

# Curriculum Vitae et Studiorum of Davide Meloni

email: meloni@fis.uniroma3.it, dmeloni75@gmail.com

address: Via Enrico Fermi 19, 00044 Frascati (Rm), Italy

## 1. Particulars

Name: Davide Meloni

Date and Place of Birth: March 23th, 1975, Anagni (Fr), Italy

Nationality: Italian

Sex: Male

## 2. Education

- College studies at Liceo Scientifico Statale G. Sulpicio, Alatri (Fr), Italy from 1989 to 1994.
- Undergraduate studies at Università di Roma “La Sapienza”, Department of Physics.
- PhD at Università di Roma “La Sapienza”, Department of Physics, starting November 1999
- Spring School INFN (Laboratori Nazionali di Frascati) 12-17 april 1999
- VIII School of Theoretical Physics, Parma, 1-13 September 1999
- Advanced School on Quantum Chromodynamics 2000, 2-7 July Benasque (Spain)
- South European School on Elementary Particle Physics, Corfù (Greece)  
31 August-20 September 2001
- Taller de Altas Energías  
Granada (Spain), May 5-16 2003
- Second Graduate school in ”Physics at Colliders”,  
Torino (Italy), June 30-July 5, 2003

## 3. Academic titles

- High school diploma at "Liceo Scientifico G. Sulpicio" Alatri (Italy),  
July 1994  
Mark: 60/60.
- Undergraduate degree in Physics at Università di Roma "La Sapienza",  
December 16th, 1999  
Mark: 110/110 "cum laude"  
Thesis: "  $K^0 - \bar{K}^0$  mixing in the Standard Model and in Super-  
symmetry "  
Advisor: Prof. Guido Martinelli.
- PhD in Physics at Università di Roma "La Sapienza", January  
31th, 2003  
Thesis: "The Neutrino Factory project and the leptonic CP vio-  
lation "  
Advisor: Prof. Maurizio Lusignoli.
- INFN qualification  
INFN qualification (idoneità) in theoretical physics - bando 13154/2009,  
July 2009.
- Associate Professor qualification  
art.16 Leg. 240/2010, from 08/01/2014 to 08/01/2020.
- Full Professor qualification  
art.16 Leg. 240/2010, from 13/07/2018 to 13/07/2024.

#### 4. Computing

Good knowledge of Linux and Windows operative systems  
Good knowledge of Fortran, Mathematica, Office

#### 5. Positions

- Unpaid Associate position at I.N.F.N., Rome I, from January 1999  
to January 2003
- Post-doctoral two-years Fellowship at Universidad de Granada,  
Departamento de Física Teórica y del Cosmos, November 2002 -  
October 2004.
- Two-years Associate position at I.N.F.N. ("Assegno di Ricerca"),  
Rome I, from January 2005 to January 2007 (assegno di ricerca  
INFN)

- Associate position ("Assegno di Ricerca") at Dipartimento di Fisica Rome Tre,  
Università degli Studi Roma Tre  
1st October 2007 - 30 September 2009;
- Post-doctoral Fellowship at University of Wuerzburg (Germany),  
October 2009 - February 2011;
- Associate position ("Assegno di Ricerca") at Dipartimento di Fisica Rome Tre,  
Università degli Studi Roma Tre  
February 2011- January 2012;
- Type-A researcher at Università degli Studi Roma Tre, March 2012-November 2016.
- Type-B researcher at Università degli Studi Roma Tre, since December 2016.

## 6. Coordination of research activities

- Team Leader (on behalf of the Roma Tre University) of the project PLAFOND at CERN (Platform for Developing Neutrino Detectors): co-convenor of the working group 4, aimed at sensitivity studies to the neutrino oscillation parameters at the next generation neutrino experiments;  
<https://twiki.cern.ch/twiki/bin/view/CENF/NearDetectorWG4>  
Since December 2017.
- Principal Investigator of the project:  
*Flavour symmetries and the problem of fermion masses and mixings*,  
under the program "Futuro in Ricerca 2010", FIRB 2010.  
March 2012- March 2015. Funding source: MIUR.  
Budget: 382.600 euro
- Italian coordinator of the project  
*Neutrino mass generation mechanisms in (grand) unified flavor models and phenomenological imprints*,  
with the Excellence Cluster Munich (Germany), Funding source: Excellence Cluster, year 2015  
Budget: 18.766 euro

- Italian coordinator of the project  
*Cosmic rays and physics beyond the Standard Model*,  
INFN-MEC with the University of Granada (Spain), year 2007.  
Budget: 2.300 euro
- Italian coordinator of the project  
*Cosmic rays and physics beyond the Standard Model*,  
INFN-MEC with the University of Granada (Spain), year 2008.  
Budget: 2.200 euro
- Italian coordinator of the project  
*New physics in cosmic rays and particle colliders*,  
INFN-MEC with the University of Granada (Spain), year 2009.  
Budget: 1.800 euro

## 7. Participation in research projects

- *Modelli teorici, calcoli di precisione e metodi di simulazione per la prossima fase di esperimenti in fisica delle particelle*,  
PRIN 2006. Funding source: MIUR.
- *Fisica delle particelle nell'epoca di LHC: modelli teorici, calcoli di precisione e metodi di simulazione*,  
PRIN 2008. Funding source: MIUR.
- *Search for new physics with astroparticles*,  
years 2011-2014. Funding source: MICINN.
- *Neutrino mass generation mechanisms in (grand) unified flavor models and phenomenological imprints*, Funding source: Excellence Cluster, year 2015
- *Flavour symmetries and the problem of fermion masses and mixings*, Funding source: MIUR, years 2012-2015
- *Search for the Fundamental Laws and Constituents*, Funding source: MIUR, years 2016-2018

## 8. First degree thesis

- Chiara Pollini: "Oscillazione dei neutrini nella materia a densita' variabile", 2011/2012;
- Giuliana La Valle: "Fenomenologia delle trasformazioni di Lorentz: Spin del Fotone", 2015/2016;

- Cassandra Serantoni: "Effetti di materia nelle oscillazioni dei neutrini", 2015/2016;
- Davide Alfano, "Meccanica quantistica supersimmetrica", 2016/2017;
- Federico Ripani, "Metodo WKB e sue applicazioni", 2017/2018;

## 9. Master thesis

- Erica Vagnoni: "Effetti nucleari nelle oscillazioni dei neutrini", 2012/2013
- Alessio Agostini: "Analisi del contributo degli stop alla sezione d'urto di produzione del bosone di Higgs", 2012/2013
- Artemi Bendandi, "Radiative fermion masses in a Pati-Salam model", 2016/2017
- Alessio Giarnetti, " $\nu_\mu \rightarrow \nu_\tau$  transition in DUNE and its role in sterile neutrino models", 2018/2019
- Cassandra Serantoni, "Leptonic CP violation in models with inverted neutrino mass hierarchy", ongoing.

## 10. PhD thesis

- Erica Vagnoni: "Nuclear effects in neutrino oscillation experiments", 2013-2016;
- Andrea Di Iura: "New Physics effects in the neutrino sector", 2013-2016;
- Gabriele Ria: "On the renormalization of the singlet extension of the Standard Model", 2014-2017;
- Alessio Barbensi: "A critical study of two Pati-Salam models", 2015-2018;
- Anish Ghoshal; ongoing.

## 11. Teaching Experience

- academic year 2000-2001  
Course of "Physics" for the "Natural Science Course" at the "Università di Roma , La Sapienza"

- academic year 2001-2002  
Course of “Physics” for the “Natural Science Course” at the “Università di Roma , La Sapienza”
- Tutor in ”Taller de Altas Energías”  
Granada (Spain), May 5-16 2003
- academic year 2003-2004  
2.5 credits in the ”Plan docente de la Universidad de Granada”
- academic year 2005-2006  
Course of ”Modelli e metodi matematici della fisica”  
at the “Università di Roma , La Sapienza”
- academic year 2007-2008  
Course of ”Fisica delle interazioni fondamentali”  
at the “Università di Roma Tre ,Physics Department”
- academic year 2008-2009
  - Course of ” Elements of statistical mechanics”  
at the “Università di Roma Tre , Physics Department”
  - Course of ”Fisica delle interazioni fondamentali”  
at the “Università di Roma Tre , Physics Department”
- academic year 2011-2012
  - Course of ”Fisica delle particelle oltre il Modello Standard”  
at the “Università di Roma Tre , Physics Department”
  - PhD course of ”Physics beyond the Standard Model”  
at the “Università di Roma Tre , Physics Department”
- academic year 2012-2013
  - Course of ”Fisica delle particelle oltre il Modello Standard”  
at the “Università di Roma Tre , Physics Department”
  - PhD course of ”Physics beyond the Standard Model”  
at the “Università di Roma Tre , Physics Department”
- academic year 2013-2014
  - Course of ”Metodi matematici della fisica”  
at the “Università di Roma Tre , Mathematics and Physics  
Department”

- PhD course of "Physics beyond the Standard Model" at the "Università di Roma Tre , Mathematics and Physics Department"
- Course of "Elementi di Relatività"-PAS - Percorsi Abilitanti Speciali
- academic year 2014-2015
  - Course of "Metodi matematici della fisica" at the "Università di Roma Tre , Mathematics and Physics Department"
  - PhD course of "Physics beyond the Standard Model" at the "Università di Roma Tre , Mathematics and Physics Department"
  - Course of "Elementi di Relatività"-PAS online (Percorsi Abilitanti Speciali), A038
  - Course of "Elementi di Relatività"- TFA (Tirocinio Formativo Attivo), A038
- academic year 2015-2016
  - Course of "Metodi matematici della fisica" at the "Università di Roma Tre , Mathematics and Physics Department"
  - PhD course of "Physics beyond the Standard Model" at the "Università di Roma Tre , Mathematics and Physics Department"
  - Course of "Fisica Teorica Contemporanea" at the "Università di Roma Tre , Mathematics and Physics Department"
- academic year 2016-2017
  - Course of "Metodi matematici della fisica"
  - PhD course of "Physics beyond the Standard Model"
  - PhD course of "Current problems in neutrino physics"
  - Course of "Fisica Teorica Contemporanea"
- academic year 2017-2018
  - Course of "Metodi matematici della fisica"
  - Course of "Fisica Teorica Contemporanea"

- PhD course "Current problems in neutrino physics"
- PhD course "Elements of group theory and GUT"
- academic year 2018-2019
  - Course of "Metodi matematici della fisica"
  - PhD course of "Current problems in neutrino physics"
  - PhD course "Elements of group theory and GUT"

## 12. Languages

Italian (own language), Spanish (fluent), English (fluent), French (fluent), German (basic)

## 13. Scientific activities

- Scientific secretaire in *Lattice99* (Pisa), 29 June - 3 July 1999
- Scientific secretaire in *Lepton Photons 2001* (Roma) 23-29 July 2001;
- member of the organizing committee of the "FLASY2011" workshop in Valencia, July 11-14 2011.

## 14. Editorial Experiences

Referee for: Nuclear Physics, Journal of High Energy Physics, Physical Review Letters, Physical Review D, Journal of Physics G.

## 15. Research Interests (keywords)

Neutrino physics:

- Neutrino Phenomenology at future neutrino facilities (neutrino factories, super-beams,  $\beta$  beams)
- Neutrino-nucleus cross sections (nuclear effects)
- Model building (neutrino and quark mass matrices and mixing in extensions of the Standard Model)

Hadronic physics:



- Chiral Perturbation Theory and hadronic matrix elements

Lattice Field Theory:

- Dynamical fermions in lattice QCD
- Phenomenology of lattice QCD;
- Supersymmetry on the lattice.

16. Posters

- **“Four Neutrino Families with a  $\nu$  Factory”**  
in ‘5th Topical Workshop on: “Solar Neutrinos: Where are the Oscillations?”’; 12-14 March 2001.

17. Seminars

- **“Four Neutrino Families with a Neutrino Factory”**  
Università “La Sapienza”, Rome, May 8th, 2001.
- **“Three or four neutrino families mixing?”**  
Università “La Sapienza”, Rome, October 29th, 2001.
- **“Solving ambiguities at the Neutrino Factory”**  
Universidad de Granada, September 5th, 2002.
- **“The Neutrino Factory project and the leptonic CP-violation”**  
Università “La Sapienza”, Rome, January 31th, 2003.
- **“Parameter degeneracy in simultaneous measurements of  $(\theta_{13}, \delta)$  at future neutrino experiments”**  
Universidad de Granada (Spain), February 12th, 2004.
- **“ The problem of parameter degeneracy in the neutrino sector”**  
Barcelona (Spain), March 11th, 2004.
- **“ Neutrini cosmogenici e segnali di nuova fisica ai futuri telescopi di neutrini”**  
(in italian) Università “La Sapienza”, Rome, February 3th, 2005.
- **“ Testing new physics at neutrino telescopes”**  
Wurzburg University (Germany), November 16, 2006

- **“ Standard and non-standard neutrino physics with neutrino telescopes**  
NuCoffee, Cern, 20th March 2007.
- **“ New physics at neutrino telescopes”**  
Department of Theoretical Physics, KTH – AlbaNova University Center, Stockholm (Sweden), April 2 2008.
- **“ Fermion masses and mixing from non-abelian discrete symmetries ”**  
IFIC-Instituto de Física Corpuscular, Valencia February 17th, 2010
- **“ Fermion masses and mixing from non-abelian discrete symmetries ”**  
Physics Department, La Sapienza, Roma May 6th, 2010
- **“Neutrino-nucleus interaction and the problem of the axial mass”**  
Physics Department, Torino April 18th, 2011
- **“Nuclear effects in the determination of the oscillation parameters ”**  
Virginia TECH, USA October 16th, 2013
- **“Recent advances in Neutrino Physics”**  
RomaTre University December 3rd, 2013
- **“Neutrinos as a probe of New Physics effects”**  
Université de Liege, Faculté des Sciences Département d’Astrophysique, Gophysique et Océanographie October 9th, 2014
- **“A non-SUSY SO(10) model for the physics below MGUT”**  
Departament de E.C.M. Facultat de Física, Universitat de Barcelona November 13th, 2014
- **“Non-supersymmetric SO(10): status and prospects”**  
Università Federico II, Napoli May 31st, 2016
- **“Grand Unified Theories confronting low energy data: the case of SO(10)”**  
Universidad de Granada (Spain) June 16th, 2016

## 18. Talks

- **“The 2+2 and 3+1 four-family neutrino mixing at the neutrino factory”**  
 Convegno Informale di Fisica Teorica” , Cortona, June 1st 2001.
- **“Telling three from four neutrino scenarios”**  
 XXXVIIth Rencontres de Moriond March 9-16, 2002
- **“The  $\nu_e \rightarrow \nu_\tau$  channel as a tool to improve the leptonic CP violation measurement ”**  
 4th NuFact '02 Workshop Neutrino Factories based on Muon Storage Rings London, July 1-6, 2002.
- **“The leptonic CP-violation and its discovery at the Neutrino Factory”**  
 XXIX Reunion Bienal de la RSEF 2003  
 Madrid(Spain), July 7-11, 2003.
- **“Parameter degeneracy at future neutrino experiments”**  
 Christmas workshop  
 Madrid(Spain), December 15-17, 2003.
- **“ A theoretical study of the parameter degeneracy at future neutrino experiments”**  
 European Neutrino Group Meeting  
 CERN, February 16-19, 2004.
- **“ Neutrinos as a probe of physics beyond the Standard Model.”**  
 Meeting of the European Network 'Physics at Colliders'  
 Montpellier, France, 26-27 Sep 2004
- **“ Effects of the uncertainties on the solar and atmospheric parameters on the measurement of  $\theta_{13}$  and  $\delta$  at future neutrino facilities”**  
 Exploring the Impact of New Neutrino Beams  
 ECT\* Trento, 18 - 22 October 2004
- **“ The impact of solar and atmospheric parameter uncertainties on the measurement of  $\theta_{13}$  and  $\delta$ ”**  
 BeneWeek  
 CERN, 16-19 March 2005

- **Neutrini cosmogenici e segnali di nuova fisica ai futuri telescopi di neutrini**  
(in italian) IFAE - Incontri di Fisica delle Alte Energie  
Catania March 30-April 2, 2005
- **The measurement of  $\theta_{13}$  and  $\delta$ : the role of the uncertainties on the solar and atmospheric parameters**  
NuFact05, Laboratori Nazionali di Frascati, Frascati (Rome) June 21 - 26, 2005
- **Violazione di CP nel settore leptonic**  
IFAE - Incontri di Fisica delle Alte Energie  
Pavia 19-21 April 2006
- **Total Neutrino and Antineutrino Cross Sections for  $\beta$ -beams**  
NuFact06, Irvine (California), 24-30 August 2006
- **Low energy neutrino cross section**  
Golden07, Valencia (Spain), 27-30 June 2007
- **Relevance and optimization of the Silver channel**  
Golden07, Valencia (Spain), 27-30 June 2007
- **Sterile neutrinos at the CNGS**  
BENE week, CERN, 28-31 October 2007
- **New effects in neutrino propagation and interaction**  
Electron-Nucleus Scattering-X  
Marciana Marina, Elba, June 23-27 2008
- **Sterile neutrinos at future long-baseline experiments**  
NOW08, Conca Specchiulla (Otranto, Lecce, Italy) September 6-13, 2008
- **CP Violation in Neutrino Physics and New Physics**  
XIII International Workshop on Neutrino Telescopes  
Venezia (Italy) March 10-13, 2009
- **Impact of nuclear effects on the determination of the nucleon axial mass**  
NUINT09,  
Sitges, Bacerlona (Spain) May 18-22, 2009

- **Neutrino masses and mixings from non-abelian discrete symmetries**  
 ”Neutrino masses and Lepton flavor violation at the LHC“  
 Wuerzburg (Germany) November 24-25, 2009
- **Nuclear effects on the determination of neutrino oscillation parameters**  
 ”Electron-Nucleus Scattering–XI “  
 Marciana Marina, Elba, June 21-25 2010
- **A model for neutrino masses and mixing based on the non-abelian discrete symmetry A4**  
 ”Discrete 2010“  
 Roma, December 6-11 2010
- **Nuclear effects in the neutrino-nucleus cross section and the determination of neutrino oscillation parameters**  
 ”Third EUROnu Annual Meeting“  
 18th-21st January 2011 at the STFC Rutherford Appleton Laboratory (UK)
- **Impact of nuclear effects in the determination of neutrino oscillation parameters**  
 ”NuInt2011“  
 07 March - 11 March 2011, DehraDun (India)
- **Impact of nuclear effects in the determination of neutrino oscillation parameters**  
 ”NuFact2011“  
 01 August - 06 August 2011, Geneva (Switzerland)
- **Models for neutrino masses and mixing and their phenomenological implications**  
 ”Hot Topics in Neutrino Oscillations: a Clue to Physics Beyond the Standard Model “  
 05 December 2011, Rome (Italy)
- **Implications of nuclear models for  $\theta_{13}$  and the leptonic CP phase**  
 ”Modeling Charge-changing and Neutral-current Neutrino Reactions with Nuclei“  
 12 - 16 December 2011, Trento (Italy)

- **Impact of systematic uncertainties for the CP violation measurement in superbeam experiments**  
 "NuInt2012"  
 22 - 27 October 2012, Rio de Janeiro (Brasil)
- **A non-susy SO(10) model for coupling unification, fermion masses and mixings, leptogenesis and dark matter**  
 "Scalars2013"  
 12 - 16 September 2013, Warsaw (Poland)
- **Lepton flavour violation**  
 "SIF Congress"  
 23 - 27 September 2013, SISSA, Trieste (Italy)
- **A short review on the interplay among nuclear effects and oscillation parameters**  
 "Neutrino-Nucleus Interactions for Current and Next Generation Neutrino Oscillation Experiments"  
 December 3-13, 2013, INT, Seattle (USA)
- **A non-susy SO(10) model for the physics below  $M_{GUT}$**   
 "News in Neutrino Physics",  
 07 April 2014 - 02 May 2014, Nordita, Stockholm
- **Neutrinos as a probe of New Physics effects**  
 "Electron-Nucleus Scattering XIII"  
 Marciana Marina, Elba, June 26-30 2014.
- **Model comparison and experimental constraints**  
 "NUFACT2014"  
 University of Glasgow, 25th to 30th of August, 2014.
- **Recent results in neutrino physics**  
 "IFAE2015"  
 University of Roma Tor Vergata, 8th to 10th of April, 2015.
- **A possible common origin of quark and neutrino mixings**  
 "JENNIFER consortium"  
 University of Roma Tre, 11th of June, 2015.
- **News in neutrino physics**  
 Plenary talk at "QFTHEP'2015"  
 Samara (Russia), June 24 - July 1, 2015.

- **Bimaximal Neutrino Mixing and GUT's**  
"EPS"  
Wien, 22-29 July, 2015.
- **BM Mixing and GUT's**  
IPM school and conference on Particle Physics (IPP15)  
Theran (Iran), 22-27 September, 2015.
- **Neutrino cross sections in the GeV region**  
ENUBET in the landscape of neutrino physics  
23-24 June 2016, Padova.
- **GUT and neutrinos**  
NOW 2016, Otranto (Lecce, Italy), September 4 - 11, 2016.
- **Neutrinos, GUT and Flavor**  
QFTHEP, June 26 - July 3, 2017  
Yaroslavl, Russia.
- **Effects of RGE's on fermion observables in  $SO(10)$  models**  
EPS2017, 5-12 July 2017, Venezia.
- **Systematics vs Searches for New Physics in Long Baseline Experiments**  
Neutrino Platform week, 29 January- 2 February 2018, CERN.

## 19. Lectures

- **Grand Unification**  
IPM school and conference on Particle Physics (IPP15)  
Theran (Iran), 22-27 September, 2015.

## Publications

1.  **$B^0$  - anti  $B^0$  mixing and decay constants with the non-perturbatively improved action**  
D. Becirevic, D. Meloni, A. Retico, V. Gimenez, L. Giusti, V. Lubicz and G. Martinelli,  
Nucl. Phys. B **618**, 241 (2001) [arXiv:hep-lat/0002025].

2. **A Theoretical Prediction of the  $B_S$ -Meson Lifetime Difference**  
D. Becirevic, D. Meloni, A. Retico, V. Gimenez, V. Lubicz and G. Martinelli,  
Eur. Phys. J. C **18**, 157 (2000) [arXiv:hep-ph/0006135].
3. **An estimate of the  $K^0 - \bar{K}^0$  amplitude**  
D. Becirevic, D. Meloni and A. Retico,  
JHEP **0101**, 012 (2001) [arXiv:hep-lat/0012009].
4. **The 2+2 and 3+1 Four Family Neutrino Mixing at the Neutrino Factory**  
A. Donini and D. Meloni,  
Eur. Phys. J. C **22**, 179 (2001) [arXiv:hep-ph/0105089].
5. **Telling three from four neutrinos at the neutrino factory**  
A. Donini, M. Lusignoli and D. Meloni,  
Nucl. Phys. B **624**, 405 (2002) [arXiv:hep-ph/0107231].
6. **The silver channel at the neutrino factory**  
A. Donini, D. Meloni and P. Migliozzi,  
Nucl. Phys. B **646**, 321 (2002) [arXiv:hep-ph/0206034].
7. **The synergy of the golden and silver channels at the Neutrino Factory**  
D. Autiero *et al.*,  
Eur. Phys. J. C **33**, 243 (2004)  
arXiv:hep-ph/0305185.
8. **Clone flow analysis for a theory inspired Neutrino Experiment planning**  
A. Donini, D. Meloni, S. Rigolin  
JHEP **0406**, 011 (2004)  
arXiv:hep-ph/0312072.
9. **Cosmogenic neutrinos and signals of TeV gravity in air showers and neutrino telescopes**  
J. I. Illana, M. Masip and D. Meloni  
Phys. Rev. Lett. **93**, 151102 (2004)  
arXiv:hep-ph/0402279.



10. **Flavour and polarisation in heavy neutrino production at e+e- colliders**  
 F. del Aguila, J. A. Aguilar-Saavedra, A. Martinez de la Ossa and D. Meloni,  
 Phys. Lett. B **613**, 170 (2005)  
 arXiv:hep-ph/0502189.
11. **TeV gravity at neutrino telescopes**  
 J. I. Illana, M. Masip and D. Meloni,  
 Phys. Rev. D **72**, 024003 (2005),  
 arXiv:hep-ph/0504234.
12. **The impact of solar and atmospheric parameter uncertainties on the measurement of  $\theta_{13}$  and  $\delta$**   
 A. Donini, D. Meloni and S. Rigolin  
 Eur. Phys. J. C **45** (2006) 73  
 arXiv:hep-ph/0506100.
13.  **$\nu_\mu$  disappearance at the SPL, T2K-I, NO $\nu$ A and the neutrino factory**  
 A. Donini, E. Fernandez-Martinez, D. Meloni and S. Rigolin  
 Nucl. Phys. B **743**, 41 (2006) [arXiv:hep-ph/0512038].
14. **Estimates of the uncertainties associated with models of the nucleon structure functions in the  $\Delta$  production region**  
 O. Benhar and D. Meloni,  
 Phys. Rev. Lett. **97**, 192301 (2006) [arXiv:hep-ph/0604071].
15. **Total neutrino and antineutrino nuclear cross sections around 1-GeV**  
 O. Benhar and D. Meloni,  
 Nucl. Phys. A **789** (2007) 379 [arXiv:hep-ph/0610403].
16. **New physics from ultrahigh energy cosmic rays**  
 J. I. Illana, M. Masip and D. Meloni  
 Phys. Rev. D **75**, 055002 (2007) [arXiv:hep-ph/0611036].
17. **Neutrino flux ratios at neutrino telescopes: The role of uncertainties of neutrino mixing parameters and applications to neutrino decay**

- D. Meloni and T. Ohlsson,  
Phys. Rev. D **75** (2007) 125017 [arXiv:hep-ph/0612279].
18. **Flavor Composition and Energy Spectrum of Astrophysical Neutrinos**  
Paolo Lipari, Maurizio Lusignoli, Davide Meloni  
Phys. Rev. D **75**, 123005 (2007) [arXiv:0704.0718 [astro-ph]].
  19. **Sterile neutrinos at the CNGS**  
A. Donini, M. Maltoni, D. Meloni, P. Migliozzi, F. Terranova  
JHEP **0712**, 013 (2007).
  20. **Long-lived staus from cosmic rays**  
M. Ahlers, J. I. Illana, M. Masip and D. Meloni  
JCAP **0708**, 008 (2007) [arXiv:0705.3782 [hep-ph]].
  21. **Solving the octant degeneracy with the Silver channel**  
D. Meloni,  
Phys. Lett. B **664**, 279 (2008) [arXiv:0802.0086 [hep-ph]].
  22. **An intermediate gamma beta-beam neutrino experiment with long baseline**  
D. Meloni, O. Mena, C. Orme, S. Palomares-Ruiz and S. Pascoli,  
JHEP **0807**, 115 (2008) [arXiv:0802.0255 [hep-ph]].
  23. **Non-standard interactions using the OPERA experiment**  
M. Blennow, D. Meloni, T. Ohlsson, F. Terranova and M. Westerberg,  
Eur. Phys. J. C **56**, 529 (2008) [arXiv:0804.2744 [hep-ph]].
  24. **CP violation in neutrino oscillations and new physics.**  
G. Altarelli and D. Meloni,  
Nucl. Phys. B **809** (2009) 158 [arXiv:0809.1041 [hep-ph]].
  25. **The Discovery channel at the Neutrino Factory:  $\nu_\mu \rightarrow \nu_\tau$  pointing to sterile neutrinos.**  
A. Donini, Ken-ichi Fukui, J. Lopez-Pavon, D. Meloni, O. Yasuda  
JHEP **0908** (2009) 041 [arXiv:0812.3703 [hep-ph]].
  26. **Exact and Approximate Formulas for Neutrino Mixing and Oscillations with Non-Standard Interactions**

- D. Meloni, T. Ohlsson and H. Zhang,  
JHEP **0904** (2009) 033 [arXiv:0901.1784 [hep-ph]].
27. **Non-standard interaction effects on astrophysical neutrino fluxes**  
M. Blennow and D. Meloni,  
Phys. Rev. D **80**, 065009 (2009) [arXiv:0901.2110 [hep-ph]].
  28. **Impact of nuclear effects on the determination of the nucleon axial mass**  
O. Benhar and D. Meloni,  
Phys. Rev. D **80**, 073003 (2009) [arXiv:0903.2329 [hep-ph]].
  29. **A Simplest A4 Model for Tri-Bimaximal Neutrino Mixing**  
G. Altarelli and D. Meloni,  
J. Phys. G **36**, 085005 (2009) [arXiv:0905.0620 [hep-ph]].
  30. **Atmospheric lepton fluxes at ultrahigh energies**  
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