

Memoria Grupo AHEP 2006

Componentes del Grupo durante todo o parte del año 2006:

José W.F. Valle, Nuria Rius, Martin Hirsch, Werner Porod, Sergio Pastor, Ricard Tomàs, Diego Aristizábal, Andreu Esteban, Célio A. de Moura, Urbano França, Teguyco Pinto, María Amparo Tórtola, Albert Villanova, Massimiliano Lattanzi y Federica Bazzocchi, + colaboradores externos.

(0) Organización de conferencias y participación en comités

- *Double Beta Decay 2006: ILIAS/N6 WG1 Collaboration meeting*
Valencia, 28-29 Abril 2006
Comité Organizador: **M. Hirsch, W. Porod y J.W.F. Valle**
- *Primera reunión de la REd NAcional Temática de Astropartículas (RENATA 06)*
Cullera, 23-25 Octubre 2006
Comité Organizador: J.J. Hernández, **M. Hirsch, S. Pastor y J.W.F. Valle**
- *Cosmology and Underground Laboratory Physics*
Valencia, 6 Marzo 2006
Comité Organizador: J.J. Gómez, M.C. González, P. Hernández, C. Peña y **N. Rius**
- *International School on Astro-Particle Physics, European Doctorate School (ISAPP 2006):*
Neutrinos in Physics, Astrophysics and Cosmology
Munich (Alemania), 23-31 Mayo 2006
J.W.F. Valle en el Comité Científico Internacional

(1) Artículos publicados en 2006

1. *Are solar neutrino oscillations robust?*
O.G. Miranda, **M.A. Tórtola y J.W.F. Valle**
Journal of High Energy Physics **0610** (2006) 008 [arXiv: hep-ph/0406280]
2. *Physics interplay of the LHC and the IL*
G. Weiglein et al (incluye a **W. Porod**)
Physics Reports **426** (2006) 47-358 [arXiv: hep-ph/0410364]
3. *Ultra high energy tau neutrinos and fluorescence detectors: A Phenomenological approach*
M.M. Guzzo y **C.A. Moura**
Astroparticle Physics **25** (2006) 277-283 [arXiv: hep-ph/0504270]
4. *The aperture for UHE tau neutrinos of the Auger fluorescence detector using a Digital Elevation Map*
G. Miele, **S. Pastor** y O. Pisanti
Physics Letters B **634** (2006) 137-142 [arXiv: astro-ph/0508038]
5. *R-Parity violation assisted thermal leptogenesis in the seesaw mechanism*
Y. Farzan y **J.W.F. Valle**
Physical Review Letters **96** (2006) 011601 [arXiv: hep-ph/0509280]

6. *Dark energy, curvature and cosmic coincidence*
U. França
 Physics Letters B **641** (2006) 351-356 [arXiv: astro-ph/0509177]
7. *Test of lepton flavor violation at LHC*
 A. Bartl, K. Hidaka, K. Hohenwarter-Sodek, T. Kernreiter, W. Majerotto y **W. Porod**
 The European Physical Journal C **46** (2006) 783-789 [arXiv: hep-ph/0510074]
8. *Determination of MSSM parameters from LHC and ILC observables in a global fit*
 P. Bechtle, K. Desch, **W. Porod** y P. Wienemann
 The European Physical Journal C **46** (2006) 533-544 [arXiv: hep-ph/0511006]
9. *On the treatment of threshold effects in SUSY spectrum computations*
 H. Baer, J. Ferrandis, S. Kraml y **W. Porod**
 Physical Review D **73** (2006) 015010 [arXiv: hep-ph/0511123]
10. *Supersymmetry parameter analysis: SPA convention and project*
 J.A. Aguilar-Saavedra et al (incluye a **M. Hirsch, W. Porod y J.W.F. Valle**)
 The European Physical Journal C **46** (2006) 43-60 [arXiv: hep-ph/0511344]
11. *Radiative zone solar magnetic fields and g-modes*
 T.I. Rashba, V.B. Semikoz y **J.W.F. Valle**
 Monthly Notices of the Royal Astronomical Society **370** (2006) 845-850 [arXiv: astro-ph/0511708]
12. *Probing neutrino masses with cmb lensing extraction*
 J. Lesgourgues, L. Perotto, **S. Pastor** y M. Piat
 Physical Review D **73** (2006) 045021 [arXiv: astro-ph/0511735]
13. *Constraining non-standard interactions in $\nu_e - e$ or $\bar{\nu}_e - e$ scattering*
 J. Barranco, O.G. Miranda, **C.A. Moura y J.W.F. Valle**
 Physical Review D **73** (2006) 113001 [arXiv: hep-ph/0512195]
14. *Geometric approach to condensates in holographic QCD*
 J. Hirn, **N. Rius** y V. Sanz
 Physical Review D **73** (2006) 085005 [arXiv: hep-ph/0512240]
15. *Production and decays of supersymmetric Higgs bosons in spontaneously broken R-parity*
M. Hirsch, J.C. Romão, **J.W.F. Valle** y **A. Villanova del Moral**
 Physical Review D **73** (2006) 055007 [arXiv: hep-ph/0512257]
16. *Enhanced muon-electron conversion in nuclei in the inverse seesaw model*
 F. Deppisch, T.S. Kosmas y **J.W.F. Valle**
 Nuclear Physics B **752** (2006) 80-92 [arXiv: hep-ph/0512360]
17. *Right-handed sneutrinos as nonthermal dark matter*
 S. Gopalakrishna, A. de Gouvea y **W. Porod**
 Journal of Cosmology and Astroparticle Physics **0605** (2006) 005 [arXiv: hep-ph/0602027]
18. *Massive neutrinos and cosmology*
 J. Lesgourgues y **S. Pastor**
 Physics Reports **429** (2006) 307-373 [arXiv: astro-ph/0603494]

19. *Leptonic charged Higgs decays in the Zee model*
D. Aristizábal y D. Restrepo
 Journal of High Energy Physics **0608** (2006) 036 [arXiv: hep-ph/0604012]
20. *Analysis of enhanced $\tan\beta$ corrections in MFV GUT scenarios*
 E. Lunghi, **W. Porod** y O. Vives
 Physical Review D **74** (2006) 075003 [arXiv: hep-ph/0605177]
21. *Invisible neutralino decays from spontaneous R-parity violation*
M. Hirsch y **W. Porod**
 Physical Review D **74** (2006) 055003 [arXiv: hep-ph/0606061]
22. *Stop Decay into Right-handed Sneutrino LSP at Hadron Colliders*
 A. de Gouvea, S. Gopalakrishna y **W. Porod**
 Journal of High Energy Physics **0611** (2006) 050 [arXiv: hep-ph/0606296]
23. *High energy neutrino yields from astrophysical sources I: Weakly magnetized sources*
 M. Kachelriess y **R. Tomàs**
 Physical Review D **74** (2006) 063009 [arXiv: hep-ph/0606406]
24. *Effects of non-standard neutrino-electron interactions on relic neutrino decoupling*
 G. Mangano, G. Miele, **S. Pastor**, **T. Pinto**, O. Pisanti y P.D. Serpico
 Nuclear Physics B **756** (2006) 100-116 [arXiv: astro-ph/0607267]
25. *Extended black box theorem for lepton number and flavor violating processes*
M. Hirsch, S. Kovalenko e I. Schmidt
 Physics Letters B **642** (2006) 106-110 [arXiv: hep-ph/0608207]
26. *Experimental tests for the Babu-Zee two-loop model of Majorana neutrino masses*
D. Aristizábal y **M. Hirsch**
 Journal of High Energy Physics **0612** (2006) 052 [arXiv: hep-ph/0609307]

(2) Ponencias y comunicaciones a congresos

1. *A Theory Perspective on Neutrino Oscillations*
 J.W.F. Valle
 III International Workshop on Neutrino Oscillations
 Venecia (Italia), Febrero 2006
2. *SUSY spectrum codes*
 W. Porod
 LHC-D Workshop 2006 - SUSY und BSM
 Aachen (Alemania), Abril 2006
3. *Lepton flavour and number violation at the LHC*
 W. Porod
 LHC-D Workshop 2006 - SUSY und BSM
 Aachen (Alemania), Abril 2006

4. *Weighing neutrinos with cosmological observables*
S. Pastor
Double Beta Decay 2006: ILIAS/N6 WG1 Collaboration meeting
Valencia, Abril 2006
5. *Predicting neutrinoless double beta decay in an $A4$ flavour model*
A. Villanova
Double Beta Decay 2006: ILIAS/N6 WG1 Collaboration meeting
Valencia, Abril 2006
6. *High energy neutrino yields from astrophysical sources*
R. Tomàs
2nd Scandinavian Neutrino Workshop (SNOW 2006)
Estocolmo (Suecia), Mayo 2006
7. *Identifying the neutrino mass hierarchy with supernova neutrinos*
R. Tomàs
IPM School and Conference on Lepton and Hadron Physics
Teheran (Irán), Mayo 2006
8. *WG1 working group report*
W. Porod
Workshop on Flavour in the era of LHC
CERN, Ginebra (Suiza), Mayo 2006
9. *Production and decays of supersymmetric Higgs bosons in spontaneously broken R -parity*
A. Villanova
14th International Conference on Supersymmetry and the Unification of Fundamental Interactions (SUSY 2006)
Irvine (Estados Unidos), Junio 2006
10. *Phenomenology of neutrinoless double beta decay*
M. Hirsch
XXII International Conference on Neutrino Physics and Astrophysics
Santa Fe (Estados Unidos), Junio 2006
11. *RGE codes and the SPA project*
W. Porod
Workshop on Tools for SUSY and the New Physics
Annecy (Francia), Junio 2006
12. *Neutrinos in astroparticle physics*
J.W.F. Valle
International Workshop on The Dark Side of the Universe
Madrid, Junio 2006
13. *Double Beta Decay and the Extended Black Box Theorem*
M. Hirsch
372 WE-Heraeus-Seminar: Massive Neutrinos
Bad Honnef, Bonn (Alemania), Julio 2006

14. *Neutrino mass and theory beyond the standard model*
J.W.F. Valle
372 WE-Heraeus-Seminar: Massive Neutrinos
Bad Honnef, Bonn (Alemania), Julio 2006
15. *Weighing neutrinos with cosmological observables*
S. Pastor
11th Summer Institute at Gran Sasso: Frontiers in Astroparticle Physics
Lab. Nazionali del Gran Sasso (Italia), Julio 2006
16. *Neutrinos in astroparticle physics*
J.W.F. Valle
11th Summer Institute at Gran Sasso: Frontiers in Astroparticle Physics
Lab. Nazionali del Gran Sasso (Italia), Julio 2006
17. *Constraints on the neutrino asymmetry of the Universe from cosmological data*
M. Lattanzi
Eleventh Marcel Grossmann Meeting
Berlín (Alemania), Julio 2006
18. *Neutrinos in astroparticle physics*
J.W.F. Valle
2nd International Conference on Quantum Theories and Renormalization Group in Gravity and
Cosmology (IRGAC 2006)
Barcelona, Julio 2006
19. *Effect of cosmological neutrinos on the propagation of primordial gravitational waves*
M. Lattanzi
Eleventh Marcel Grossmann Meeting
Berlín (Alemania), Julio 2006
20. *Neutrino physics overview*
J.W.F. Valle
7th International Workshop on Neutrino Factories and Superbeams
Irvine (Estados Unidos), Agosto 2006
21. *Neutrino masses from cosmological observables*
S. Pastor
Workshop on Modern Cosmology, Inflation, CMB and LSS
Benasque, Agosto 2006
22. *Precision cosmology and neutrinos*
S. Pastor
Neutrino Oscillation Workshop (NOW 2006)
Otranto (Italia), Septiembre 2006
23. *Concluding Talk*
J.W.F. Valle
Neutrino Oscillation Workshop (NOW 2006)
Otranto (Italia), Septiembre 2006

24. *High energy neutrinos from optically thick sources*
R. Tomàs
DESY Theory Workshop The Dark Universe
DESY, Hamburgo (Alemania), Septiembre 2006
25. *Testing the Babu-Zee model with collider experiments*
D. Aristizábal
International Linear Collider workshop (ILC-ECFA and GDE Joint meeting)
Valencia, Noviembre 2006
26. *High energy neutrinos from optically thick sources*
R. Tomàs
VI Simposio Latinoamericano de Física de Altas Energías (SILAFEA)
Puerto Vallarta (México), Noviembre 2006
27. *Cosmology and neutrino masses*
S. Pastor
VI Simposio Latinoamericano de Física de Altas Energías (SILAFEA)
Puerto Vallarta (México), Noviembre 2006
28. *Inclined neutrino showers: simulation update*
T. Pinto
Auger Collaboration meeting
Malargüe (Argentina), Noviembre 2006
29. *Soft leptogenesis and the inverse seesaw*
N. Rius
Neutrino Microworkshop
Madrid, Noviembre 2006
30. *Experimental tests for the Babu-Zee model*
D. Aristizábal
3rd Vienna Central European Seminar on Particle Physics and Quantum Field Theory
Viena (Austria), Diciembre 2006
31. *Double Beta Decay as a Black Box*
M. Hirsch
3rd Annual Meeting European Network on Theoretical Astroparticle Physics (ILIAS/N6)
París (Francia), Diciembre 2006

(3) Proceedings publicados

1. J.W.F. Valle
Neutrino masses and oscillations
11th International Symposium on Particles, Strings and Cosmology (PASCOS 2005)
Gyeongju (Corea), Junio 2005
AIP Conference Proceedings **805** (2006) 128-134

2. M. Hirsch
Collider signals of gravitino dark matter in bilinearly broken R-parity
 International Europhysics Conference on High Energy Physics (HEP2005)
 Lisboa (Portugal), Julio 2005
 Proceedings of Science (HEP2005) (2006) 343

3. S. Pastor
Neutrino masses and cosmology
 International Europhysics Conference on High Energy Physics (HEP2005)
 Lisboa (Portugal), Julio 2005
 Proceedings of Science (HEP2005) (2006) 165

4. C.A. Moura
Detection of ultra-high energy tau-neutrino by double-bang event
 Advanced summer school in physics 2005: Frontiers in Contemporary Physics (EAV 2005)
 México DF (México), Julio 2005
 AIP Conference Proceedings **809** (2006) 190-192

5. M. Lattanzi, R. Ruffini y G. Vereshchagin
Do WMAP data constrain the lepton asymmetry of the Universe to be zero?
 Albert Einstein's Century Meeting
 París (Francia), Julio 2005
 AIP Conference Proceedings **861** (2006) 912-919

6. J.W.F. Valle
Neutrino Physics Overview
 Corfu Summer Institute on Elementary Particle Physics
 Corfú (Grecia), Septiembre 2005
 Journal of Physics: Conference Series **53** (2006) 473-505

7. R. Tomàs
Identifying the neutrino mass hierarchy with supernova neutrinos
 9th Int. Conference on Topics in Astroparticle and Underground Physics (TAUP 2005)
 Zaragoza, Septiembre 2005
 Journal of Physics: Conference Series **39** (2006) 297-299

8. J.W.F. Valle
A Theory Perspective on Neutrino Oscillations
 III International Workshop on Neutrino Oscillations
 Venecia (Italia), Febrero 2006
 Actas del congreso (Ed. Papergraf, 2006) págs. 247-259

9. M. Kachelriess y R. Tomàs
High energy neutrino yields from astrophysical sources
 2nd Scandinavian Neutrino Workshop (SNOW 2006)
 Estocolmo (Suecia), Mayo 2006
 Physica Scripta **T127** (2006) 16-18

10. J.W.F. Valle
Neutrinos in astroparticle physics
International Workshop on The Dark Side of the Universe
Madrid, Junio 2006
AIP Conference Proceedings **878** (2006) 369-384

(4) Libros o Monografías

- E. Accomando et al (incluye a W. Porod en los editores)
Report of the Workshop on CP studies and non-standard Higgs physics
ha aparecido como un CERN Yellow book, CERN-2006-009 [arXiv: hep-ph/0608079]

(5) Cursos impartidos

1. *Neutrino physics and cosmology* (2 clases)
S. Pastor
Particle Physics and Cosmology: the Fabric of Spacetime
Les Houches Summer School - Session 86
1-2 Agosto 2006, Les Houches (Francia)
2. *Cosmological Aspects of Neutrino Physics* (3 clases)
S. Pastor
Neutrinos in Particle Physics, Astrophysics and Cosmology
61st Scottish universities Summer School in Physics
21-23 Agosto 2006, St Andrews (R. Unido)
3. *Fenomenología Avanzada*
J.W.F. Valle
Universitat de València (Facultat de Física), Tercer Ciclo 2005/06

(6) Seminarios impartidos

- *R-parity violation at colliders*
M. Hirsch
Universidad Técnica Federico Santa María, Viña del Mar, Chile, 6 Marzo 2006
- *Predicting neutrinoless double beta decay in an A_4 flavour symmetry model*
A. Villanova
Niels Bohr Institute, Copenhagen, Dinamarca, 7 Marzo 2006
- *Weighing neutrinos with cosmological observables*
S. Pastor
Institut d'Estudis Espacials de Catalunya, Barcelona, 1 Marzo 2006
Instituto de Física Teórica (UAM/CSIC), Madrid, 23 Mayo 2006
Universidad de Granada, 25 Mayo 2006
Universidad de Santiago de Compostela, 4 Octubre 2006

- *Phenomenological Aspects of Supernova Neutrinos*
R. Tomàs
IFIC, Valencia, 1 Marzo 2006
Institutt for fysikk, Trondheim, Noruega, 8 Mayo 2006
Universidad de Antioquia, Medellín, Colombia, 2 Octubre 2006
Departamento de Física, CINVESTAV, México, 15 Noviembre 2006
- *Particle Physics Aspects of Double Beta Decay*
M. Hirsch
Instituto de Estructura de la Materia, Madrid, 23 Marzo 2006
- *Neutrinos in astroparticle physics*
J.W.F. Valle
Universidad Libre de Bruselas, Bélgica, 4 Mayo 2006
- *Lepton flavour violation in supersymmetric models*
W. Porod
IFIC, Valencia, 10 Mayo 2006
- *Flavourphysik supersymmetrischer Modelle*
W. Porod
Universidad de Viena, Austria, 1 Junio 2006
- *Higgs Bosons in spontaneously broken R-Parity: production modes and invisible decays*
A. Villanova
University of California, Riverside, USA, 7 Junio 2006
- *Der neutrinolose Doppelbetazerfall: Teilchenphysik jenseits des Standardmodells*
M. Hirsch
Tübingen, Alemania, 20 Julio 2006
- *Lepton number violation with and without accelerators*
M. Hirsch
University of Sussex, Brighton, Reino Unido, 27 Julio 2006
- *Relic neutrino decoupling including flavour oscillations and non-standard neutrino-electron interactions*
T. Pinto
Departamento de Física, CINVESTAV, México, 9 Agosto 2006
- *High Energy Neutrinos from optically thick sources*
R. Tomàs
Universidad de Antioquia, Medellín, Colombia, 3 Octubre 2006
- *Electroweak Symmetry Breaking and Neutrino Masses*
F. Bazzocchi
CFTP, Instituto Superior Técnico, Lisboa, Portugal, 18 Diciembre 2006

(7) Tesis doctorales

1. *Ttulo: Phenomenological aspects of solar neutrino physics*
María Amparo Tórtola Baixauli
Universidad de Valencia
Fecha lectura: 24 Mayo 2006