

# Memoria Grupo AHEP 2019

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## Publicaciones en revistas indexadas Web of Science en 2019

### Publicaciones en física teórica

1. *Extricating New Physics Scenarios at DUNE with High Energy Beams*  
**M. Masud**, M. Bishai y P. Mehta  
Scientific Reports **9** (2019) 352 (arXiv:1704.08650)  
DOI: 10.1038/s41598-018-36790-6
2. *New physics vs new paradigms: distinguishing CPT violation from NSI*  
G. Barenboim, **C.A. Ternes** y **M. Tórtola**  
European Physical Journal C **79** (2019) 390 (arXiv:1804.05842)  
DOI: 10.1140/epjc/s10052-019-6900-7
3. *Asymmetric dark matter, inflation, and leptogenesis from B-L symmetry breaking*  
P.V. Dong, D.T. Huong, D.A. Camargo, F.S. Queiroz y **J.W.F. Valle**  
Physical Review D **99** (2019) 055040 (arXiv:1805.08251)  
DOI: 10.1103/PhysRevD.99.055040
4. *Exploring the intrinsic Lorentz-violating parameters at DUNE*  
G. Barenboim, **M. Masud**, **C.A. Ternes** y **M. Tórtola**  
Physics Letters B **788** (2019) 308-315 (arXiv:1805.11094)  
DOI: 10.1016/j.physletb.2018.11.040
5. *Bound-state dark matter with Majorana neutrinos*  
**M. Reig**, D. Restrepo, **J.W.F. Valle** y O. Zapata  
Physics Letters B **790** (2019) 303-307 (arXiv:1806.09977)  
DOI: 10.1016/j.physletb.2019.01.023
6. *Spontaneous breaking of lepton number and the cosmological domain wall problem*  
G. Lazarides, **M. Reig**, Q. Shafi, **R. Srivastava** y **J.W.F. Valle**  
Physical Review Letters **122** (2019) 151301 (arXiv:1806.11198)  
DOI: 10.1103/PhysRevLett.122.151301
7. *Simplest scoto-seesaw mechanism*  
N. Rojas, **R. Srivastava** y **J.W.F. Valle**  
Physics Letters B **789** (2019) 132-136 (arXiv:1807.11447)  
DOI: 10.1016/j.physletb.2018.12.014
8. *Spontaneous proton decay and the origin of Peccei-Quinn symmetry*  
**M. Reig** y **R. Srivastava**  
Physics Letters B **790** (2019) 134-139 (arXiv:1809.02093)  
DOI: 10.1016/j.physletb.2019.01.008

9. *Lepton flavor violation in a  $Z'$  model for the  $b \rightarrow s$  anomalies*  
**P. Rocha-Morán** y **A. Vicente**  
 Physical Review D **99** (2019) 035016 (arXiv:1810.02135)  
 DOI: 10.1103/PhysRevD.99.035016
10. *Constraining the invisible neutrino decay with KM3NeT-ORCA*  
**P.F. de Salas**, **S. Pastor**, **C.A. Ternes**, T. Thakore y **M. Tórtola**  
 Physics Letters B **789** (2019) 472-479 (arXiv:1810.10916)  
 DOI: 10.1016/j.physletb.2018.12.066
11. *Neutrinoless Double Beta Decay with Non-standard Majoron Emission*  
**R. Cepedello**, F.F. Deppisch, L. González y **M. Hirsch**  
 Physical Review Letters **122** (2019) 181801 (arXiv:1811.00031)  
 DOI: 10.1103/PhysRevLett.122.181801
12. *Long-lived fermions at AL3X*  
 D. Dercks, H.K. Dreiner, **M. Hirsch** y Z.S. Wang  
 Physical Review D **99** (2019) 055020 (arXiv:1811.01995)  
 DOI: 10.1103/PhysRevD.99.055020
13. *Neutrino predictions from a left-right symmetric flavored extension of the standard model*  
 A.E. Cárcamo Hernández, S. Kovalenko, **J.W.F. Valle** y C. Vaquera-Araujo  
 Journal of High Energy Physics **02** (2019) 065 (arXiv:1811.03018)  
 DOI: 10.1007/JHEP02(2019)065
14. *Testing generalized CP symmetries with precision studies at DUNE*  
 N. Nath, **R. Srivastava** y **J.W.F. Valle**  
 Physical Review D **99** (2019) 075005 (arXiv:1811.07040)  
 DOI: 10.1103/PhysRevD.99.075005
15. *Master Majorana neutrino mass parametrization*  
 I. Cordero-Carrión, **A. Vicente** y **M. Hirsch**  
 Physical Review D **99** (2019) 075019 (arXiv:1812.03896)  
 DOI: 10.1103/PhysRevD.99.075019
16. *Cosmology-marginalized approaches in Bayesian model comparison: the neutrino mass as a case study*  
**S. Gariazzo** y O. Mena  
 Physical Review D **99** (2019) 021301 (arXiv:1812.05449)  
 DOI: 10.1103/PhysRevD.99.021301
17. *CP symmetries as guiding posts: revamping tri-bi-maximal mixing. Part I*  
 P. Chen, **S. Centelles Chuliá**, G.J. Ding, **R. Srivastava** y **J.W.F. Valle**  
 Journal of High Energy Physics **03** (2019) 036 (arXiv:1812.04663)  
 DOI: 10.1007/JHEP03(2019)036
18. *Correlations and degeneracies among the NSI parameters with tunable beams at DUNE*  
**M. Masud**, S. Roy y P. Mehta  
 Physical Review D **99** (2019) 115032 (arXiv:1812.10290)  
 DOI: 10.1103/PhysRevD.99.115032

19. *On the high-scale instanton interference effect: axion models without domain wall problem*  
**M. Reig**  
 Journal of High Energy Physics **08** (2019) 167 (arXiv:1901.00203)  
 DOI: 10.1007/JHEP08(2019)167
20. *Scotogenic dark matter stability from gauged matter parity*  
 S.K. Kang, O. Popov, **R. Srivastava, J.W.F. Valle** y C. Vaquera-Araujo  
 Physics Letters B **798** (2019) 135013 (arXiv:1902.05966)  
 DOI: 10.1016/j.physletb.2019.135013
21. *Neutrino oscillation probabilities through the looking glass*  
 G. Barenboim, P.B. Denton, S.J. Parke y **C.A. Ternes**  
 Physics Letters B **791** (2019) 351-360 (arXiv:1902.00517)  
 DOI: 10.1016/j.physletb.2019.03.002
22. *Revisiting the LHC reach in the displaced region of the minimal left-right symmetric model*  
 G. Cottin, J.C. Helo, **M. Hirsch** y D. Silva  
 Physical Review D **99** (2019) 115013 (arXiv:1902.05673)  
 DOI: 10.1103/PhysRevD.99.115013
23. *Predicting neutrino oscillations with “bi-large” lepton mixing matrices*  
 P. Chen, G.J. Ding, **R. Srivastava** y **J.W.F. Valle**  
 Physics Letters B **792** (2019) 461-464 (arXiv:1902.08962)  
 DOI: 10.1016/j.physletb.2019.04.022
24. *DUNE-PRISM sensitivity to light dark matter*  
**V. De Romeri**, K.J. Kelly y P.A.N. Machado  
 Physical Review D **100** (2019) 095010 (arXiv:1903.10505)  
 DOI: 10.1103/PhysRevD.100.095010
25. *Proton decay at one loop*  
 J.C. Helo, **M. Hirsch** y T. Ota  
 Physical Review D **99** (2019) 095021 (arXiv:1904.00036)  
 DOI: 10.1103/PhysRevD.99.095021
26. *Status and prospects of “bi-large” leptonic mixing*  
 G.J. Ding, N. Nath, **R. Srivastava** y **J.W.F. Valle**  
 Physics Letters B **796** (2019) 162-167 (arXiv:1904.05632)  
 DOI: 10.1016/j.physletb.2019.07.037
27. *Exotic colored fermions and lepton number violation at the LHC*  
 E. Carquin, J.C. Helo, **M. Hirsch** y N.A. Neill  
 Physical Review D **99** (2019) 115028 (arXiv:1904.07257)  
 DOI: 10.1103/PhysRevD.99.115028
28. *Light majoron cold dark matter from topological defects and the formation of boson stars*  
**M. Reig, J.W.F. Valle** y M. Yamada  
 Journal of Cosmology and Astroparticle Physics **09** (2019) 029 (arXiv:1905.01287)  
 DOI: 10.1088/1475-7516/2019/09/029

29. *Neutrino mass ordering at DUNE: An extra  $\nu$  bonus*  
**C.A. Ternes, S. Gariazzo, R. Hajjar, O. Mena, M. Sorel y M. Tórtola**  
 Physical Review D **100** (2019) 093004 (arXiv:1905.03589)  
 DOI: 10.1103/PhysRevD.100.093004
30. *Probing neutrino transition magnetic moments with coherent elastic neutrino-nucleus scattering*  
 O.G. Miranda, **D.K. Papoulias, M. Tórtola y J.W.F. Valle**  
 Journal of High Energy Physics **07** (2019) 103 (arXiv:1905.03750)  
 DOI: 10.1007/JHEP07(2019)103
31. *Thermalisation of sterile neutrinos in the early Universe in the 3+1 scheme with full mixing matrix*  
**S. Gariazzo, P.F. de Salas y S. Pastor**  
 Journal of Cosmology and Astroparticle Physics **07** (2019) 014 (arXiv:1905.11290)  
 DOI: 10.1088/1475-7516/2019/07/014
32. *CP symmetries as guiding posts: revamping tri-bi-maximal mixing. II*  
 P. Chen, **S. Centelles Chuliá, G.J. Ding, R. Srivastava y J.W.F. Valle**  
 Physical Review D **100** (2019) 053001 (arXiv:1905.11997)  
 DOI: 10.1103/PhysRevD.100.053001
33. *Cosmic implications of a low-scale solution to the axion domain wall problem*  
 A. Caputo y **M. Reig**  
 Physical Review D **100** (2019) 063530 (arXiv:1905.13116)  
 DOI: 10.1103/PhysRevD.100.063530
34. *CP violating effects in coherent elastic neutrino-nucleus scattering processes*  
 D. Aristizábal Sierra, **V. De Romeri** y N. Rojas  
 Journal of High Energy Physics **09** (2019) 069 (arXiv:1906.01156)  
 DOI: 10.1007/JHEP09(2019)069
35. *Long-lived heavy particles in neutrino mass models*  
 C. Arbeláez, J.C. Helo y **M. Hirsch**  
 Physical Review D **100** (2019) 055001 (arXiv:1906.03030)  
 DOI: 10.1103/PhysRevD.100.055001
36. *Quasi-Dirac neutrino oscillations at DUNE and JUNO*  
**G. Anamiati, V. De Romeri, M. Hirsch, C.A. Ternes y M. Tórtola**  
 Physical Review D **100** (2019) 035032 (arXiv:1907.00980)  
 DOI: 10.1103/PhysRevD.100.035032
37. *Strong CP problem with low-energy emergent QCD: The  $4\text{3}21$  case*  
 J. Fuentes-Martín, **M. Reig y A. Vicente**  
 Physical Review D **100** (2019) 115028 (arXiv:1907.02550)  
 DOI: 10.1103/PhysRevD.100.115028
38. *Systematic classification of two loop  $d = 4$  Dirac neutrino mass models and the Diracness-dark matter stability connection*  
**S. Centelles Chuliá, R. Cepedello, E. Peinado y R. Srivastava**

Journal of High Energy Physics **10** (2019) 093 (arXiv:1907.08630)  
DOI: 10.1007/JHEP10(2019)093

39. *Higgs Lepton Flavor Violating Decays in Two Higgs Doublet Models*  
**A. Vicente**  
Frontiers in Physics **7** (2019) 174 (arXiv:1908.07759)  
DOI: 10.3389/fphy.2019.00174
40. *Electroweak Breaking and Higgs Boson Profile in the Simplest Linear Seesaw Model*  
D. Fontes, J.C. Romão y **J.W.F. Valle**  
Journal of High Energy Physics **10** (2019) 245 (arXiv:1908.09587)  
DOI: 10.1007/JHEP10(2019)245
41. *Radiative type-I seesaw neutrino masses*  
C. Arbeláez, A.E. Cárcamo Hernández, **R. Cepedello**, **M. Hirsch** y S. Kovalenko  
Physical Review D **100** (2019) 115021 (arXiv:1910.04178)  
DOI: 10.1103/PhysRevD.100.115021
42. *Recent probes of standard and non-standard neutrino physics with nuclei*  
**D.K. Papoulias**, T.S. Kosmas y Y. Kuno  
Frontiers in Physics **7** (2019) 191 (arXiv:1911.00916)  
DOI: 10.3389/fphy.2019.00191

#### Publicaciones en el marco de grandes colaboraciones internacionales

1. *Long-lived particles at the energy frontier: the MATHUSLA physics case*  
D. Curtin et al [incluye a **M. Hirsch**]  
Reports on Progress in Physics **82** (2019) 116201 (arXiv:1806.07396)  
DOI: 10.1088/1361-6633/ab28d6
2. *A design for an electromagnetic filter for precision energy measurements at the tritium endpoint*  
PTOLEMY collaboration, M.G. Betti et al [incluye a **S. Gariazzo** y **S. Pastor**]  
Progress in Particle and Nuclear Physics **106** (2019) 120-131 (arXiv:1810.06703)  
DOI: 10.1016/j.pnpnp.2019.02.004
3. *Neutrino physics with the PTOLEMY project: active neutrino properties & the light sterile case*  
PTOLEMY collaboration, M.G. Betti et al [incluye a **S. Gariazzo** y **S. Pastor**]  
Journal of Cosmology and Astroparticle Physics **07** (2019) 047 (arXiv:1902.05508)  
DOI: 10.1088/1475-7516/2019/07/047

#### Ponencias y comunicaciones a congresos

1. *Neutrinos and the new physics landscape*  
J.W.F. Valle  
DCPIHEP 2019 workshop: Neutrino mass, mixing, and BSM physics  
Colima (México), 9-18 enero
2. *Master Majorana neutrino mass parametrization*  
A. Vicente  
COST Workshop Higgs and flavour physics: present and future  
Lisboa (Portugal), 14-17 enero

3. *Global overview on neutrino masses and mixings*  
M. Tórtola  
COST Workshop Higgs and flavour physics: present and future  
Lisboa (Portugal), 14-17 enero
4. *The lepton flavor violation road to New Physics*  
A. Vicente  
International Meeting on High Energy Physics (IMHEP)  
Bhubaneswar (India), 17-22 enero
5. *Fits to large data sets*  
S. Gariazzo  
PHYSTAT-nu workshop 2019  
CERN, Ginebra (Suiza), 22-25 enero
6. *The  $b \rightarrow s$  anomalies as a guide beyond the Standard Model*  
A. Vicente  
5th Workshop on Flavour Physics in the LHC Era  
Valencia, 23-25 enero
7.  *$SO(3)$  family symmetry and axions*  
M. Reig  
54th Rencontres de Moriond on Electroweak Interactions and Unified Theories  
La Thuile (Italia), 16-23 marzo
8. *The Instanton Interference Effect: axion models without domain wall problem*  
M. Reig  
15th MultiDark Consolider Workshop  
Zaragoza, 3-5 abril
9. *Neutrino-floor with nuclear structure calculations*  
D. Papoulias  
15th MultiDark Consolider Workshop  
Zaragoza, 3-5 abril
10. *Global fit to neutrino oscillation data*  
C.A. Ternes  
15th MultiDark Consolider Workshop  
Zaragoza, 3-5 abril
11. *An extensive study of dark matter in the Triplet + Singlet Scotogenic Model*  
I. Maturana  
15th MultiDark Consolider Workshop  
Zaragoza, 3-5 abril
12. *Hunting for light dark matter with DUNE*  
V. De Romeri  
15th MultiDark Consolider Workshop  
Zaragoza, 3-5 abril

13. *Dark matter stability and Dirac neutrinos using only Standard Model symmetries*  
R. Srivastava  
15th MultiDark Consolider Workshop  
Zaragoza, 3-5 abril
14. *A geometrical look on neutrino oscillation probabilities with non-standard interactions*  
M. Masud  
15th MultiDark Consolider Workshop  
Zaragoza, 3-5 abril
15. *Master Majorana neutrino mass parametrization*  
A. Vicente  
Portoroz 2019: Precision era in High Energy Physics  
Portoroz (Eslovenia), 16-19 abril
16. *Neutrinos at colliders and connections to lepton number violation*  
M. Hirsch  
Fourth Alpine LHC Physics Summit (ALPS2019)  
Obergurgl (Austria), 22-27 abril
17. *Double beta decay beyond the mass mechanism*  
M. Hirsch  
Matrix Elements for the Double beta decay EXperiments (MEDEX 19)  
Praga (Rep. Checa), 27-31 mayo
18. *Axion predictions from B-physics anomalies*  
M. Reig  
22nd Int. Conference From the Planck Scale to the Electroweak Scale (PLANCK 2019)  
Granada, 3-7 junio
19. *Dark matter stability and Dirac neutrinos using only Standard Model symmetries*  
R. Srivastava  
22nd Int. Conference From the Planck Scale to the Electroweak Scale (PLANCK 2019)  
Granada, 3-7 junio
20. *Relic neutrinos: clustering and consequences for direct detection*  
S. Gariazzo  
27th International Workshop on Weak Interactions and Neutrinos (WIN 2019)  
Bari (Italia), 3-8 junio
21. *Global fit to  $\nu_\mu$  disappearance data with sterile neutrinos*  
C.A. Ternes  
27th International Workshop on Weak Interactions and Neutrinos (WIN 2019)  
Bari (Italia), 3-8 junio
22. *Light sterile neutrinos: oscillations and cosmology*  
S. Gariazzo  
Workshop on neutrinos, dark matter and dark energy (Invisibles 2019)  
Valencia, 10-14 junio

23. *Atmospheric neutrinos at DUNE (PhD forum + póster)*  
C.A. Ternes  
Workshop on neutrinos, dark matter and dark energy (Invisibles 2019)  
Valencia, 10-14 junio
24. *Axion predictions from from B-physics anomalies (póster)*  
M. Reig  
Workshop on neutrinos, dark matter and dark energy (Invisibles 2019)  
Valencia, 10-14 junio
25. *Towards a way to distinguish between IHDM and the Scotogenic model at CLIC (PhD forum + póster)*  
I. Maturana  
Workshop on neutrinos, dark matter and dark energy (Invisibles 2019)  
Valencia, 10-14 junio
26. *DsixTools*  
A. Vicente  
1st Conference on Tools for Low-Energy SMEFT Phenomenology (SMEFT-Tools 2019)  
Durham (Reino Unido), 12-14 junio
27. *Probing neutrino transition magnetic moments with coherent elastic neutrino-nucleus scattering*  
D. Papoulias  
GDR Neutrino meeting  
LPNHE París (Francia), 25-26 junio
28. *Neutrino pathways to new physics*  
J.W.F. Valle  
XXV Int. Symposium on Particle physics, String theory and Cosmology (PASCOS 2019)  
Manchester (Reino Unido), 1-5 julio
29. *Axion predictions from from B-physics anomalies (póster)*  
M. Reig  
22nd International Conference on General Relativity and Gravitation (GR 22)  
Valencia, 7-12 julio
30. *Relic neutrinos: local clustering and consequences for direct detection*  
S. Gariazzo  
European Physical Society Conference on High Energy Physics (EPS-HEP 2019)  
Gante (Bélgica), 10-17 julio
31. *Non-standard neutrino interactions: current status and future prospects*  
M. Tórtola  
European Physical Society Conference on High Energy Physics (EPS-HEP 2019)  
Gante (Bélgica), 10-17 julio
32. *Neutrino physics beyond the Standard Model in DUNE*  
M. Tórtola  
XXXVII Reunión Bienal de la Real Sociedad Española de Física  
Zaragoza, 15-19 julio



33. *Dark matter stability and Dirac neutrinos using only Standard Model symmetries*  
R. Srivastava  
8th Workshop on Flavor Symmetries and Consequences in Accelerators and Cosmology (FLASY2019)  
Hefei (China), 24-27 julio
34. *Neutrinos as the gate to new physics*  
J.W.F. Valle  
8th Workshop on Flavor Symmetries and Consequences in Accelerators and Cosmology (FLASY2019)  
Hefei (China), 24-27 julio
35. *Future neutrino physics outlook*  
J.W.F. Valle  
21st International Workshop on Neutrinos from Accelerators (NUFACT2019)  
Daegu (Corea del Sur), 25-31 agosto
36. *Light sterile neutrinos: oscillations and cosmology*  
S. Gariazzo  
Matter to the Deepest: Recent developments in physics of fundamental interactions  
Chorzów (Polonia), 1-6 septiembre
37. *Neutrino masses beyond the minimal seesaw*  
M. Hirsch  
16th International Conference on Topics in Astroparticle and Underground Physics (TAUP 2019)  
Toyama (Japón), 9-13 septiembre
38. *Light sterile neutrinos: the current picture from neutrino oscillations*  
S. Gariazzo  
16th International Conference on Topics in Astroparticle and Underground Physics (TAUP 2019)  
Toyama (Japón), 9-13 septiembre
39. *Hunting for Light Dark Matter with DUNE-PRISM*  
V. De Romeri  
16th International Conference on Topics in Astroparticle and Underground Physics (TAUP 2019)  
Toyama (Japón), 9-13 septiembre
40. *Neutrino physics beyond the Standard Model in DUNE*  
M. Tórtola  
16th International Conference on Topics in Astroparticle and Underground Physics (TAUP 2019)  
Toyama (Japón), 9-13 septiembre
41. *Active-sterile neutrino oscillations in the early Universe with the complete mixing matrix*  
S. Pastor  
16th International Conference on Topics in Astroparticle and Underground Physics (TAUP 2019)  
Toyama (Japón), 9-13 septiembre
42. *Probing neutrino transition magnetic moments at CEvNS experiments*  
D. Papoulias  
International School of Nuclear Physics: 41st Course  
Erice (Italia), 16-24 septiembre

43. *CP violating effects in coherent elastic neutrino-nucleus scattering processes*  
V. De Romeri  
DESY Theory Workshop: Quantum field theory meets gravity  
Hamburgo (Alemania), 24-27 septiembre
44. *Radiative neutrino masses with dark matter*  
R. Cepedello  
16th MultiDark Consolider Workshop  
La Rábida, Huelva, 25-27 septiembre
45. *Dirac neutrino mass models and connection with dark matter*  
S. Centelles Chuliá  
16th MultiDark Consolider Workshop  
La Rábida, Huelva, 25-27 septiembre
46. *Clustering of relic neutrinos in the Milky Way*  
S. Pastor  
16th MultiDark Consolider Workshop  
La Rábida, Huelva, 25-27 septiembre
47. *Neutrino physics with the PTOLEMY project*  
S. Gariazzo  
16th MultiDark Consolider Workshop  
La Rábida, Huelva, 25-27 septiembre
48. *Non-standard neutrino oscillation physics at DUNE*  
C.A. Ternes  
16th MultiDark Consolider Workshop  
La Rábida, Huelva, 25-27 septiembre
49. *On Sterile Neutrinos and Modified Dispersion Relation*  
P. Martínez Miravé  
16th MultiDark Consolider Workshop  
La Rábida, Huelva, 25-27 septiembre
50. *Theory status and implications of  $R_{K^*}$*   
A. Vicente  
18th Int. Conference on B-Physics at Frontier Machines (Beauty 2019)  
Liubliana (Eslovenia), 30 septiembre - 4 octubre
51. *Current status of 3+1 neutrino mixing*  
C.A. Ternes  
Neutrino Platform Week 2019: Hot Topics in Neutrino Physics  
CERN, Ginebra (Suiza), 7-11 octubre
52. *Neutrino physics outlook*  
J.W.F. Valle  
Higgs and Flavour Today (GUIFEST)  
IFIC Valencia, 15 octubre

53. *Light sterile neutrinos in the early universe*  
S. Gariazzo  
RENATA meeting at the XI CPAN days  
Oviedo, 21-23 octubre
54. *The global three-neutrino picture before DUNE*  
M. Tórtola  
XI CPAN days  
Oviedo, 21-23 octubre
55. *Non-standard nucleon decay modes*  
M. Hirsch  
International Workshop on Baryon and Lepton Number Violation (BLV 2019)  
IFT Madrid, 21-24 octubre
56. *Radiative neutrino mass models*  
A. Vicente  
International Workshop on Baryon and Lepton Number Violation (BLV 2019)  
IFT Madrid, 21-24 octubre
57. *Neutrino overview*  
J.W.F. Valle  
20th Int. Workshop on Next generation Nucleon Decay and Neutrino Detectors (NNN19)  
Medellín (Colombia), 7-9 noviembre
58. *Neutrino transition magnetic moments and sterile neutrinos from CEvNS*  
D. Papoulias  
2nd Magnificent CEvNS workshop  
Chapel Hill (Estados Unidos), 9-11 noviembre
59. *CP violating effects in coherent elastic neutrino-nucleus scattering processes*  
V. De Romeri  
2nd Magnificent CEvNS workshop  
Chapel Hill (Estados Unidos), 9-11 noviembre
60. *Seasonal Variation of Solar Neutrino Flux at Super-Kamiokande*  
S. Molina Sedgwick  
NuPhys2019: Prospects in Neutrino Physics  
Londres (Reino Unido), 16-18 diciembre

#### **Tesis de máster**

1. *Neutrino non-standard interactions from an effective field theory point of view*  
Jorge Terol Calvo  
Máster in Física Avanzada, Universidad de Valencia  
Dirigida por Maríam Tórtola y Avelino Vicente  
Fecha lectura: 18 julio

2. *Modified dispersion relations and the anomalies in neutrino oscillation experiments*

Pablo Martínez Miravé

Máster in Física Avanzada, Universidad de Valencia

Dirigida por Mariam Tórtola y Gabriela Barenboim

Fecha lectura: 18 julio

3. *Física de sabor más allá del Modelo Estándar*

Pablo Escribano Valiente

Máster in Física Avanzada, Universidad de Valencia

Dirigida por Avelino Vicente

Fecha lectura: 23 septiembre

### Tesis doctoral

1. *Lepton Flavor Violation Phenomenology Beyond the Standard Model*

Paulina Rocha Morán

Universidad de Bonn

Dirigida por Manuel Drees y Avelino Vicente

Fecha lectura: 30 agosto

### Cursos impartidos

1. *Course: Computer tools in particle physics*

A. Vicente

Curso para estudiantes de doctorado (5.5 horas)

IFIC Valencia, 27-31 mayo

2. *Cosmic Microwave Background: theory and numerical calculations*

S. Gariazzo

Curso para estudiantes de máster (6 horas)

Univ. Federico II, Nápoles (Italia), 11-13 diciembre

### Coloquios y seminarios impartidos

– *Searches for new physics with neutrino experiments*

V. De Romeri

INFN & Univ. Turín (Italia), 12 febrero

– *Current status of neutrino oscillation parameters*

C.A. Ternes

INFN & Univ. Turín (Italia), 13 febrero

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- *Relic neutrinos and the PTOLEMY project*  
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- *Current status of 3-neutrino mixing*  
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- *Light majoron cold dark matter from topological defects and the formation of boson stars*  
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- *Neutrino masses beyond the minimal seesaw*  
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- *The QCD axion and its cosmological implications*  
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