

## Memoria Grupo AHEP 2004

Componentes del Grupo: J.W.F. Valle, N. Rius, M. Hirsch, E. Akhmedov, C. Hugonie, T. Rashba, D. Restrepo, D. Aristizábal, O. Kittel, J.A. López Pérez, M. Ramage, M.A. Tórtola, A. Villanova, S. Pastor, J.C. Romão, M. Maltoni, T. Kernreiter, F. Deppisch e I. Picardi.

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

### (0) Introducción

El grupo de Astropartículas y Física de Altas Energías (AHEP) del IFIC ...

### (1) Artículos publicados en 2004

1. *Neutrino oscillations in three- and four-flavor schemes*  
E.Kh. Akhmedov,  
Phys. Usp. **47** (2004) 117
2. *Neutrino properties before and after KamLAND*  
S. Pakvasa y J.W.F. Valle,  
Proc. Indian Natl. Sci. Acad. **70A** (2004) 189 [arXiv:hep-ph/0301061]
3. *Resonant origin for density fluctuations deep within the Sun: helioseismology and magneto-gravity waves*  
C.P. Burgess, N.S. Dzhililov, T.I. Rashba, V.B. Semikoz y J.W.F. Valle  
Mon. Not. Roy. Astron. Soc. **348** (2004) 609-624 [arXiv:astro-ph/0304462].
4. *The SUSY seesaw model and lepton-flavor violation at a future electron positron linear collider*  
F. Deppisch, H. Päs, A. Redelbach, R. Ruckl y Y. Shimizu  
Phys. Rev. D **69** (2004) 054014 [arXiv:hep-ph/0310053].
5. *Cornering solar radiative-zone fluctuations with KamLAND and SNO salt*  
C.P. Burgess, N.S. Dzhililov, M. Maltoni, T.I. Rashba, V.B. Semikoz, M.A. Tórtola y J.W.F. Valle  
JCAP **0401** (2004) 007 [arXiv:hep-ph/0310366].
6. *Constraining the neutrino magnetic moment with anti-neutrinos from the sun*  
O.G. Miranda, T.I. Rashba, A.I. Rez y J.W.F. Valle  
Phys. Rev. Lett. **93** (2004) 051304 [arXiv:hep-ph/0311014].
7. *Evolution and nucleosynthesis of primordial low mass stars*  
I. Picardi, A. Chieffi, M. Limongi, O. Pisanti, G. Miele, G. Mangano, O. Straniero y G. Imbriani  
Astrophys. J. **609** (2004) 1035-1044 [arXiv:astro-ph/0311580].
8. *Phenomenological tests of supersymmetric  $A_4$  family symmetry model of neutrino mass*  
M. Hirsch, J.C. Romão, S. Skadhauge, J.W.F. Valle y A. Villanova del Moral,  
Phys. Rev. D **69** (2004) 093006 [arXiv:hep-ph/0312265]
9. *CP sensitive observables in  $e^+e^- \rightarrow \tilde{\chi}_i^0 \tilde{\chi}_j^0$  and neutralino decay into Z boson*  
A. Bartl, H. Fraas, O. Kittel y W. Majerotto  
Eur. Phys. J. C **36** (2004) 233-243 [arXiv:hep-ph/0402016].

10. *Current cosmological bounds on neutrino masses and relativistic relics*  
P. Crotty, J. Lesgourgues and S. Pastor  
Phys. Rev. D **69** (2004) 123007 [arXiv:hep-ph/0402049].
11. *Series expansions for three-flavor neutrino oscillation probabilities in matter*  
E.Kh. Akhmedov, R. Johansson, M. Lindner, T. Ohlsson y T. Schwetz  
JHEP **0404** (2004) 078 [arXiv:hep-ph/0402175].
12. *Probing neutrino masses with future galaxy redshift surveys*  
J. Lesgourgues, S. Pastor and L. Perotto  
Phys. Rev. D **70** (2004) 045016 [arXiv:hep-ph/0403296].
13. *A simple analytic three-flavour description of the day-night effect in the solar neutrino flux*  
E.Kh. Akhmedov, M.A. Tórtola y J.W.F. Valle  
JHEP **0405** (2004) 057 [arXiv:hep-ph/0404083].
14. *Supersymmetric origin of neutrino mass*  
M. Hirsch y J.W.F. Valle  
New J. Phys. **6** (2004) 76 [arXiv:hep-ph/0405015].
15. *Status of global fits to neutrino oscillations*  
M. Maltoni, T. Schwetz, M.A. Tórtola y J.W.F. Valle  
New J. Phys. **6** (2004) 122 [arXiv:hep-ph/0405172].
16. *Enhanced solar anti-neutrino flux in random magnetic fields*  
O.G. Miranda, T.I. Rashba, A.I. Rez y J.W.F. Valle  
PRD, in press [arXiv:hep-ph/0406066].
17. *Precise determination of the neutral Higgs boson masses in the MSSM*  
B.C. Allanach, A. Djouadi, J.L. Kneur, W. Porod y P. Slavich  
JHEP **0409** (2004) 044 [arXiv:hep-ph/0406166].
18. *Invisible Higgs Boson Decays in Spontaneously Broken R-Parity*  
M. Hirsch, J.C. Romão, J.W.F. Valle y A. Villanova del Moral  
Phys. Rev. D **70** (2004) 073012 [hep-ph/0407269].

## (2) Ponencias y comunicaciones a congresos

1. *Beyond the mass mechanism*  
M. Hirsch  
IPPP Workshop on Neutrinoless Double Beta Decay Phenomenology  
Durham (RU), 21-23 Abril 2004
2. *Why solar anti-neutrino data are very sensitive to Majorana neutrino magnetic moment?* (Póster)  
T.I. Rashba  
XXI<sup>th</sup> International Conference on Neutrino Physics and Astrophysics (Neutrino 2004)  
París (Francia), 14-19 Junio 2004.

3. *Status of global fits to neutrino oscillations* (Póster)  
M.A. Tórtola  
XXI<sup>th</sup> International Conference on Neutrino Physics and Astrophysics (Neutrino 2004)  
París (Francia), 14-19 Junio 2004.
4. *Lightest Supersymmetric Particle Decays and Neutrino Angles*  
M. Hirsch  
Int. Conference on Supersymmetry and Unification of Fundamental Interactions (SUSY04)  
Tsukuba (Japón), 17-23 Junio 2004,
5. *Constraining neutrino magnetic moments with solar and reactor neutrino data*  
M.A. Tórtola  
International School on AstroParticle Physics (ISAPP 2004)  
Gran Sasso (Italia), 28 Junio a 9 Julio 2004.
6. *Neutrino mass and Cosmology: current bounds and future sensitivities*  
S. Pastor  
6th Int. Workshop on Neutrino Factories and Superbeams (NuFact04)  
Osaka (Japón), 26 Julio a 1 Agosto 2004.
7. *Three-flavour effects and CP- and T-violation in neutrino oscillations*  
E.Kh. Akhmedov  
The Nobel Symposium 129 – Neutrino Physics  
Haga Slott, Enköping (Suecia), 19-24 Agosto 2004
8. *Sneutrino production and decay in  $e^+e^-$  colliders*  
D. Restrepo  
2nd Workshop of the ECFA on Physics and Detectors for a Linear Collider  
Durham (RU), 1-4 Septiembre 2004.
9. *Invisible Higgs boson decays in spontaneously broken R-parity*  
A. Villanova del Moral  
2nd Workshop of the ECFA on Physics and Detectors for a Linear Collider  
Durham (RU), 1-4 Septiembre 2004.
10. *Three-flavour effects in neutrino oscillations*  
E.Kh. Akhmedov  
VI<sup>th</sup> Int. Conference on Cosmoparticle Physics (Cosmion-2004)  
Moscú (Rusia), 2-8 Septiembre 2004
11. *Solar neutrino day/night effect and  $\theta_{13}$*   
E.Kh. Akhmedov  
Neutrino Oscillation Workshop (NOW 2004)  
Otranto (Italia), 11-17 Septiembre 2004.
12. *Subleading effects in the 1-2 sector: Non-standard interactions*  
M.A. Tórtola  
Neutrino Oscillation Workshop (NOW 2004)  
Otranto (Italia), 11-17 Septiembre 2004.

13. *Neutrino decoupling including flavor oscillations* (Póster)  
T. Pinto  
School on neutrino physics: From the laboratory to the cosmos  
Bad Honnef (Alemania), 19-24 Septiembre 2004.
14. *Probing the Earth with solar and supernova neutrinos*  
E.Kh. Akhmedov  
Workshop on Neutrinos and the Early Universe  
Trento (Italia), 4-8 Octubre 2004.
15. *Relic neutrinos and cosmological lepton asymmetry*  
S. Pastor  
Workshop on Neutrinos and the Early Universe  
Trento (Italia), 4-8 Octubre 2004.
16. *Invisible Higgs boson decays in spontaneously broken R-parity*  
A. Villanova del Moral  
EuroGDR Supersymmetry, 4th Meeting  
Frascati (Italia), 25-27 Noviembre 2004.

### (3) Proceedings publicados

1. *NMSSM Higgs discovery at the LHC*  
U. Ellwanger, J.F. Gunion, C. Hugonie y S. Moretti  
3rd Les Houches Workshop: Physics at TeV Colliders  
Les Houches (Francia), May 2003  
Proceedings (Higgs working group), págs. 138-144
2. *SUSY parameter analysis at TeV and Planck scales*  
B. Allanach, G. Blair, A. Freitas, S. Kraml, H. Martyn, G. Polesello, W. Porod y P. Zerwas  
7th DESY Workshop on Elementary Particle Theory: Loops and Legs in Quantum Field Theory  
Zinnowitz (Alemania), Abril 2004  
Nucl. Phys. Proc. Suppl. **135** (2004) 107
3. *CP violation in production of neutralinos in  $e^+e^-$  collisions*  
O. Kittel  
Int. Workshop on Astroparticle and High Energy Physics, Valencia, Octubre 2003  
Editores: M. Hirsch, M. Maltoni, S. Pastor y J.W.F. Valle  
Journal of High Energy Physics (Conf. Proc.) (2004) PrHEP-AHEP2003/011
4. *Constraining neutrino magnetic moment with solar and reactor neutrino data*  
M.A. Tórtola  
Int. Workshop on Astroparticle and High Energy Physics, Valencia, Octubre 2003  
Editores: M. Hirsch, M. Maltoni, S. Pastor y J.W.F. Valle  
Journal of High Energy Physics (Conf. Proc.) (2004) PrHEP-AHEP2003/022
5. *Neutrino masses and GUT Baryogenesis*  
J.A. López-Pérez y N. Rius  
Int. Workshop on Astroparticle and High Energy Physics, Valencia, Octubre 2003

Editores: M. Hirsch, M. Maltoni, S. Pastor y J.W.F. Valle  
Journal of High Energy Physics (Conf. Proc.) (2004) PrHEP–AHEP2003/048

6. *Neutrino oscillations, fluctuations and solar magneto-gravity waves*  
C.P. Burgess, N.S. Dzhililov, M. Maltoni, T.I. Rashba, V.B. Semikoz, M.A. Tórtola y J.W.F. Valle  
Int. Workshop on Astroparticle and High Energy Physics, Valencia, Octubre 2003  
Editores: M. Hirsch, M. Maltoni, S. Pastor y J.W.F. Valle  
Journal of High Energy Physics (Conf. Proc.) (2004) PrHEP–AHEP2003/054
7. *MHD origin of density fluctuations deep within the sun and their influence on neutrino oscillation parameters in LMA MSW scenario*  
V.B. Semikoz, C.P. Burgess, N.S. Dzhililov, T.I. Rashba y J. W. F. Valle  
4th Int. Conference on Nonaccelerator New Physics (NANP 03), Dubna (Rusia), Junio 2003  
Phys. Atom. Nucl. **67** (2004) 1147 [Yad. Fiz. **67** (2004) 1172]
8. *New ideas on SUSY searches at future linear colliders*  
S. Hesselbach, O. Kittel, G. Moortgat-Pick y W. Oller  
Int. Europhysics Conference on High-Energy Physics (HEP 2003), Aachen (Alemania), Julio 2003  
Eur. Phys. J. C **33** (2004) S746-S748
9. *Why solar anti-neutrino data are very sensitive to Majorana neutrino magnetic moment?* (Póster)  
O.G. Miranda, T.I. Rashba, A.I. Rez y J.W.F. Valle  
XXI<sup>th</sup> International Conference on Neutrino Physics and Astrophysics (Neutrino 2004), París (Francia), 14-19 Junio 2004.  
NPB(PS), expected

#### (4) Libros o Monografías

- AHEP2003

#### (5) Cursos impartidos

1. *Introduction to supersymmetry*  
M. Hirsch  
IFIC 2004 (dentro del curso de Tercer Ciclo Fenomenología Avanzada de J.W.F. Valle)
2. *Neutrino Physics*  
E.Kh. Akhmedov  
IFIC 2004 (dentro del curso de Tercer Ciclo Fenomenología Avanzada de J.W.F. Valle)

#### (6) Seminarios impartidos

1. *Modelo con tripletes de Higgs y violacin bilineal de paridad-R que relaciona las propiedades de neutrinos con los experimentos de aceleradores*  
A. Villanova del Moral  
IFIC, Valencia, 30 Enero 2004

2. *Neutrino properties from cosmological observables*  
S. Pastor  
Scuola Normale Superiore, Pisa (Italia), 26 Febrero 2004
3. *Flavour Physics and Supersymmetry*  
W. Porod  
Univ. Karlsruhe (Alemania), 7 Mayo 2004
4. *Relic neutrinos: recent cosmological bounds on neutrino properties*  
S. Pastor  
Univ. Zurich (Suiza), 12 Mayo 2004
5. *Day-night effect in the solar neutrino flux and  $U_{e3}$*   
E.Kh. Akhmedov  
IFT-UAM Madrid, 13 Mayo 2004
6. *Neutrinoless Double Beta Decay*  
M. Hirsch  
Univ. Zurich (Suiza), 26 Mayo 2004
7. *Double Beta Decay - A review*  
M. Hirsch  
Univ. Kanazawa (Japón), 25 Junio 2004
8. *Relic neutrinos: recent cosmological bounds on neutrino properties*  
S. Pastor  
INFN Padua (Italia), 14 Octubre 2004
9. *Studying the Sun with neutrinos and vice versa*  
T.I. Rashba  
Univ. Nápoles (Italia), 4 Noviembre 2004