

Sujeet Akula

ARC Centre of Excellence for Particle Physics at the Terascale
School of Physics & Astronomy
Monash University
Clayton, VIC 3800, Australia

+61 (478) 037-397 (cell)
+1 (617) 652-0261 (cell)
sujeet.akula [at] monash [dot] edu
<https://freeboson.org>

Born: December 21, 1987
Australian Citizen
U.S. Permanent Resident

Research Summary

Theoretical particle physics: phenomenology of supergravity, supersymmetry, and grand unified models considering LHC data and cosmological constraints, with advanced computational and statistical methods.

Total citation count: 463
Citing articles: 330
Hirsch index: 8

Education

Northeastern University, Boston, MA, USA

2014 Ph.D. in Physics

2011 M.Sc. in Physics

University of Wisconsin at Milwaukee, Milwaukee, WI, USA

2009 B.Sc. in Computer Science

2009 B.Sc. in Applied Mathematics & Physics

Positions

2014– *Postdoctoral Research Fellow*, Monash University, Melbourne, VIC, Australia

2011– *Adjunct Faculty*, Northeastern University

2014 *LHCPhenonet Experienced Researcher*, MTA-DE Particle Physics Research Group, University of Debrecen, Hungary

2011–2014 *Research Assistant*, Northeastern University

2009–2014 *Teaching Assistant*, Northeastern University

2008–2009 *Teaching Assistant*, University of Wisconsin–Milwaukee

2008–2009 *Undergraduate Researcher*, IceCube Scientific Collaboration, University of Wisconsin–Madison

2006–2007 *Firmware Engineering Co-op*, Rockwell Automation, Milwaukee, WI

2004–2005 *Undergraduate Researcher*, Wisconsin Center for Space Automation and Robotics, University of Wisconsin–Madison

Teaching Experience

Lecture notes: <https://freeboson.org/teaching/>

AS LECTURER:

PHS 3131*, Sub-unit 3: Special Relativity

MTH 3300†: Applied Probability & Statistics

MTH 2100†: Calculus I

MTH 2105†: Calculus II

MTH 2110†: Calculus III

MTH 2050†: College Algebra

PHY 2302†: Lab for Physics I

PHY 2502†: Lab for Physics II

PHY 3102†: Lab for Physics III

AS TEACHING ASSISTANT:

PHYS 7323‡: Elementary Particle Physics (Grader)

PHYS 7321‡: Computational Physics (TA)

PHYS 7315‡: Quantum Theory (Grader)

*: Monash University, Faculty of Science

†: Northeastern University, College of Professional Studies

‡: Northeastern University, College of Science

Grants, Honors & Awards

- 2014 Northeastern University Outstanding Graduate Student Award
- 2014 Northeastern University Dissertation Completion Fellowship
- 2013 PITT PACC Travel Award to attend Pheno 2013
- 2012 Theoretical Advanced Studies Institute scholarship

Publication & Talks

JOURNAL ARTICLES

- 2016 S. Akula, Cs. Balázs, and G. A. White, “Semi-analytic techniques for calculating bubble wall profiles”, *European Physical Journal C* **76**, 681.
DOI:[10.1140/epjc/s10052-016-4519-5](https://doi.org/10.1140/epjc/s10052-016-4519-5) ARXIV:[1608.00008](https://arxiv.org/abs/1608.00008)
- 2015 D. Francescone, S. Akula, B. Altunkaynak and P. Nath, “Sparticle mass hierarchies, simplified models from SUGRA unification, and benchmarks for LHC Run-II SUSY searches”, *Journal of High Energy Physics* **1501**, 158.
DOI:[10.1007/JHEP01\(2015\)158](https://doi.org/10.1007/JHEP01(2015)158) ARXIV:[1410.4999](https://arxiv.org/abs/1410.4999)

- 2013 S. Akula and P. Nath, “Gluino–driver Radiative Breaking, Higgs Boson Mass, Muon $g - 2$, and the Higgs Diphoton Decay in SUGRA Unification”, *Physical Review D* **87**, 115022.
DOI:[10.1103/PhysRevD.87.115022](https://doi.org/10.1103/PhysRevD.87.115022) ARXIV:[1304.5526](https://arxiv.org/abs/1304.5526)
- 2012 S. Akula, P. Nath, and G. Peim, “Implications of the Higgs Boson Discovery for mSUGRA”, *Physics Letters B* **717**, 188.
DOI:[10.1016/j.physletb.2012.09.007](https://doi.org/10.1016/j.physletb.2012.09.007) ARXIV:[1207.1839](https://arxiv.org/abs/1207.1839)
- 2012 S. Akula, B. Altunkaynak, D. Feldman, P. Nath, and G. Peim, “Higgs Boson Mass Predictions in SUGRA Unification, Recent LHC-7 Results, and Dark Matter”, *Physical Review D* **85**, 075001.
DOI:[10.1103/PhysRevD.85.075001](https://doi.org/10.1103/PhysRevD.85.075001) ARXIV:[1112.3645](https://arxiv.org/abs/1112.3645)
- 2012 S. Akula, M. Liu, P. Nath, and G. Peim, “Naturalness, Supersymmetry and Implications for LHC and Dark Matter”, *Physics Letters B* **709**, 192.
DOI:[10.1016/j.physletb.2012.01.077](https://doi.org/10.1016/j.physletb.2012.01.077) ARXIV:[1111.4589](https://arxiv.org/abs/1111.4589)
- 2011 S. Akula, D. Feldman, P. Nath, and G. Peim, “Excess Observed in CDF $B_s^0 \rightarrow \mu^+ \mu^-$ and SUSY at the LHC”, *Physical Review D* **84**, 115011.
DOI:[10.1103/PhysRevD.84.115011](https://doi.org/10.1103/PhysRevD.84.115011) ARXIV:[1107.3535](https://arxiv.org/abs/1107.3535)
- 2011 S. Akula, D. Feldman, Z. Liu, P. Nath, and G. Peim, “New Constraints on Dark Matter from CMS and ATLAS Data”, *Modern Physics Letters A* **26**, 1521.
DOI:[10.1142/S0217732311036292](https://doi.org/10.1142/S0217732311036292) ARXIV:[1103.5061](https://arxiv.org/abs/1103.5061)
- 2011 S. Akula, D. Feldman, M. Liu, Z. Liu, P. Nath, and G. Peim, “Interpreting the First CMS and ATLAS SUSY Results”, *Physics Letters B* **699**, 377.
DOI:[10.1016/j.physletb.2011.04.041](https://doi.org/10.1016/j.physletb.2011.04.041) ARXIV:[1103.1197](https://arxiv.org/abs/1103.1197)

CONFERENCES

- 2016 CosPA 2016: The 13th International Symposium on Cosmology and Particle Astrophysics, University of Sydney, Australia (November 28–December 2, 2016)
Title: Efficient Perturbative Determination of Bubble Wall Profiles
- 2016 ICHEP 2016: 38th International Conference on High Energy Physics, Chicago, IL (August 3–10, 2016)
- 2016 SUSY 2016: The 24th International Conference on Supersymmetry and Unification of Fundamental Interactions, University of Melbourne & Monash University, Australia (June 27–July 1, 2016)
- 2015 Phenomenology Symposium 2015, University of Pittsburgh, PA (May 4–6, 2015)
Title: Clues for Simplified Models from SUGRA Sparticle Hierarchies and LHC Data
- 2015 BLV 2015: International Workshop on Baryon and Lepton Number Violation, University of Massachusetts, Amherst, MA (April 26–30, 2015)
- 2014 SUSY 2014: The 22nd International Conference on Supersymmetry and Unification of Fundamental Interactions, University of Manchester, England, U.K. (July 21–26, 2014)
- 2014 Pre-SUSY 2014: School on Supersymmetry and Unification of Fundamental Interactions, University of Manchester, England, U.K. (July 15–19, 2014)
- 2014 LHCPHENONET School: NNLO Ante Portas, University of Debrecen, Hungary (June 18–25, 2014)

- 2014 LHCPhenonet Workshop on Particle Physics, Université Pierre et Marie Curie, Paris, France (June 4–6, 2014)
Title: Higgs Boson Mass and δa_μ in Supergravity Grand Unification
- 2014 Phenomenology Symposium 2014, University of Pittsburgh, PA (May 5–7, 2014)
- 2013 Phenomenology Symposium 2013, University of Pittsburgh, PA (May 6–8, 2013)
Title: Gluino-driven Radiative Breaking in Grand Unified Supergravity
- 2013 Brookhaven Forum 2013, Brookhaven National Lab, NY (May 1–3, 2013)
Title: Gluino-driven Radiative Breaking in Grand Unified Supergravity
- 2012 Theoretical Advanced Studies Institute, University of Colorado at Boulder (June 4–29, 2012)
Title: $\mathcal{N} = 1$ 4D Supergravity Models: Phenomenology, Naturalness, and the Higgs
- 2012 Graduate Seminar, Northeastern University (February 29, 2012)
Title: Aspects and Prospects of Local Supersymmetry
- 2010 Implications of First LHC Data, MIT, Cambridge, MA (August 10–13, 2010)