

## Memoria Grupo AHEP 2005

Componentes del Grupo durante 2005: José W.F. Valle, Nuria Rius, Victor Semikoz, Martin Hirsch, Werner Porod, Sergio Pastor, Ricard Tomàs, Cyril Hugonie, Diego Restrepo, Diego Aristizábal, Frank Deppisch, Andreu Esteban, Célio A. de Moura, Teguyco Pinto, Michael Ramage, María Amparo Tórtola, Albert Villanova.

Más información en: <http://ahep.ific.uv.es>

### (0) Participación en comités de Conferencias

- *First Annual Meeting of the European Network on Theoretical Astroparticle Physics*  
Valencia, 11-15 Abril 2005  
Comité Organizador: Vicent Martínez, Julio Morales, **Sergio Pastor**, Armando Pérez, **Diego Restrepo** y **José W.F. Valle**
- *International School on AstroParticle Physics (ISAPP 2005)*  
Belgirate (Italia), 30 Junio a 9 de Julio 2005  
**José W.F. Valle** en el Comité Científico

### (1) Artículos publicados en 2005

1. *Enhanced lepton flavour violation in the supersymmetric inverse seesaw model*  
**F. Deppisch** y **J.W.F. Valle**  
Physical Review D **72** (2005) 036001 [arXiv:hep-ph/0406040]
2. *NMHDECAY: A Fortran code for the Higgs masses, couplings and decay widths in the NMSSM*  
U. Ellwanger, J.F. Gunion y **C. Hugonie**  
Journal of High Energy Physics **0502** (2005) 066 [arXiv:hep-ph/0406215].
3. *R-parity violating sneutrino decays*  
**D. Aristizábal**, **M. Hirsch** y **W. Porod**  
Journal of High Energy Physics **0509** (2005) 033 [arXiv:hep-ph/0409241]
4. *Charge breaking minima in the broken R-parity minimal supersymmetric standard model*  
**M. Hirsch**, **C. Hugonie**, J.C. Romão y **J.W.F. Valle**  
Journal of High Energy Physics **0503** (2005) 020 [arXiv:hep-ph/0411129]
5. *Magnetic helicity and cosmological magnetic field*  
**V.B. Semikoz** y D.D. Sokoloff  
Astronomy & Astrophysics **443** (2005) L53-L56 [arXiv:astro-ph/0411496]
6. *Effects of  $SO(10)$ -inspired scalar non-universality on the MSSM parameter space at large  $\tan\beta$*   
**M.R. Ramage**  
Nuclear Physics B **720** (2005) 137-181 [arXiv:hep-ph/0412153].
7. *Probing neutrino mass with displaced vertices at the Tevatron*  
F. de Campos, O.J.P. Eboli, M.B. Magro, **W. Porod**, **D. Restrepo** y **J.W.F. Valle**  
Physical Review D **71** (2005) 075001 [arXiv:hep-ph/0501153]

8. *Do observations prove that cosmological neutrinos are thermally distributed?*  
A. Cuoco, J. Lesgourgues, G. Mangano y **S. Pastor**  
Physical Review D **71** (2005) 123501 [arXiv:astro-ph/0502465]
9. *Geotomography with solar and supernova neutrinos*  
E.Kh. Akhmedov, **M.A. Tórtola** y **J.W.F. Valle**  
Journal of High Energy Physics **0506** (2005) 053 [arXiv: hep-ph/0502154]
10. *Collider signals of gravitino dark matter in bilinearly broken R-parity*  
**M. Hirsch, W. Porod** y **D. Restrepo**  
Journal of High Energy Physics **0503** (2005) 062 [arXiv:hep-ph/0503059]
11. *Relic neutrino decoupling including flavor oscillations*  
G. Mangano, G. Miele, **S. Pastor, T. Pinto**, O. Pisanti y P.D. Serpico  
Nuclear Physics **729** (2005) 221-234 [arXiv:hep-ph/0506164]
12. *Novel supersymmetric SO(10) seesaw mechanism*  
M. Malinsky, J.C. Romão y **J.W.F. Valle**  
Physical Review Letters **95** (2005) 161801 [arXiv:hep-ph/0506296]
13. *Sfermion decays into singlets and singlinos in the NMSSM*  
S. Kraml y **W. Porod**  
Physics Letters B **626** (2005) 175-183 [arXiv:hep-ph/0507055]
14. *Predicting neutrinoless double beta decay*  
**M. Hirsch, A. Villanova del Moral, J.W.F. Valle** y E. Ma  
Physical Review D **72** (2005) 091301 (Erratum-ibid D **72** (2005) 119904) [arXiv:hep-ph/0507148]
15. *Determining sneutrino masses and physical implications*  
A. Freitas, **W. Porod** y P.M. Zerwas  
Physical Review D **72** (2005) 115002 [arXiv:hep-ph/0509056]

## (2) Ponencias y comunicaciones a congresos

1. *Neutrino mass bounds from cosmological observables*  
S. Pastor  
XI International Workshop on Neutrino Telescopes  
Venecia (Italia), Febrero 2005
2. *Massive neutrinos and cosmology*  
S. Pastor  
40th Rencontres de Moriond: ElectroWeak Interactions and Unified Theories  
La Thuile (Italia), Marzo 2005
3. *Ultra-High Energy Double-Bang Events in Fluorescence Detectors*  
C.A. Moura  
First Annual Meeting of the European Network on Theoretical Astroparticle Physics  
Valencia, Abril 2005

4. *Particle Physics of Neutrinoless Double Beta decay*  
M. Hirsch  
First Annual Meeting of the European Network on Theoretical Astroparticle Physics  
Valencia, Abril 2005
5. *Collider signals of gravitino dark matter in bilinearly broken R-parity*  
W. Porod  
First Annual Meeting of the European Network on Theoretical Astroparticle Physics  
Valencia, Abril 2005
6. *Identifying the neutrino mass hierarchy with supernova neutrinos*  
R. Tomàs  
First Annual Meeting of the European Network on Theoretical Astroparticle Physics  
Valencia, Abril 2005
7. *Robustness of solar neutrino oscillations*  
M.A. Tórtola  
First Annual Meeting of the European Network on Theoretical Astroparticle Physics  
Valencia, Abril 2005
8. *Massive neutrinos and cosmology*  
S. Pastor  
Current Topics in Astroparticle Physics (CuTAPP 2005)  
Ringberg Castle (Alemania), Abril 2005
9. *Probing supernova physics with neutrinos*  
R. Tomàs  
Current Topics in Astroparticle Physics (CuTAPP 2005)  
Ringberg Castle (Alemania), Abril 2005
10. *Neutrino oscillations and new physics*  
J.W.F. Valle  
IFT MiniWorkshop on Neutrino Physics  
Madrid, Mayo 2005
11. *Neutrino masses and oscillations, status and prospects*  
J.W.F. Valle  
11th International Symposium on Particles, Strings and Cosmology (PASCOS 2005)  
Gyeongju (Corea), Junio 2005
12. *Robustness of solar neutrino oscillations in presence of non-standard interactions*  
M.A. Tórtola  
Vth International Conference on Non-Accelerator New Physics (NANP'05)  
Dubna (Rusia), Junio 2005
13. *Ultra-High Energy Double-Bang Events in Fluorescence Detectors*  
C.A. Moura  
International School on AstroParticle Physics (ISAPP 2005)  
Belgirate (Italia), Julio 2005

14. *Collider signals of gravitino dark matter in bilinearly broken R-parity*  
W. Porod  
13th International Conference on Supersymmetry and Unification of Fundamental Interactions  
Durham (Reino Unido), Julio 2005
15. *Collider signals of gravitino dark matter in bilinearly broken R-parity*  
M. Hirsch  
International Europhysics Conference on High Energy Physics (HEP2005)  
Lisboa (Portugal), Julio 2005
16. *Neutrino masses and cosmology*  
S. Pastor  
International Europhysics Conference on High Energy Physics (HEP2005)  
Lisboa (Portugal), Julio 2005
17. *Detection of ultra-high energy tau-neutrino by double-bang event*  
C.A. Moura  
Advanced summer school in physics 2005: Frontiers in Contemporary Physics (EAV 2005)  
México DF (México), Julio 2005
18. *High-energy neutrinos from hidden sources*  
R. Tomàs  
29th International Cosmic Ray Conference (ICRC 2005)  
Pune (India), Agosto 2005
19. *Correlations between neutrino physics and collider physics in the bilinear model*  
W. Porod  
Int. Linear Collider Physics and Detector Workshop and 2nd ILC Accelerator Workshop  
Snowmass, Colorado (Estados Unidos), Agosto 2005
20. *Progress Report on SPheno*  
W. Porod  
Int. Linear Collider Physics and Detector Workshop and 2nd ILC Accelerator Workshop  
Snowmass, Colorado (Estados Unidos), Agosto 2005
21. *Flavor, CP, RPV, neutrino physics at ILC*  
W. Porod  
Int. Linear Collider Physics and Detector Workshop and 2nd ILC Accelerator Workshop  
Snowmass, Colorado (Estados Unidos), Agosto 2005
22. *Neutrino physics: status and prospects*  
J.W.F. Valle  
12th Lomonosov Conference on Elementary Particle Physics  
Moscu (Rusia), Agosto 2005
23. *Neutrino masses from cosmological observables*  
S. Pastor  
Physics of the Early Universe: Recent Advances  
U. Complutense de Madrid, Septiembre 2005

24. *Identifying the neutrino mass hierarchy with supernova neutrinos*  
R. Tomàs  
9th Int. Conference on Topics in Astroparticle and Underground Physics (TAUP 2005)  
Zaragoza, Septiembre 2005
25. *High-energy neutrinos from optically thick sources*  
R. Tomàs  
9th Int. Conference on Topics in Astroparticle and Underground Physics (TAUP 2005)  
Zaragoza, Septiembre 2005
26. *5D Model for Resonances in large  $N_c$  QCD*  
N. Rius  
Phenomenology of Elementary Particles at High Energies  
Peñíscola, Septiembre 2005
27. *Fenomenologia de Interações Não-Padrão em Espalhamento Elétron-Neutrino*  
C.A. Moura  
II Workshop de Física e Astrofísica de Neutrinos  
Campinas (Brasil), Octubre 2005
28. *Higgs bosons in spontaneously broken R-parity: production modes and invisible decays*  
A. Villanova  
EuroGDR Supersymmetry 2005  
Barcelona, Noviembre 2005
29. *Lepton flavour and number violation at the LHC*  
W. Porod  
Flavour in the era of the LHC  
CERN (Suiza), Noviembre 2005
30. *Report from WG 1*  
W. Porod  
Flavour in the era of the LHC  
CERN (Suiza), Noviembre 2005
31. *Investigating SUSY Dark Matter at the ILC*  
W. Porod  
International Linear Collider Workshop 2005  
Viena (Austria), Noviembre 2005
32. *Higgs bosons in spontaneously broken R-parity: production modes and invisible decays*  
A. Villanova  
International Linear Collider Workshop 2005  
Viena (Austria), Noviembre 2005
33. *SUSY Dark Matter at Future Collider Experiments*  
W. Porod  
2nd Vienna Central European Seminar on Particle Physics  
Viena (Austria), Noviembre 2005

34. *Predicting neutrinoless double beta decay in the  $A_4$  family symmetry model*  
A. Villanova  
2nd Vienna Central European Seminar on Particle Physics  
Viena (Austria), Noviembre 2005
35. *Current status of neutrino oscillation parameters*  
M.A. Tórtola  
Meeting of the network “The quest for unification: theory confronts experiment”  
Madrid, Diciembre 2005
36. *Lepton Number Violation at ILC*  
M. Hirsch  
Workshop on the future linear collider  
Gandía, Diciembre 2005
37. *Identifying the neutrino mass hierarchy with supernova neutrinos*  
R. Tomàs  
IFT-UAM/CSIC Christmas Workshop  
Madrid, Diciembre 2005

### (3) Proceedings publicados

1. E.Kh. Akhmedov, M.A. Tórtola y J.W.F. Valle  
*Solar neutrino day-night effect and  $\theta_{13}$*   
Neutrino Oscillation Workshop (NOW 2004)  
Conca Specchiulla, Otranto (Italia), Septiembre 2004  
Nuclear Physics B (Proceedings Supplements) **145** (2005) 57-60
2. O.G. Miranda, M.A. Tórtola y J.W.F. Valle  
*Subleading effects in the 1-2 sector: Non-standard neutrino interactions*  
Neutrino Oscillation Workshop (NOW 2004)  
Conca Specchiulla, Otranto (Italia), Septiembre 2004  
Nuclear Physics B (Proceedings Supplements) **145** (2005) 61-64
3. J.W.F. Valle  
*Neutrino oscillations and new physics*  
Neutrino Oscillation Workshop (NOW 2004)  
Conca Specchiulla, Otranto (Italia), Septiembre 2004  
Nuclear Physics B (Proceedings Supplements) **145** (2005) 141-147
4. J.W.F. Valle  
*Physics of massive neutrinos*  
6th International Workshop on Neutrino Factories and Superbeams  
Osaka (Japón), Julio 2004  
Nuclear Physics B (Proceedings Supplements) **149** (2005) 3-12
5. S. Pastor  
*Neutrino mass and Cosmology: current bounds and future sensitivities*  
6th International Workshop on Neutrino Factories and Superbeams

Osaka (Japón), Julio 2004  
Nuclear Physics B (Proceedings Supplements) **149** (2005) 137-139

6. S. Pastor  
*Neutrino mass bounds from cosmological observables*  
XI International Workshop on Neutrino Telescopes  
Venecia (Italia), Febrero 2005  
Actas del congreso (Ed. Papergraf, 2005) págs. 371-377
7. S. Pastor  
*Neutrino masses and cosmology*  
International Europhysics Conference on High Energy Physics (HEP2005)  
Lisboa (Portugal), Julio 2005  
Proceedings of Science (HEP2005) 165
8. G.A. Blair, A. Freitas, H.U. Martyn, G. Polesello, W. Porod y P.M. Zerwas  
*Reconstructing supersymmetry at ILC / LHC*  
29th International Conference of Theoretical Physics: Matter to the Deepest  
Ustron (Polonia), Septiembre 2005  
Acta Physica Polonica B **36** (2005) 3445-3462

#### (4) Libros o Monografías

- Ninguno

#### (5) Cursos impartidos

1. *Lectures on Neutrino Physics*  
J.W.F. Valle  
Corfu Summer Institute on Elementary Particle Physics  
Corfú (Grecia), Septiembre 2005
2. *Neutrino physics: status and prospects*  
*Standard Electroweak Model, massive neutrinos, Supersymmetry and the MSSM*  
J.W.F. Valle  
Advanced Summer School at CINVESTAV  
México DF (México), Julio 2005

#### (6) Seminarios impartidos

1. *Invisible Higgs boson decays in spontaneously broken R-parity*  
A. Villanova  
Institut für Theoretische Physik, Viena (Austria), 1 Marzo 2005
2. *Flavourphysik supersymmetrischer Modelle*  
W. Porod  
Institut für Theoretische Physik, Würzburg (Alemania), 16 Junio 2005

3. *Weighing neutrinos with cosmological observables*  
S. Pastor  
IFIC, Valencia, 17 Junio 2005
4. *Neutrino masses, LSP decay and dark matter*  
M. Hirsch  
IFIC, Valencia, 29 Septiembre 2005
5. *Desintegraciones doble beta*  
M. Hirsch  
IFIC, Valencia, 17 Octubre 2005
6. *Neutrinos: yesterday, today and tomorrow*  
J.W.F. Valle  
Coloquio en el LPTHE París (Francia), 16 Noviembre 2005