Abridged Curriculum Vitæ – Stefano Profumo

Professional Preparation

Università di Pisa, Pisa, Italy	Physics	B.Sc., 2001
Scuola Normale Superiore, Pisa, Italy	Theoretical Physics	M.Sc., 2001
International School for Advanced Studies (SISSA-ISAS), Trieste, Italy	Elementary Particle Theory	Ph.D., 2004
Florida State University	Theoretical Particle Physics	2004-2005
California Institute of Technology	Theoretical Astrophysics	2005-2007

Appointments

July 2015-present	Professor of Physics and Director of Graduate Studies, Department of Physics, University of California, Santa Cruz (UCSC)
July 2011-present	Deputy Director for Theory, Santa Cruz Institute for Particle Physics
March 2024-present	Associate Dean for Graduate Studies and Postdoctoral Affairs, Physical and Biological Sciences Division (UCSC)
September 2023-present	Chair, University of California System-Wide Senate Committee on Academic Personnel
July 2011-July 2015	Associate Professor of Physics, Department of Physics, UCSC
July 2007-June 2011	Assistant Professor of Physics, Department of Physics, UCSC

Research Interests

- Theoretical High Energy Physics
  - Particle Physics Beyond the Standard Model
  - Models for the Generation of the Matter-Antimatter Asymmetry in the Universe
- Cosmology and Astro-Particle Physics
  - Particle Dark Matter Searches and Model Building
  - High Energy Astrophysical Phenomena
  - Physics of Black Holes

Selected Awards

2020 Fellow of the American Physical Society
2018 IOP Outstanding Reviewer Award
2014 UCSC Outstanding Volunteer Award (Cross country running club coach)
2013 UCSC Excellence in Teaching Award
2009 Outstanding Junior Investigator Award, Department of Energy, Office of High Energy Physics

Selected Grants

2023-26 Principal Investigator, DoE, "*Research in Particle Physics - Theory Task*" - PIs: Altmannshofer, Gori, Profumo (grant coordinator: Profumo), Shaghoulian, 3 years, $1,512,000

2020-23 Principal Investigator, DoE, "*Research in Particle Physics - Theory Task*" - PIs: Altmannshofer, Dine, Haber, Profumo (grant coordinator: Profumo), 3 years, $963,000

2017-20 Principal Investigator, DoE, "*Research in Particle Physics - Theory Task*" - PIs: Dine, Haber, Profumo (grant coordinator: Profumo), 3 years, $924,000

2013-17 Principal Investigator, DoE, "*Research in Particle Physics - Theory Task*" - PIs: Banks, Dine, Haber, Profumo (grant coordinator: Profumo), 4 years, $1,645,000

2015-18 Co-Principal Investigator, NSF, "*Extremes Meet: Radio and Gamma-ray Observations of Clusters of Galaxies, from Dark Matter to Csomic Rays*" - PI: Jeltema, 3 years, $325,000

2014-16 Principal Investigator, UC/MEXUS, "*Observational Prospects to Constrain Dark Matter Particle Physics*", $60,000

2011 Principal Investigator, NASA Fermi Guest Investigator Program, "*Identifying the nature of the Galactic center gamma-ray source 1FGL J1745.6-2900*" ($83,000)

Scholarly Work Highlights

- Invited Review: "*Dark Matter*" on the Review of Particle Physics (with L. Baudis), 2020-present
- Book: "*An Introduction To Particle Dark Matter*", 2017, World Scientific (graduate-level textbook)
- **over 210** peer-reviewed publications, of which more than 180 with less than 4 co-authors
- **Over 30,000** citations (h-index **76**); source: Google Scholar
- More than 50 conference proceedings, white papers, book chapters, other scientific papers

Selected Notable Publications

1. **"Dark Matter"**
   L. Baudis and S. Profumo, in *Review of particle physics*, Progress of Theoretical and Experimental Physics (2020) **8**, 083C01 [5495 cites]

2. **"Dissecting cosmic-ray electron-positron data with Occam's Razor: the role of known Pulsars"**
   S. Profumo.
   Central Eur. J. Phys. **10**, 1 (2011) [393 cites]

3. **"The waning of the WIMP? A review of models, searches, and constraints"**
   G. Arcadi, M. Dutra, P. Ghosh, M. Lindner, Y. Mambrini, M. Pierre, S. Profumo and F. S. Queiroz,

Eur. Phys. J. C **78** (2018) no.3, 203 [775 cites]

4. **"Dark matter and collider phenomenology of universal extra dimensions"**
   D. Hooper and S. Profumo.
   Phys. Rept. **453**, 29 (2007) [524 cites]

5. **"Probing the Pulsar Origin of the Anomalous Positron Fraction with AMS-02 and Atmospheric Cherenkov Telescopes"**
   T. Linden and S. Profumo,
   Astrophys. J. **772** (2013), 18 [190 cites]

6. **"SUSY dark matter and quintessence"**
   S. Profumo and P. Ullio,
   JCAP **11** (2003), 006 [176 cites]

7. **"Cosmic Ray Protons in the Inner Galaxy and the Galactic Center Gamma-Ray Excess"**
   E. Carlson and S. Profumo,
   Phys. Rev. D **90** (2014) no.2, 023015 [193 cites]

8. **"Direct, indirect and collider detection of neutralino dark matter in SUSY models with non-universal Higgs masses"**
   H. Baer, A. Mustafayev, S. Profumo, A. Belyaev and X. Tata.
   JHEP **0507**, 065 (2005) [330 cites]

9. **"What mass are the smallest protohalos?"**
   S. Profumo, K. Sigurdson and M. Kamionkowski.
   Phys. Rev. Lett. **97**, 031301 (2006) [272 cites]

10. **"Singlet Higgs phenomenology and the electroweak phase transition"**
    S. Profumo, M. J. Ramsey-Musolf and G. Shaughnessy.
    JHEP **0708**, 010 (2007) [497 cites]

11. **"Multi-frequency analysis of neutralino dark matter annihilations in the Coma cluster"**
    S. Colafrancesco, S. Profumo and P. Ullio.
    Astron. Astrophys. **455**, 21 (2006) [291 cites]

12. **"Neutralino cold dark matter in a one parameter extension of the minimal supergravity model"**
    H. Baer, A. Mustafayev, S. Profumo, A. Belyaev and X. Tata.
    Phys. Rev. D **71**, 095008 (2005) [169 cites]

13. **"TeV gamma-rays and the largest masses and annihilation cross sections of neutralino dark matter"**
    S. Profumo.
    Phys. Rev. D **72**, 103521 (2005) [170 cites]

14. **"Neutralino dark matter, b tau Yukawa unification and nonuniversal sfermion masses"**
    S. Profumo.
    Phys. Rev. D **68**, 015006 (2003) [169 cites]

15. **"Discovery of a 3.5 keV line in the Galactic Centre and a critical look at the origin of the line across astronomical targets"**
    T. E. Jeltema and S. Profumo.
    Mon. Not. Roy. Astron. Soc. **450**, no. 2, 2143 (2015) [210 cites]

Professional Activities

- **Member-at-Large Elect and Member of the Executive Committee**, APS-Division of Astrophysics (2018-2020)
- **Member**, APS Division of Particles and Fields (DPF), Program Committee (2017-2019)
- **Member**, High-Energy Physics Advisory Panel (HEPAP): The Committee advises at the highest level the National Science Foundation and the Department of Energy (2014-17)
- **Lecture Series** on *Dark Matter*: preSUSY 2019; NeXT PhD School, Oxford, UK (2018); 5th Chilean School of High-Energy Physics, Universidad Tecnica Federico Santa Maria (2018); Eleventh TRR33 Winter School, Tonale, Italy (2017); Mexican School on Particle Physics in Leon, Mexico (2017); Jose Plinio Baptista School of Cosmology - The Dark Sector of the Universe in Vitoria, Brazil (2016); Galileo Galilei School (2016) Florence, Italy; preSUSY 2016, Melbourne, Australia.
- **Founding Editor**, "*Physics of the Dark Universe*" (Elsevier Journal); **Editor**,"*Scientific World Journal*" for Astronomy and of "*Dataset Papers in Physics*" for High Energy Physics; **Editorial Board**, "*Space Science and Astrophysics*"; **Guest Editor**, "*New Journal of Physics*"
- **Book Reviewer** for Imperial College Press and Pearson / Addison-Wesley
- **Referee** for *Physical Review Letters*, *Physical Review D*, *Physics Reports*, *Physics Letters B*, *Journal of High Energy Physics*, *Journal of Cosmology and Astroparticle Physics*, *Classical and Quantum Gravity*, *Astrophysical Journal*, *Astrophysical Journal Letters*, *Journal of Physics A*, *Journal of Physics G*, *Advances in Astronomy*, *PLoS* and *Nature*
- **Grant Proposal Reviewer** for *Department of Energy*, *National Science Foundation* and *NASA*
- **Grant Proposal Reviewer** for the science agencies of Australia, Austria, Canada, Chile, Denmark, Estonia, France, Japan, Kazakhstan, Netherlands, Norway, South Africa and Switzerland.
- **Invited representative** for the Astro-Particle Physics Community to the Working Group on Laboratory Astrophysics (WGLA) of the American Astronomical Society (2009-present)
- **Organizer**: Aspen Summer 2015 Workshop on Dark Matter; KITP 2014 Workshop on Baryogenesis; KITP 2013 Workshop on Dark Matter; Aspen Winter 2011 Workshop on Dark Matter and Aspen Summer 2011 Workshop on "*A Roadmap Towards Discovery*"
- **Invited Lecturer**: 2013 and 2016 pre-SUSY, 2012 TASI, 2013 International Institute of Physics (Brazil), 2016, III Jose Plinio Baptista School of Cosmology (Brazil), 2016 Galileo Galilei Institute (Italy), 2017 U. Guanajuato lecture series on dark matter (Mexico), 2018 5th Chilean High Energy Physics School.
- **Colloquium speaker** at an average of 10-12 US Institutions every year, **invited plenary speaker** at an average of 4-5 international conferences every year, several other speaking engagements, over the last few years

Doctoral and Post-Doctoral Advisees

- **Doctoral students**: Lorenzo Ubaldi (PhD 2011, Postdoc at Tel Aviv University, Israel); John Kehayias (PhD 2011, Postdoc at Venderbilt U); Jonathan Kozaczuk (PhD 2013, Postdoc at TRIUMF, Canada); Timothy Linden (PhD 2013, Postdoc at OSU); Carroll Wainwright (PhD 2013, Industry); Jonathan Cornell (PhD 2014, McGill U, Canada); Eric Carlson (PhD 2016, Industry); Adam Coogan (PhD 2018, Amsterdam U., the Netherlands); Nico Fernandez (PhD 2019, UIUC); Logan Morrison (PhD 2020, Industry), Benjamin Lehman (PhD 2022, MIT), John Tamanas (PhD 2022, Industry), Jaryd Ulbricht (PhD 2022, Industry), Nolan Smyth (NSF Fellow), Pierce Giffin (current), Adityia Gadam (current), Jordan Scharnhorst (current)

- **Post-doctoral Advisees**: Iris Gebauer (2010-12, now staff at KIT, Germany); Patrick Draper (2011-14, now Faculty at U Mass, Amherst); William Shepherd (2012-14, now faculty at Nils Bohr Institute, Denmark); Farinaldo Quieroz (2012-14, now staff at MPI, Heidelberg, Germany); Alma Gonzalez (2013-15, now faculty at Guanajuato University, Mexico); Tim Stefaniak (2013-2017, now staff at DESY); Francesco D'Eramo (2014-2017, now faculty at Padua University, Italy); Bibhushan Shakya (2017-18, now CERN Fellow); Hiren Patel (2016-2019), Jeff Dror (2018-present), William DeRocco (2019-present)

Selected Outreach and Service

Chair, University of California System-wide Committee on Academic Personnel (2023-present)
Chair, UC Santa Cruz Senate Committee on Academic Personnel (2019-2022)
Member, University of California System-Wide Committee on Academic Personnel (2019-2022)
Member, UC Santa Cruz Senate Executive Committee (2016-18 and 2019-2022)
Director, Graduate Studies, UC Santa Cruz Physics Department (2012-2022)
Chair, UC Santa Cruz Senate Committee on Faculty Welfare (2016-2018)
Member, UC Santa Cruz Committee on Emeriti Relations (2016-2018)
Member, UC Santa Cruz Graduate Council Senate Committee (2014-16)
Mentor, "Adopt a Physicist" (2008-present)
Lecturer, "SCIPP QuarkNet High School Program" (2011-present)
Organizer, Workshop on Graduate Fellowship Applications, UCSC Physics Department (2009-present)
Organizer, Workshop on the "Art of Scientific Presentation" UCSC Physics Department (2012-present)
Head Coach, UCSC Cross Country Running Club
Faculty Liaison, UCSC Cycling and Triathlon Team

Selected Courses Taught

Introduction to Particle Physics (graduate, 2007, 2008); Mathematical Methods for Physics (upper-division undergraduate, 2008, 2009, 2010, 2011, 2012, 2017); Quantum Field Theory (graduate, 2009, 2010, 2014, 2015); Advanced Topics in Quantum Field Theory (graduate, 2017, 2018); General Relativity (graduate, 2010, 2024); Graduate Classical Mechanics (graduate, 2011, 2012, 2016); Mechanics (upper-division undergraduate, 2012, 2013); Introduction to Physics (lower-division undergraduate, 2013, 2019); Quantum Mechanics (graduate, 2015, 2016); Introduction to Scientific Writing (2024)