

Memoria Grupo AHEP 2008

Componentes del Grupo durante todo o parte del año 2008:

José W.F. Valle, Nuria Rius, Martin Hirsch, Sergio Pastor, Ricard Tomàs, Gennaro Miele, D.P. Roy, Satoru Kaneko, Stefano Morisi, Antonio Palazzo, Andreu Esteban Pretel, Urbano França, Teguyco Pinto, Federica Bazzocchi y Avelino Vicente (+ colaboradores externos).

(1) Organización de conferencias y participación en comités

- *International School on Astro-Particle Physics (ISAPP08)*
Valencia, 16-26 Julio 2008
M. Hirsch, A. Palazzo, S. Pastor y J.W.F. Valle en el Comité Organizador
- *10th International Workshop on Neutrino Factories, Super beams and Beta beams (Nufact08)*
Valencia, 30 Junio – 5 Julio 2008
N. Rius en el Comité Organizador

(2) Artículos publicados en revistas indexadas ISI en 2008

1. *Polarized positrons and electrons at the linear collider*
G. Moortgat-Pick et al [incluye a **W. Porod**]
Physics Reports **460** (2008) 131-243 (arXiv:hep-ph/0507011)
2. *Lepton asymmetries and the growth of cosmological seed magnetic fields*
V.B. Semikoz y J.W.F. Valle
Journal of High Energy Physics **0803** (2008) 067 (arXiv:0704.3978)
3. *Variations on leptogenesis*
D. Aristizábal Sierra, M. Losada y E. Nardi
Physics Letters B **659** (2008) 328-335 (arXiv:0705.1489)
4. *Astrophysical interpretation of the medium scale clustering in the ultrahigh energy sky*
A. Cuoco, **G. Miele** y P.D. Serpico
Physics Letters B **660** (2008) 307-314 (arXiv:0706.2864)
5. *Fermion masses, Leptogenesis and Supersymmetric SO(10) Unification*
J.C. Romão, M.A. Tórtola, **M. Hirsch y J.W.F. Valle**
Physical Review D **77** (2008) 055002 (arXiv: 0707.2942)
6. *A SUSY A_4 model for fermion masses and mixings*
F. Bazzocchi, S. Kaneko y S. Morisi
Journal of High Energy Physics **0803** (2008) 063 (arXiv: 0707.3032)
7. *High energy neutrino yields from astrophysical sources II: Magnetized sources*
M. Kachelriess, S. Ostapchenko y **R. Tomàs**
Physical Review D **77** (2008) 023007 (arXiv:0708.3047)

8. *CP violation and neutrino oscillations*
H. Nunokawa, S.J. Parke y **J.W.F. Valle**
Progress in Particle and Nuclear Physics **60** (2008) 338-402 (arXiv:0710.0554)
9. *Embedding $A(4)$ into left-right flavor symmetry: Tribimaximal neutrino mixing and fermion hierarchy*
F. Bazzocchi, S. Morisi y M. Picariello
Physics Letters B **659** (2008) 628-633 (arXiv:0710.2928)
10. *Angular Signatures of Annihilating Dark Matter in the Cosmic Gamma-Ray Background*
A. Cuoco, J. Brandbyge, S. Hannestad, T. Haugbølle y **G. Miele**
Physical Review D **77** (2008) 123518 (arXiv:0710.4136)
11. *Leptoquarks: Neutrino masses and accelerator phenomenology*
D. Aristizábal Sierra, M. Hirsch y S.G. Kovalenko
Physical Review D **77** (2008) 055011 (arXiv:0710.5699)
12. *Disentangling neutrino-nucleon cross section and high energy neutrino flux with a km^3 neutrino telescope*
E. Borriello, A. Cuoco, G. Mangano, G. Miele, S. Pastor, O. Pisanti y P.D. Serpico
Physical Review D **77** (2008) 045019 (arXiv:0711.0152)
13. *Constraining Non-Standard Neutrino-Electron Interactions*
J. Barranco, O.G. Miranda, C.A. Moura y **J.W.F. Valle**
Physical Review D **77** (2008) 093014 (arXiv:0711.0698)
14. *Mu-tau neutrino refraction and collective three-flavor transformations in supernovae*
A. Esteban-Pretel, S. Pastor, R. Tomàs, G.G. Raffelt y G. Sigl
Physical Review D **77** (2008) 065024 (arXiv:0712.1137)
15. *Probing a Supersymmetric Model for Neutrino Masses at Ultrahigh Energy Neutrino Telescopes*
M. Hirsch, D.P. Roy y **J.W.F. Valle**
Physics Letters B **662** (2008) 185-189 (arXiv:0712.1711)
16. *Probing bilinear R -parity violating supergravity at the LHC*
F. de Campos, O.J.P. Eboli, M.B. Magro, W. Porod, D. Restrepo, **M. Hirsch** y **J.W.F. Valle**
Journal of High Energy Physics **0805** (2008) 048 (arXiv:0712.2156)
17. *Collider aspects of flavor physics at high Q*
T. Lari et al [incluye a **D. Aristizábal, M. Hirsch, J.W.F. Valle** y **A. Villanova del Moral**]
European Physical Journal C **57** (2008) 183-307 (arXiv:0801.1800)
18. *Parameter Degeneracy in Flavor-Dependent Reconstruction of Supernova Neutrino Fluxes*
H. Minakata, H. Nunokawa, **R. Tomàs** y **J.W.F. Valle**
Journal of Cosmology and Astroparticle Physics **0812** (2008) 006 (arXiv:0802.1489)
19. *Spontaneous R -parity violation: Lightest neutralino decays and neutrino mixing angles at future colliders*
M. Hirsch, W. Porod y **A. Vicente**
Physical Review D **77** (2008) 075005 (arXiv:0802.2896)

20. *CP observables with spin-spin correlations in chargino production*
A. Bartl, K. Hohenwarter-Sodek, T. Kernreiter, O. Kittel y M. Terwort
 Nuclear Physics B **802** (2008) 77-91 (arXiv:0802.3592)
21. *Tri-bimaximal neutrino mixing and neutrinoless double beta decay*
S. Morisi, **M. Hirsch** y **J.W.F. Valle**
 Physical Review D **78** (2008) 093007 (arXiv:0804.1521)
22. *Probing minimal supergravity in type I seesaw with lepton flavour violation at the LHC*
M. Hirsch, W. Porod, J.C. Romão, **J.W.F. Valle** y A. Villanova del Moral
 Physical Review D **78** (2008) 013006 (arXiv:0804.4072)
23. *X-ray photons from late-decaying majoron dark matter*
F. Bazzocchi, M. Lattanzi, S. Riemer-Sørensen y **J.W.F. Valle**
 Journal of Cosmology and Astroparticle Physics **0808** (2008) 013 (arXiv:0805.2372)
24. *Can OPERA help in constraining neutrino non-standard interactions?*
A. Esteban-Pretel, P. Huber y **J.W.F. Valle**
 Physics Letters B **668** (2008) 197-201 (arXiv:0803.1790)
25. *Observables sensitive to absolute neutrino masses. II*
 G.L. Fogli, E. Lisi, A. Marrone, A. Melchiorri, **A. Palazzo**, A.M. Rotunno, P. Serra, J. Silk y
 A. Slosar
 Physical Review D **78** (2008) 033010 (arXiv:0805.2517)
26. *Hints of $\theta_{13} > 0$ from global neutrino data analysis*
 G.L. Fogli, E. Lisi, A. Marrone, **A. Palazzo** y A.M. Rotunno
 Physical Review Letters **101** (2008) 141801 (arXiv:0806.2649)
27. *CP Violation in the SUSY Seesaw: Leptogenesis and Low Energy*
 S. Davidson, J. Garayoa, F. Palorini y **N. Rius**
 Journal of High Energy Physics **0809** (2008) 053 (arXiv:0806.2832)
28. *Minimal supergravity sneutrino dark matter and inverse seesaw neutrino masses*
 C. Arina, **F. Bazzocchi**, N. Fornengo, J.C. Romão y **J.W.F. Valle**
 Physical Review Letters **101** (2008) 161802 (arXiv:0806.3225)
29. *Supersymmetric type II seesaw mechanism: CERN LHC and lepton flavor violating phenomenology*
M. Hirsch, **S. Kaneko** y W. Porod
 Physical Review D **78** (2008) 093004 (arXiv:0806.3361)
30. *Role of dense matter in collective supernova neutrino transformations*
A. Esteban-Pretel, A. Mirizzi, **S. Pastor**, R. Tomàs, G.G. Raffelt, P.D. Serpico y G. Sigl
 Physical Review D **78** (2008) 085012 (arXiv:0807.0659)
31. *Three-flavour neutrino oscillation update*
 T. Schwetz, M.A. Tórtola y **J.W.F. Valle**
 New Journal of Physics **10** (2008) 113011 (arXiv:0808.2016)

32. *Fermion masses and mixing in models with $SO(10) \times A_4$ symmetry*
F. Bazzocchi, M. Frigerio y **S. Morisi**
 Physical Review D **78** (2008) 116018 (arXiv:0809.3573)
33. *Measuring lepton flavour violation at LHC with long-lived slepton in the coannihilation region*
S. Kaneko, J. Sato, T. Shimomura, O. Vives y M. Yamanaka
 Physical Review D **78** (2008) 116013 (arXiv:0811.0703)
34. *Upper limit on the cosmic-ray photon flux above 10^{19} eV using the surface detector of the Pierre Auger Observatory*
 The Pierre Auger Collaboration [incluye a **S. Pastor** y **T. Pinto**]
 Astroparticle Physics **29** (2008) 243-256 (arXiv:0712.1147)
35. *Upper limit on the diffuse flux of UHE tau neutrinos from the Pierre Auger Observatory*
 The Pierre Auger Collaboration [incluye a **S. Pastor** y **T. Pinto**]
 Physical Review Letters **100** (2008) 211101 (arXiv:0712.1909)
36. *Correlation of the highest-energy cosmic rays with the positions of nearby active galactic nuclei*
 The Pierre Auger Collaboration [incluye a **S. Pastor** y **T. Pinto**]
 Astroparticle Physics **29** (2008) 188-204 (arXiv:0712.2843)
37. *Observation of the suppression of the flux of cosmic rays above 4×10^{19} eV*
 The Pierre Auger Collaboration [incluye a **S. Pastor** y **T. Pinto**]
 Physical Review Letters **101** (2008) 061101 (arXiv:0806.4302)

(3) Ponencias y comunicaciones a congresos

1. *Flavor symmetries and neutrino mass models*
 M. Hirsch
 Tenth Workshop on High Energy Physics Phenomenology (WHEPP-X)
 Chennai (India), Enero 2008
2. *Neutrinos in Cosmology*
 J.W.F. Valle
 Physics of the Universe: Implications of the Recent Observations
 Madrid, Mayo 2008
3. *Model Independent Constraints on Mass-varying Neutrino Scenarios* (póster)
 U. França
 A Decade of Dark Energy - STScI
 Baltimore (Estados Unidos), Mayo 2008
4. *Neutrino overview*
 J.W.F. Valle
 Physics of Massive Neutrinos: Annual Meeting of ENTApP N6/WP1
 Milos (Grecia), Mayo 2008
5. *Neutrino Oscillations and Grand Unification: an $SO(10) \times A_4$ Model*
 S. Morisi
 Physics of Massive Neutrinos: Annual Meeting of ENTApP N6/WP1
 Milos (Grecia), Mayo 2008

6. *Lepton Flavour Violation in SUGRA with See-Saw Type II*
S. Kaneko
Physics of Massive Neutrinos: Annual Meeting of ENTApP N6/WP1
Milos (Grecia), Mayo 2008
7. *Neutrinos: where to from now?*
J.W.F. Valle
4th Annual Meeting of the European Network on Theoretical Astroparticle Physics (ENTApP)
ILIAS/N6
Hamburgo (Alemania), Marzo 2008
8. *Neutrino Physics and A_4 matter assignments*
S. Morisi
Incontri di Fisica delle Alte Energie (IFAE 2008)
Bologna (Italia), Marzo 2008
9. *Decoherence in supernova neutrino transformations suppressed by deleptonization* (póster)
A. Esteban-Pretel
XXIII Int. Conference on Neutrino Physics and Astrophysics (Neutrino 2008)
Christchurch (Nueva Zelanda), Mayo 2008
10. *Mu-tau neutrino refraction and collective three-flavor transformations in supernovae* (póster)
S. Pastor
XXIII Int. Conference on Neutrino Physics and Astrophysics (Neutrino 2008)
Christchurch (Nueva Zelanda), Mayo 2008
11. *Sneutrino as DM candidate in an inverse see-saw scenario*
F. Bazzocchi
From the Planck Scale to the ElectroWeak Scale (PLANCK 2008)
IFAE Barcelona, Mayo 2008
12. *Neutralino decays in Spontaneous R-parity violation*
A. Vicente
From the Planck Scale to the ElectroWeak Scale (PLANCK 2008)
IFAE Barcelona, Mayo 2008
13. *Neutrinos as cosmological messengers*
J.W.F. Valle
4th International Workshop on the Dark Side of the Universe
El Cairo (Egipto), Junio 2008
14. *Lepton flavour violating processes and the seesaw mechanism*
M. Hirsch
Melbourne Neutrino Theory Workshop
Melbourne (Australia), Junio 2008
15. *Mu-tau neutrino refraction and collective three-flavor transformations in supernovae*
S. Pastor
Melbourne Neutrino Theory Workshop
Melbourne (Australia), Junio 2008

16. *Decoherence in supernova neutrino transformations suppressed by deleptonization*
A. Esteban-Pretel
Melbourne Neutrino Theory Workshop
Melbourne (Australia), Junio 2008
17. *What cosmology can tell us about neutrino physics in the next 10 years?*
S. Pastor
10th International Workshop on Neutrino Factories, Super beams and Beta beams (NuFact 08)
Valencia, Julio 2008
18. *Can OPERA help in constraining neutrino NSI?*
A. Esteban-Pretel
10th International Workshop on Neutrino Factories, Super beams and Beta beams (NuFact 08)
Valencia, Julio 2008
19. *Sneutrino as DM candidate in an inverse see-saw scenario*
F. Bazzocchi
Conference on the Identification of Dark Matter, IDM 2008
Estocolomo (Suecia), Agosto 2008
20. *Neutrino masses and mixings: 2008 status*
A. Palazzo
5th Neutrino Oscillation Workshop (NOW 2008)
Conca Specchiulla, Otranto (Italia), Septiembre 2008
21. *Decoherence in supernova neutrino transformations*
A. Esteban-Pretel
5th Neutrino Oscillation Workshop (NOW 2008)
Conca Specchiulla, Otranto (Italia), Septiembre 2008
22. *Neutrinos as cosmological messengers*
J.W.F. Valle
XXIX Encontro Nacional de Física de Partículas e Campos
São Lourenço (Brasil), Septiembre 2008
23. *Modelling tri-bimaximal neutrino mixing*
S. Morisi
Fifth Annual Meeting of ENTApP N6/WP1: Neutrinos in Particle, in Nuclear and in Astrophysics
Trento (Italia), Noviembre 2008
24. *Spontaneous R-parity violation and the origin of neutrino masses*
A. Vicente
DISCRETE 08: Symposium on Prospects in the Physics of Discrete Symmetries
Valencia, Diciembre 2008
25. *Modelling tri-bimaximal neutrino mixing*
S. Morisi
DISCRETE 08: Symposium on Prospects in the Physics of Discrete Symmetries
Valencia, Diciembre 2008

26. *Non-abelian discrete symmetry in flavor physics*
XIV IFT-UAM/CSIC Christmas Workshop
F. Bazzocchi
Madrid, Diciembre 2008

(4) Proceedings publicados

1. *Multi-angle effects in collective supernova neutrino oscillations*
A. Esteban-Pretel, S. Pastor, R. Tomàs, G.G. Raffelt y G. Sigl
10th Int. Conference on Topics in Astroparticle and Underground Physics (TAUP 2007)
Sendai (Japón), Septiembre 2007
Journal of Physics: Conference Series **120** (2008) 052021
2. *What we (would like to) know about the neutrino mass*
G.L. Fogli, E. Lisi, A. Marrone, A. Palazzo y A.M. Rotunno
Workshop on Neutrino Oscillations in Venice (NO-VE 2008)
Venecia (Italia), Abril 2008
Actas publicadas por Ed. Papergraf (2008), págs. 21-
3. *Neutrino Physics and A_4 matter assignments*
IFAE 2008
S. Morisi
Bologna (Italia), Marzo 2008
Nuovo Cimento B **123** (2008) 886-888
4. *Decoherence in supernova neutrino transformations suppressed by deleptonization*
A. Esteban-Pretel, S. Pastor, R. Tomàs, G.G. Raffelt y G. Sigl
XXIII Int. Conference on Neutrino Physics and Astrophysics (Neutrino 2008)
Christchurch (Nueva Zelanda), Mayo 2008
Journal of Physics: Conference Series **136** (2008) 042073
5. *Mu-tau neutrino refraction and collective three-flavor transformations in supernovae*
S. Pastor, A. Esteban-Pretel, G.G. Raffelt, G. Sigl y R. Tomàs
XXIII Int. Conference on Neutrino Physics and Astrophysics (Neutrino 2008)
Christchurch (Nueva Zelanda), Mayo 2008
Journal of Physics: Conference Series **136** (2008) 042076
6. *What cosmology can tell us about neutrino physics in the next 10 years?*
S. Pastor
10th International Workshop on Neutrino Factories, Super beams and Beta beams (NuFact 08)
Valencia, Julio 2008
Proceedings of Science (2008), **PoS(Nufact08)025**
7. *Can OPERA help in constraining neutrino NSI?*
A. Esteban-Pretel, P. Huber y J.W.F. Valle
10th International Workshop on Neutrino Factories, Super beams and Beta beams (NuFact 08)
Valencia, Julio 2008
Proceedings of Science (2008), **PoS(Nufact08)057**

8. *Sneutrino as DM candidate in an inverse see-saw scenario*
 F. Bazzocchi
 Conference on the Identification of Dark Matter, IDM 2008
 Estocolomo (Suecia), Agosto 2008
 Proceedings of Science (2008), **PoS(idm2008)093**

(5) Cursos impartidos

1. *Fenomenología Avanzada (3 créditos)*
 J.W.F. Valle
 Máster en Física Avanzada 2007-2008
 Universitat de València
2. *Cosmological Probes of Neutrino Masses (4 clases)*
 S. Pastor
 International School of Physics "Enrico Fermi", CLXX Course: Measurements of neutrino mass
 17-27 Junio 2008, Varenna (Italia)
3. *Double beta decay: Theory (1 clase)*
 M. Hirsch
 International School on Astro-Particle Physics (ISAPP08)
 16-26 Julio 2008, Valencia
4. *BBN and physics beyond the Standard Model (1 clase)*
 G. Miele
 International School on Astro-Particle Physics (ISAPP08)
 16-26 Julio 2008, Valencia
5. *Cosmology and neutrino masses (1 clase)*
 S. Pastor
 International School on Astro-Particle Physics (ISAPP08)
 16-26 Julio 2008, Valencia
6. *Neutrino masses and mixings (1 clase)*
 A. Palazzo
 International School on Astro-Particle Physics (ISAPP08)
 16-26 Julio 2008, Valencia

(6) Seminarios impartidos

- *A bottom-up approach from A_4 neutrino models to $SO(10) \times SU(3)$*
 F. Bazzocchi
 Univ. de Amsterdam (Holanda), Enero 2008
- *Tribimaximal neutrino mixing and fermion hierarchy in $SO(10)$ grand unified model*
 S. Morisi
 Univ. de Turín (Italia), 5 Febrero 2008

- *Discrete A_4 symmetry and neutrino models*
S. Kaneko
Univ. de Würzburg (Alemania), 13 Febrero 2008
- *Tribimaximal neutrino mixing and fermion hierarchy in $SO(10)$ grand unified model*
S. Morisi
CFTP Lisboa (Portugal), 19 Febrero 2008
- *Tri-bimaximal mixing and neutrinoless double beta decay*
S. Morisi
Univ. de Viena (Austria), 29 Abril 2008
- *SUSY Search at Future Collider and Dark Matter Experiments*
D.P. Roy
Univ. de Nápoles (Italia), 27 Marzo 2008
- *SUSY Seesaw and lepton flavour violation*
M. Hirsch
INFN Frascati (Italia), 8 Octubre 2008
- *Neutrino physics in the era of the Large Hadron Collider*
J.W.F. Valle
CBPF, Rio de Janeiro (Brasil), 18 Noviembre 2008
- *SUSY Seesaw and lepton flavour violation*
M. Hirsch
UTFSM Valparaíso (Chile), 20 Noviembre 2008
- *Neutrino masses at LHC*
M. Hirsch
Univ. de Dortmund (Alemania), 17 Diciembre 2008

(7) Tesis doctorales

1. *Detailed study of the decoupling process of cosmological relic neutrinos*
Teguayco Pinto Cejas
Universidad de Valencia
Fecha lectura: 25 Julio 2008