 noviembre - 2 diciembre
30. *The Sym2Int program: going from symmetries to interactions*
R.M. Fonseca
5th Symposium on Prospects in the Physics of Discrete Symmetries (DISCRETE 2016)
Varsovia (Polonia), 28 noviembre - 3 diciembre
31. *Neutrinos and the path to new physics*
J.W.F. Valle
NCTS Annual Theory Meeting 2016: Particles, Cosmology and String
Hsinchu (Taiwan), 6-9 diciembre

Proceedings publicados

1. *Scalar dark matter in an extra dimension inspired model*
R.A. Lineros y F. Pereira dos Santos
14th Int. conference on Topics in Astroparticle and Underground Physics (TAUP 2015)
Turín (Italia), 7-11 septiembre 2015
Journal of Physics: Conference Series **718** (2016) 042043 (arXiv:1601.04347)
2. *Radiative neutrino mass generation from WIMP dark matter*
R.A. Lineros
14th Int. conference on Topics in Astroparticle and Underground Physics (TAUP 2015)
Turín (Italia), 7-11 septiembre 2015
Journal of Physics: Conference Series **718** (2016) 042036 (arXiv:1601.06554)
3. *New limits on neutrino magnetic moments from low energy neutrino data*
B.C. Cañas, O.G. Miranda, A. Parada, **M. Tórtola** y **J.W.F. Valle**
30ª Reunión Anual de la División de Partículas y Campos de la Sociedad Mexicana de Física
Puebla (México), 23-25 mayo 2016
Journal of Physics: Conference Series **761** (2016) 012043 (arXiv:1609.08563)
4. *Constraining right-handed neutrinos*
F.J. Escrihuela, D.V. Forero, O.G. Miranda, **M. Tórtola** y **J.W.F. Valle**
37th International Conference on High Energy Physics (ICHEP 2014)
Valencia, 2-9 julio 2014
Nuclear and Particle Physics Proceedings **273-275** (2016) 1909-1914 (arXiv:1505.01097)

5. *Classification of lepton mixing patterns from flavour symmetries*
R.M. Fonseca y W. Grimus
37th Int. Conference on High Energy Physics (ICHEP 2014)
Valencia, 2-9 julio 2014
Nuclear and Particle Physics Proceedings **273-275** (2016) 2618-2620 (arXiv:1410.4133)
6. *Non-diagonal charged lepton mass matrix, the TBM and non-zero θ_{13}*
A.D. Rojas
37th Int. Conference on High Energy Physics (ICHEP 2014)
Valencia, 2-9 julio 2014
Nuclear and Particle Physics Proceedings **273-275** (2016) 2684-2686 (arXiv:1410.6107)
7. *Neutrino Oscillation Present: Session Summary*
C. Mariani y M. Tórtola
9th Neutrino Oscillation Workshop (NOW 2016)
Otranto (Italia), 4-11 septiembre Proceedings of Science, PoS(NOW2016)019
8. *The effective number of neutrinos: standard and non-standard*
S. Pastor
9th Neutrino Oscillation Workshop (NOW 2016)
Otranto (Italia), 4-11 septiembre Proceedings of Science, PoS(NOW2016)085

Tesis doctoral

1. *Phenomenology of non-standard neutrino interactions*
Francisco Javier Escrihuela Ferrándiz
Universidad de Valencia
Dirigida por M. Amparo Tórtola, Omar G. Miranda y José W.F. Valle
Fecha lectura: 5 febrero

Cursos impartidos

1. *The Quest for Neutrino Mass*
M. Hirsch
Curso para estudiantes de doctorado (3.5 horas)
4th Chilean School of High Energy Physics
Valparaíso (Chile), 13-15 enero
2. *Course: Computer tools in particle physics*
A. Vicente
Curso para estudiantes de doctorado (5.5 horas)
IFIC Valencia, 1-5 febrero
3. *Searching for WIMP dark matter with astroparticles*
R.A. Lineros
Curso para estudiantes de doctorado (5 horas)
Cátedra Augusto García González
Cinvestav (Ciudad de México), 16-19 agosto

4. *Neutrinos (theory)*
 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
5. *Standard model of particle physics and beyond*
 A. Vicente
 Curso para estudiantes de doctorado (4.5 horas)
 ISAPP 2016: Physics and Astrophysics of Cosmic Rays in Space
 Univ. Milano Bicocca, Milán (Italia), 12-20 septiembre
6. *Course: Computer tools in particle physics*
 A. Vicente
 Curso para estudiantes de doctorado (5.5 horas)
 Universidad de Antioquia, Medellín (Colombia), 5-9 diciembre

Coloquios y seminarios impartidos

- *Explaining flavor with symmetries*
 R.M. Fonseca
 Univ. de Southampton (Reino Unido), 15 enero
- *Premio Nobel de Física 2015: neutrinos, las partículas camaleónicas*
 S. Pastor
 Univ. de Valencia, 25 febrero
 Univ. de Oviedo, 13 diciembre
- *Neutrino properties from cosmological observables after Planck*
 S. Pastor
 IST Lisboa (Portugal), 1 marzo
- *Neutrino oscillations beyond the three-flavor paradigm*
 M. Tórtola
 CINVESTAV-IPN, Ciudad de México, 7 junio
 Instituto de Física, Universidad Nacional Autónoma de México, 17 junio
- *New physics in B-meson decays*
 A. Vicente
 Universidad Técnica Federico Santa María (Chile), 23 septiembre
 Laboratori Nazionali di Frascati (Italia), 26 octubre
- *The lepton flavor violation road to new physics*
 A. Vicente
 Universidad Antonio Nariño (Colombia), 7 diciembre
- *Lepton number violation: Majorana neutrinos, double beta decay and LHC*
 M. Hirsch
 Univ. de Würzburg (Alemania), 15 diciembre