Cecilia Lunardini

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May 18, 2017
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Degrees and Academic Positions

- **Arizona State University** — Tempe, AZ
  associate professor with tenure — *2012 – present*
- **Arizona State University** — Tempe, AZ
  assistant professor — *2007 – 2012*
- **Brookhaven National Laboratory, RIKEN BNL Research Center** — Upton, NY
  fellow — *2007 – 2012*
- **University of Washington, Institute for Nuclear Theory** — Seattle, WA
  five year fellow — *2004 – 2007*
- **University of Washington, department of physics** — Seattle, WA
  research assistant professor — *2004 – 2007*
- **Institute for Advanced Studies** — Princeton, NJ
  Postoctoral fellow — *2001 – 2004*
- **SISSA-ISAS (International School of Advanced Study)** — Trieste, Italy
  Ph.D. Physics — *1998 – 2001*
  - Advisor: Alexei Yu. Smirnov (ICTP, Trieste)
  - external advisor: Georg G. Raffelt (MPI, Munich, Germany)
  - Thesis: Matter effects on conversion of neutrinos from supernovae and cosmological sources
- **University of Pavia** — Pavia, Italy
  Bachelor's degree, Physics — *1993 – 1998*
  - Graduated with mark 110/110 *cum Laude*
  - Advisor: Oreste Nicrosini
  - Thesis: Exclusive generation of photons in Quantum Electrodynamics

Awards & Honours

Prize "Giorgio Gamberini" for best theory PhD thesis, by Scuola Normale (Pisa, Italy) . . . 2003
Invited plenary speaker at the "Neutrino 2006" conference (Santa Fe, NM) 2006
Awarded qualification ("abilitazione") to the rank of 1st and 2nd tier professor, Italy 2014
Invited plenary speaker at the "Neutrino 2014" conference (Boston, MS) 2014
Distinguished referee, the European Physical Journal 2016

Grants and proposals

- **Astrophysical neutrinos from MeV to TeV** — $375,000, C. Lunardini PI
  National Science Foundation award, NSF PHY-0854827 — *2009 – 2012*

– within the American Reinvestment and Recovery Act (ARRA)

- **Neutrinos in astrophysics and cosmology** — $540,000, C. Lunardini PI
  National Science Foundation award, NSF PHY-1205745 — *2012 – 2015*
- **Neutrino astrophysics and fundamental properties** — C. Lunardini co-proponent
  Proposal for summer program, Institute for Nuclear Theory — *accepted, 2013*
  – co-proponents are K. Abazajian, W. Haxton, I. Sarcevic
- **German Academic Research Exchange (DAAD) fellowship** — approx. $7,000, C. Lunardini
  Sabbatical leave support; host Dr. Walter Winter (DESY Zeuthen) — *2016*
- **Phenomenology of astrophysical neutrinos** — $100,000, C. Lunardini (single) PI
  Department of Energy award, DOE–SC0015406 — *2016 – 2017*
- **Phenomenology of astrophysical neutrinos** — $300,000, C. Lunardini (single) PI
  National Science Foundation, NSF-1613708 — *2017 – 2020*

Publications (available at the INSPIRE archive)

For completeness, some citation statistics is included, see fig. 1
The names of the students and postdocs mentored are underlined.

Peer-Reviewed Journal Articles

1. **"Diffuse neutrinos from luminous and dark supernovae: prospects for upcoming detectors at the O(10) kt scale"**
   A. Priya and C. Lunardini.
   arXiv:1705.02122 [astro-ph.HE]
   to be submitted to JCAP

2. **"High Energy Neutrinos from the Tidal Disruption of Stars"**
   C. Lunardini and W. Winter.
   arXiv:1612.03160 [astro-ph.HE]
   Accepted at Physical Review D

3. **"Diffuse Neutrino Flux from Supernovae"**
   C. Lunardini.
   in book: "Handbook of Supernovae", editors Alsabti, Athem W. and Murdin, Paul.
   Springer International Publishing, pp 1-17, (2016).
   DOI:10.1007/978-3-319-20794-0_6-1
   Invited review paper.

4. **"Diffuse supernova neutrinos at underground laboratories"**
   C. Lunardini.
   DOI:10.1016/j.astropartphys.2016.02.005
   Astropart. Phys. **79**, 49 (2016)
   Invited review chapter.

5. **"Presupernova neutrinos: realistic emissivities from stellar evolution"**
   K. M. Patton, R. Farmer and C. Lunardini.
   arXiv:1511.02820 [astro-ph.SR]
   DOI:10.3847/1538-4357/aa6ba8
   Astrophys. J. **840**, no. 1, 2 (2017)

6. **"Do high energy astrophysical neutrinos trace star formation?"**
   K. Emig, C. Lunardini and R. Windhorst.
   arXiv:1507.05711 [astro-ph.HE]
   10.1088/1475-7516/2015/12/029
   JCAP **1512**, no. 12, 029 (2015)

7. **"Multimessenger study of the Fermi bubbles: Very high energy gamma rays and neutrinos"**
   C. Lunardini, S. Razzaque and L. Yang.
   arXiv:1504.07033 [astro-ph.HE]
   10.1103/PhysRevD.92.021301
   Phys. Rev. D **92**, no. 2, 021301 (2015)

8. **"Detecting non-relativistic cosmic neutrinos by capture on tritium: phenomenology and physics potential"**
   A. J. Long, C. Lunardini and E. Sabancilar.
   JCAP **1408**, 038 (2014) [arXiv:1405.7654 [hep-ph]]

9. **"Neutrino Events at IceCube and the Fermi Bubbles"**
   C. Lunardini, S. Razzaque, K. T. Theodoseau and L. Yang,
   Phys. Rev. D **90**, 023016 (2014), [arXiv:1311.7188 [astro-ph.HE].]

10. **"Ultra High Energy Neutrinos: Absorption, Thermal Effects and Signatures"**,
    C. Lunardini, E. Sabancilar and L. Yang,
    JCAP **1308**, 014 (2013) [arXiv:1306.1808 [astro-ph.HE]].

11. **"Additional Light Sterile Neutrinos and Cosmology,"**
    T. D. Jacques, L. M. Krauss and C. Lunardini,
    Phys. Rev. D **87**, no. 8, 083515 (2013) [arXiv:1301.3119 [astro-ph.CO]].

12. **"Cosmic Strings as Emitters of Extremely High Energy Neutrinos,"**
    C. Lunardini and E. Sabancilar,
    Phys. Rev. D **86**, 085008 (2012) [arXiv:1206.2924 [astro-ph.CO]].

13. **"Diffuse supernova neutrinos: oscillation effects, stellar cooling and progenitor mass dependence,"**
    C. Lunardini and I. Tamborra,
    JCAP **1207**, 012 (2012) [arXiv:1205.6292 [astro-ph.SR]]

14. **"High Energy Neutrinos from the Fermi Bubbles,"**
    C. Lunardini and S. Razzaque,
    Phys. Rev. Lett. **108**, 221102 (2012) [arXiv:1112.4799 [astro-ph.HE]]

15. **"Revealing local failed supernovae with neutrino telescopes,"**
    L. Yang and C. Lunardini,
    Phys. Rev. **D84**, 063002 (2011), [arXiv:1103.4628 [astro-ph.CO]].

16. **"Cosmological and Astrophysical Neutrino Mass Measurements"**,
    K. N. Abazajian *et al.* (18 authors),
    Astropart. Phys. **35**, 177-184 (2011), [arXiv:1103.5083 [astro-ph.CO]].

17. **"Neutrinos from failed supernovae at future water and liquid argon detectors"**,
    J. G. Keehn and C. Lunardini,
    Phys. Rev. D **85**, 043011 (2012), [arXiv:1012.1274 [astro-ph.CO]]

18. **"Fast time variations of supernova neutrino fluxes and their detectability,"**
T. Lund, A. Marek, C. Lunardini, H. T. Janka and G. Raffelt,
Phys.Rev. **D82** (2010) 063007, arXiv:1006.1889 [astro-ph.HE].

19. **"Diffuse neutrino flux from failed supernovae"**
C. Lunardini
Phys. Rev. Lett. **102**, 231101 (2009), [arXiv:0901.0568 [astro-ph.SR]]

20. **"An 'archaeological' quest for galactic supernova neutrinos"**
R. Lazauskas, C. Lunardini and C. Volpe
JCAP **0904**, 029 (2009), [arXiv:0901.0581 [astro-ph.SR]]

21. **"Upper limits on the diffuse supernova neutrino flux from the SuperKamiokande data"**
C. Lunardini and O. L. G. Peres
JCAP **0808**, 033 (2008), [arXiv:0805.4225 [astro-ph]]

22. **"SevenOperators, a Mathematica script for harmonic oscillator nuclear matrix elements arising in semileptonic electroweak interactions"**
W. Haxton and C. Lunardini
Comput. Phys. Commun. **179**, 345 (2008)

23. **"Neutrino oscillation signatures of oxygen-neon-magnesium supernovae"**
C. Lunardini, B. Muller and H. T. Janka
Phys. Rev. D **78**, 023016 (2008), [arXiv:0712.3000 [astro-ph]]

24. **"Testing neutrino spectra formation in collapsing stars with the diffuse supernova neutrino flux"**
C. Lunardini
Phys. Rev. D **75**, 073022 (2007), [arXiv:astro-ph/0612701]

25. **"Two modes of searching for new neutrino interactions at MINOS"**
A. Friedland and C. Lunardini
Phys. Rev. D **74**, 033012 (2006), [arXiv:hep-ph/0606101]

26. **"The diffuse neutrino flux from supernovae: Upper limit on the electron neutrino component from the non-observation of antineutrinos at superKamiokande"**
C. Lunardini
Phys. Rev. D **73**, 083009 (2006), [arXiv:hep-ph/0601054]

27. **"The diffuse supernova neutrino flux, star formation rate and SN1987A"**
C. Lunardini
Astropart. Phys. **26**, 190 (2006), [arXiv:astro-ph/0509233]

28. **"A test of tau neutrino interactions with atmospheric neutrinos and K2K"**
A. Friedland and C. Lunardini
Phys. Rev. D **72**, 053009 (2005), [arXiv:hep-ph/0506143]

29. **"Atmospheric neutrinos as probes of neutrino matter interactions"**
A. Friedland, C. Lunardini and M. Maltoni
Phys. Rev. D **70**, 111301 (2004), [arXiv:hep-ph/0408264]

30. **"Neutrinos from SN1987A: Flavor conversion and interpretation of results"**
C. Lunardini and A. Y. Smirnov
Astropart. Phys. **21**, 703 (2004), [arXiv:hep-ph/0402128]

31. **"Solar neutrinos as probes of neutrino - matter interactions"**
A. Friedland, C. Lunardini and C. Pena-Garay
Phys. Lett. B **594**, 347 (2004), [arXiv:hep-ph/0402266]

32. **"Do many-particle neutrino interactions cause a novel coherent effect?"**
A. Friedland and C. Lunardini
JHEP **0310**, 043 (2003), [arXiv:hep-ph/0307140]

33. **"Neutrino flavor conversion in a neutrino background: Single- versus multi-particle description"**
A. Friedland and C. Lunardini
Phys. Rev. D **68**, 013007 (2003), [arXiv:hep-ph/0304055]

34. **"Probing the neutrino mass hierarchy and the 13-mixing with supernovae"**
C. Lunardini and A. Y. Smirnov
JCAP **0306**, 009 (2003), [arXiv:hep-ph/0302033]

35. **"Supernova neutrinos: Difference of nu/mu - nu/tau fluxes and conversion effects"**
E. K. Akhmedov, C. Lunardini and A. Y. Smirnov
Nucl. Phys. B **643**, 339 (2002) [arXiv:hep-ph/0204091]

36. **"Supernova neutrinos: Earth matter effects and neutrino mass spectrum"**
C. Lunardini and A. Y. Smirnov
Nucl. Phys. B **616**, 307 (2001) [arXiv:hep-ph/0106149]

37. **"High-energy neutrino conversion and the lepton asymmetry in the universe"**
C. Lunardini and A. Y. Smirnov
Phys. Rev. D **64**, 073006 (2001) [arXiv:hep-ph/0012056]

38. **"Neutrinos from SN1987A, Earth matter effects and the LMA solution of the solar neutrino problem"**
C. Lunardini and A. Y. Smirnov
Phys. Rev. D **63**, 073009 (2001) [arXiv:hep-ph/0009356]

39. **"Large-angle Bhabha scattering and luminosity at flavour factories"**
C. M. Carloni Calame, C. Lunardini, G. Montagna, O. Nicrosini and F. Piccinini
Nucl. Phys. B **584**, 459 (2000) [arXiv:hep-ph/0003268]

40. **"The minimum width condition for neutrino conversion in matter"**
C. Lunardini and A. Y. Smirnov
Nucl. Phys. B **583**, 260 (2000) [arXiv:hep-ph/0002152]

Other publications (non peer reviewed)

1. **"Theory and phenomenology of supernova neutrinos"**
C. Lunardini.
10.1063/1.4915560
AIP Conf. Proc. **1666**, 070001 (2015).
Proceedings of 26th International Conference on Neutrino Physics and Astrophysics (Neutrino 2014), Boston, Massachusetts, June 2014

2. **"IceCube Neutrino Events from Fermi Bubbles"**
C. Lunardini, S. Razzaque and L. Yang.
arXiv:1412.6240 [astro-ph.HE]
To appear in the proceedings of the 59th annual conference of the South African Institute of Physics, 7-11 July 2014

3. **"Light sterile neutrinos in the early universe"**
   C. Lunardini.
   10.1063/1.4883434
   AIP Conf. Proc. **1604**, 220 (2014).
   Proceedings of the 7th International Conference on Interconnection between Particle Physics and Cosmology (PPC 2013) : Lead/Deadwood, South Dakota, USA, July, 8-13, 2013

4. **"Neutrinos"**,
   A. de Gouvea *et al.* [Intensity Frontier Neutrino Working Group Collaboration],
   arXiv:1310.4340 [hep-ex].

5. **"Fundamental Physics at the Intensity Frontier,"**
   J. L. Hewett, *et al.* (400+ authors), arXiv:1205.2671 [hep-ex].

6. **"The 2010 Interim Report of the Long-Baseline Neutrino Experiment,"**
   T. Akiri *et al.* [LBNE Collaboration and external contributors],
   arXiv:1110.6249 [hep-ex].

7. **"The 2010 Interim Report of the Long-Baseline Neutrino Experiment Collaboration Physics Working Groups,"**
   T. Akiri *et al.* (332 authors) [The LBNE Collaboration and additional contributors],
   [arXiv:1110.6249 [hep-ex]].

8. **"Neutrinos, WMAP, and BBN"**,
   L. M. Krauss, C. Lunardini and C. Smith
   arXiv:1009.4666 [hep-ph].

9. **"Diffuse supernova neutrinos at underground laboratories"**, (review).
   C. Lunardini,
   arXiv:1007.3252 [astro-ph.CO].

10. **"Physics at a future Neutrino Factory and super-beam facility"**,
    A. Bandyopadhyay *et al.* [ISS Physics Working Group],
    Rept. Prog. Phys. **72**, 106201 (2009) [arXiv:0710.4947 [hep-ph]].

11. **"Diffuse neutrinos from failed supernovae,"**
    C. Lunardini
    AIP Conf. Proc. **1182** (2009) 32.
    Prepared for CIPANP 2009: Tenth Conference on the Intersections of Particle and Nuclear Physics, San Diego, CA, 2009

12. **"Testing the supernova neutrino spectrum with the diffuse supernova neutrino flux"**
    C. Lunardini
    Nucl. Phys. Proc. Suppl. **168**, 131 (2007)
    Prepared for Workshop on Neutrino Oscillation Physics (NOW 2006), Otranto, Lecce, Italy, 9-16 Sep 2006

13. **"The diffuse supernova neutrino flux"**
    C. Lunardini
    arXiv:astro-ph/0610534
    To appear in the proceedings of 22nd International Conference on Neutrino Physics and Astrophysics (Neutrino 2006), Santa Fe, New Mexico, 13-19 Jun 2006

14. **"Neutrino flavor conversion in a neutrino background: Coherent scattering and many body effects"**
C. Lunardini
Nucl. Phys. Proc. Suppl. **138**, 353 (2005)
Prepared for 8th International Workshop on Topics in Astroparticle and Underground Physics (TAUP 2003), Seattle, Washington, 5-9 Sep 2003

15. **"Physics of supernova neutrinos"**
C. Lunardini
Prepared for International Workshop on Astroparticle and High-Energy Physics (AHEP-2003), Valencia, Spain, 14-18 Oct 2003

16. **"Physics of supernova neutrinos: Flavor conversion effects"**
C. Lunardini
arXiv:hep-ph/0307257
Contributed to SUSY 2003: SUSY in the Desert: 11th Annual International Conference on Supersymmetry and the Unification of Fundamental Interactions, Tucson, Arizona, 5-10 Jun 2003

17. **"Neutrino flavor conversion inside and outside a supernova"**
C. Lunardini
Prepared for 4th Workshop on Neutrino Oscillations and their Origin (NOON2003), Kanazawa, Japan, 10-14 Feb 2003

18. **"Supernova neutrinos: Earth matter effects and neutrino mass spectrum"**
C. Lunardini
Prepared for NO-VE International Workshop on Neutrino Oscillations in Venice, Venice, Italy, 24-26 Jul 2001

19. **"Neutrinos from SN1987A, large mixings and Earth matter effects"**
C. Lunardini
Nucl. Phys. Proc. Suppl. **95**, 137 (2001)
Prepared for EURESCO Conference on Frontiers in Particle Astrophysics and Cosmology, San Feliu de Guixols, Spain, 30 Sep - 5 Oct 2000

20. **"Large-angle Bhabha scattering and luminosity at DAPHNE"**
C. M. Carloni Calame, C. Lunardini, G. Montagna, O. Nicrosini and F. Piccinini
arXiv:hep-ph/0001131
FNT-T-99-19(1999)
Talk given at 3rd Workshop on Physics and Detectors for DAPHNE (DAPHNE 99), Frascati, Italy, 16-19 Nov 1999

21. **"Large angle Bhabha scattering and luminosity at the Phi-factories"**
C. M. Carloni Calame, C. Lunardini, G. Montagna, O. Nicrosini and F. Piccinini
Prepared for International Europhysics Conference on High-Energy Physics (EPS-HEP 99), Tampere, Finland, 15-21 Jul 1999

Presentations (fall 2007 - current)

Invited conference and workshop talks

- Meeting on the Deep Underground Science and Engineering Laboratory
Lead, South Dakota *April 2008*

Generated on 2017-05-05

58 papers found, 54 of them citeable (published or arXiv)

Citation summary results	Citeable papers	Published only
Total number of papers analyzed:	54	38
Total number of citations:	2,904	2,320
Average citations per paper:	53.8	61.1
Breakdown of papers by citations:		
Renowned papers (500+)	0	0
Famous papers (250-499)	2	1
Very well-known papers (100-249)	8	6
Well-known papers (50-99)	9	9
Known papers (10-49)	19	18
Less known papers (1-9)	12	4
Unknown papers (0)	4	0
h_{HEP} index [?]	27	24

Figure 1: Statistics of citations of Dr. Lunardini's papers, as of May 2017. Taken from the INSPIRE archive.

- Intl. workshop on Next generation Nucleon decay and Neutrino detectors
  (NNN08), Paris, France. Plenary talk. *September 2008*
- Workshop on Supernova Neutrino Detection
  La Jolla, CA *September 2009*
- Conference on the Intersections of Particle and Nuclear Physics
  La Jolla, CA *May 2009*
- Intl. workshop on Next Generation Nucleon Decay and Neutrino Detectors
  (NNN09), Estes Park, CO. Plenary talk. *October 2009*
- workshop on the Future of Nuclear Physics and its Intersections
  Institute for Nuclear Theory, University of Washington, Seattle, WA *July 2010*
- April meeting of the American Physical Society
  Anaheim, CA *April 2011*
- 23rd Rencontres de Blois -Particle Physics and Cosmology
  Blois, France. Plenary talk. *May 2011*
- workshop on The Origin of the Elements: A Modern Perspective
  ECT (European Center for Theoretical Studies in Nuclear Physics), Trento, Italy* *May 2011*
- Conference MIAMI 2011
  Fort Lauderdale, FL *December 2011*
- Intl. workshop on Next Generation Nucleon Decay and Neutrino Detectors
  (NNN12), Fermi Natl. Lab., Batavia, IL. Plenary talk. *October 2012*
- Nuclear Physics Town Hall Meeting
  Westin Hotel, Detroit, MI. Coauthored talk with Daniel Kasen and Peter Malkus. *October 2012*
- FiftyOne Ergs workshop
  North Carolina State University, Raleigh, NC. Plenary talk. *May 2013*
- CETUP* neutrino summer institute
  Deadwood, SD. *July 2013*

- Implications of Neutrino Flavor Oscillations (INFO13)
  Santa Fe, NM. Plenary talk. *August 2013*
- Neutrino 2014 Conference
  Boston, MS. Plenary talk. *June 2014*
- Present and Future of Neutrino Physics
  Winter program, Kavli Institute, UC Santa Barbara. Plenary talk. *November 2014*
- Implications of Neutrino Flavor Oscillations (INFO15)
  Santa Fe, NM. Plenary talk. *July 2015*
- Workshop on direct (anti-)neutrino mass determination
  ECT Trento, Italy. Plenary talk.* *April 2016*
- Workshop on Perspectives on the Extragalactic Frontier
  International Center for Theoretical Physics (ICTP), Trieste, Italy. Plenary talk. *May 2016*
- National Nuclear Physics Summer School
  Massachusetts Institute of Technology (MIT); invited lectures. *July 2016*
- Workshop on Flavor Observations with Supernova Neutrinos
  Institute for Nuclear Theory, University of Washington, Seattle, WA. Plenary talk. *August 2016*
- Precision Investigations of the Neutrino Sector Workshop
  Stanford Lin Acc. Lab., Stanford, CA. Plenary talk. *March 2017*

Invited seminars and colloquia (fall 2007 - current)

- University of Arizona, Tucson, AZ
  Seminar, hosted by U. Van Kolck *spring 2008*
- Institut de Physique Nucleaire (IPN) of Orsay, Paris
  Seminar, hosted by C. Volpe *September 2008*
- University of Basel, Basel, Switzerland
  Seminar, hosted by F-K.Thielemann *July 2009*
- RIKEN BNL Research Center, Upton, NY
  Seminar, hosted by Y. Aoki *October 2009*
- Universidade Estadual de Campinas (UNICAMP), Campinas, Brazil
  Seminar and colloquium, hosted by O. L. G. Peres *October 2009*
- Pontificia Universidade Catolica (PUC), Rio de Janeiro, Brazil
  Seminar, hosted by H. Nunokawa *December 2009*
- Center for Astrophysics and Space Science (CASS), La Jolla, CA
  Seminar, hosted by G. Fuller *February 2010*
- University of New Mexico, Albuquerque, NM
  Seminar, hosted by R. Allahverdi *spring 2011*
- University of California, Irvine, CA
  Seminar, hosted by M. Kaplinghat *February 2011*
- Florida State University, Tallahassee, FL
  Colloquium, hosted by L. Reina *February 2012*
- Ohio University, Athens, OH
  Seminar, hosted by C. Elster *March 2014*
- KICP, University of Chicago, Chicago, IL
  Seminar, hosted by A. Chavarria *June 2014*

- Ohio State University, Columbus, OH
  Seminar, hosted by M. Bustamante *October 2015*
- Arizona State University, Tempe, AZ
  Colloquium, hosted by T. Vachaspati *November 2015*
- Invisible Network (European Union)
  Online seminar, hosted by P. Hernandez *March 2016*
- DESY laboratory, Zeuthen, Germany.
  Invited seminar, hosted by W. Winter. *March 2016*
- Virginia Tech, Blacksburg, VA
  Invited seminar, hosted by S. Horiuchi. *April 2017*

Other presentations

- International conference COSMO 2008
  Madison, WI *August 2008*
- Topics in Astroparticle and Underground Physics (TAUP 2009)
  Rome, Italy *July 2009*
- Annual review of the RIKEN BNL Research Center
  Brookhaven National Laboratory, Upton, NY *October 2009*
- Future of Neutrino Mass Measurements
  Institute for Nuclear Theory, Seattle, WA. Panelist. Coauthored review paper. *February 2010*
- Brookhaven Forum 2010: A Space-Time Odyssey
  Brookhaven National Laboratory, Upton, NY *May 2010*
- Long-Baseline Neutrino Physics and Astrophysics
  Institute for Nuclear Theory, Seattle, WA. *July 2010*
- Annual review of the RIKEN BNL Research Center
  Brookhaven National Laboratory, Upton, NY *October 2010*
- Second International Workshop for the ANDES Underground Laboratory Design
  Rio de Janeiro, Brazil. Panelist/contributor. Coauthored white paper. *June 2011*
- summer program: Astrophysical Transients: Multi-messenger Probes of Nuclear Physics
  Institute for Nuclear Theory, Seattle, WA. *July 2012*
- summer program "What is nu?"
  Galileo Galilei Institute for Theoretical Physics, Florence, Italy *June 2012*
- Intensity Frontier Workshop
  Stanford Linear Accelerator Center, Menlo Park, CA. Sub-group convener. *March 2013*
- FermiLab neutrino theory meeting
  Fermi National Laboratory, Batavia, IL. Panelist. *May 2013*
- Neutrinos in Astro- and Particle Physics
  Max Planck Inst., Garching, Germany. Plenary talk. *July 2014*
- Summer program: Neutrino Astrophysics and Fundamental Properties
  Institute for Nuclear Theory, Seattle, WA. Speaker and co-organizer. *June 2015*
- DUNE Supernova neutrino meeting
  Stanford Linear Accelerator Laboratory, Stanford, CA. Panelist. *November 2015*

Teaching and mentoring

Courses taught

My teaching load was one semester a year for the pre-tenure years, as expected according to my dual affiliation with Arizona State University and the RIKEN-BNL Research Center.

- Subatomic Physics (PHY462) — Arizona State University
  Undergraduate course — *Springs of 2008, 2010, 2011*
- Quantum Physics (PHY315) — Arizona State University
  Undergraduate course — *Springs of 2009, 2012, 2013*
- Mathematical Methods for physicists I (PHY201) — Arizona State University
  Undergraduate course — *Falls of 2013, 2014,2015,2016*
- Mathematical Methods for physicists II (PHY302) — Arizona State University
  Undergraduate course — *Spring of 2014, 2015, 2017*

Undergraduate research projects

James G. Keehn . . . . . 2009 - 2010
Dan Quach (NASA intern) 2012
Kris Thodoseau (NASA intern) 2013
Jessie McNew (Barrett honor's contract) 2013
Aditya Dhumuntarao (Barrett honor's contract) 2014
Alexander Warren 2015-2016
Michael Clark 2015-2016
Dustin Nguyen 2017

Graduate semester-long reading courses

Steven Summers 2008
Xinyang Wang 2010
Brendan Regan 2011
Elizabeth Fietchner 2011
Brandon Butler 2012
Rong Chen . . . . . 2012 - 2014
John Gonzales 2013
Glenn Randall 2013
Siyu Zhou 2014
Joseph Lesnefsky 2014
Cara Willig 2015
Alankrita Priya 2015-2016
Logan Thomas 2016

Graduate PhD or Master dissertation

Lili Yang . . . . . 2010 - Graduated PhD 2013
Kimberly Emig . . . . . 2014- Graduated Masters 2015
Alankrita Priya (expected PhD graduation 2018) 2015-current
Gregory Vance (expected Master graduation 2017) 2016-current

Postdoc mentoring

Christel J. Smith . . . . . 2009 - 2010
Eray Sabancilar (50% support) . . . . . 2011 - 2014

Thomas Jacques (50% support) . . . . . 2011 - 2013
Enrico Borriello . . . . . 2014 - 2015
Kelly Patton . . . . . 2014 - 2016

Other mentoring

Orlando O.L.G Peres (visiting Fullbright Fellow) . . . . . Spring 2012

PhD (or Master) defense committees

served in the committees for Razieh Beckham, Carola Ellinger, Ross Tucker, Lang Yu, Xinyang Wang, Lili Yang, Duncan McFarland, Kimberly Emig (Master), Jaden Newstead, Subir Sabharwal, Matthew Kolopanis, Joseph Lesnefksy, Lucas Madeira, Gregory Vance (Master), Alankrita Priya.

Professional service and synergistic activities (2007 - current)

- Co-organizer of a Mini Workshop on Neutron Stars and Neutrinos Arizona State U.
  Co-organizer: I. Shovkovy *Springs 2009, 2010, 2011, 2012*
- Co-organizer of workshop "Underground Detectors in search of GrandUnification"
  Brookhaven National Laboratory *October 2008*
- Session chair at several conferences, e.g.:
  - international conference COSMO 2008 (Madison, WI, August 2008)
  - APS April meeting 2011 (Anaheim, California, April 2011)
- Member of the working group on the Agua Negra Deep Experiment Site (ANDES)
  Co-author of white paper *summer 2011*
- Member of the Supernova Relic Neutrino Physics Topical Group
  within the larger Long Baseline Neutrino Experiment (LBNE); Co-author of report. *Fall 2010*
- Member of the working group on long baseline neutrino experiments
  April meeting on the Deep Underground Science and Engineering Laboratory. *April 2008*
- candidate as member at large of the four corners American Physical Society
  not elected *Spring 2008*
- Sub-convener of the Intensity Frontier workshops, within the Snowmass process
  Coauthor of white paper *Spring 2013*
- Member of the Natl. Adv. Comm. of the Inst. of Nucl. Theory at the U. of Washington
  Fall 2014 - current
- Co-organizer of the 2015 summer program "Neutrino astrophysics and fundamental properties"
  Inst. of Nucl. Theory at the U. of Washington *2014 - 2015*
- Member of the DUNE low-energy physics working group
  Deep Underground Neutrino Experiment, to be built in South Dakota *2015 - current*
- Proposal reviewer for the National Science Foundation and the Department of Energy
  2010, 2011, 2013, 2016
- Proposal reviewer for the Helmholtz Association (Germany)
  2016
- Referee for the following journals:
  Physical Review Letters,
  Physical Review D,
  Physics Letters B,
  Astroparticle Physics,
  Journal of Physics G,
  Journal of Cosmology and Astroparticle Physics (JCAP),
  European Physical Journal C

Departmental service at Arizona State University

- Served as member of:
  Colloquium committee
  graduate program committee
  undergraduate program committee
  committee on committees
  cosmology faculty hiring committee
  Personnel committee
  Award committee
  Budget and Policy committee

- Chair of Particle Physics and Astrophysics seminars
  2008, 2009, 2012, 2013, 2015, 2016, 2017

- Member of the graduate faculty of the School of Earth and Space Exploration (SESE)
  Arizona State University *2009 - current*

- Examiner and grader of comprehensive exams .
  2007 – current