Simone Aiola

Curriculum Vitae et Studiorum

Department of Physics and Astronomy
University of Pittsburgh
3941 O'Hara St, 15260 Pittsburgh, PA
+1-(412)-251-6008
sia21@pitt.edu

"Fatti non foste a viver come bruti, ma per seguir virtute e canoscenza" [Inferno - Dante Alighieri]

Personal Information

Birth date and place	June 4, 1988 - Rome, Italy
Nationality	Italian
Languages	Italian (native speaker), English (proficiency level)
Website	http://www.physicsandastronomy.pitt.edu/person/simone-aiola

Education

Ph.D., Physics — **University of Pittsburgh, USA**, *2012 - 2016 (expected).*
Advisor: Prof. Arthur Kosowsky

M.Sc., Physics — **University of Pittsburgh, USA**, *2012 - 2013 (Awarded in 2014).*

M.Sc., Astrophysics — **'La Sapienza' University of Rome, IT**, *2010 - 2012.*
Thesis: *The Large-Scale Polarization Explorer: Optimization of the Observational Strategy*
Advisors: Prof. Paolo de Bernardis and Dr. Francesco Piacentini
Remarks: graduated *cum laude*

B.Sc., Physics & Astrophysics — **'La Sapienza' University of Rome, IT**, *2007 - 2010.*
Thesis: *The Polarization of the Cosmic Microwave Background*
Advisor: Prof. Paolo de Bernardis

Experiences and Appointments

Research

Sept - Oct 2014 — **Visiting researcher at the University of KwaZulu-Natal**.
Durban - South Africa

Aug 2013 - Present — **Graduate Student Researcher**, *Advisor: Prof. Arthur Kosowsky*.
University of Pittsburgh - PA, USA

Teaching and Mentorship

Sept 2014 - Sept 2015 — **Art and Sciences Teaching Assistant Mentor**.
University of Pittsburgh - PA, USA

May 2014 - Present — **Undergraduate Mentorship**, Co-advising undergraduate student Ellis Herman (University of Richmond).
Project: Probing the lack of large-scale CMB correlation with polarization and lensing measurements.

May 2013 - Present — **Undergraduate Mentorship**, Co-advising undergraduate student Bingjie Wang (University of Pittsburgh).
Project: Large-scale anomalies in the CMB temperature sky.

Aug 2012 - Dec 2013 — **Teaching Assistant**, University of Pittsburgh.
Courses: Lab for Physics and Engineers - Lab 0219 (Fall 2012), Intro to Physics 2 - Phys 0111 (Spring 2013 and Summer 2013), Stonehenge to Hubble - Astro 0088 (Fall 2013) - Stars, Galaxies and Cosmos - Astro 0089 (Summer 2014)

For detail records regarding my teaching performances please contact Leyla Hirschfeld, graduate program coordinator (lmh@pitt.edu).

Awards and Fellowships

2015 — **Zaccheus Daniel Predoctoral Fellowship**.
Department of Physics and Astronomy - University of Pittsburgh

2015 — **Andrew Mellon Predoctoral Fellowship**.
The Dietrich School of Art and Sciences - University of Pittsburgh

2014 — **Zaccheus Daniel Predoctoral Fellowship**.
Department of Physics and Astronomy - University of Pittsburgh

2014 — **University of Pittsburgh School of Arts and Sciences Fellowship**.
The Dietrich School of Art and Sciences - University of Pittsburgh

2014 — **Nomination for Outstanding Teaching Assistant Awards**.
American Association of Physics Teachers

2014 — **Myron P. Garfunkel Excellence in Graduate Student Teaching Award 2014**.
Department of Physics and Astronomy - University of Pittsburgh

Research Interests

Cosmology: phenomenology and data analysis.

Cosmic Microwave Background physics: temperature, polarization, lensing, Sunyaev Zel'dovich effect, large-scale anomalies and sources of statistical anisotropy.

Cosmic Microwave Background analysis: map making, simulations, characterization of systematic effects.

Dark Energy: integrated Sachs-Wolfe effect, CMB lensing-temperature correlation, kinetic Sunyaev Zel'dovich effect

Computer skills and Competences

Languages — Fortran, C/C++, IDL, Matlab (Octave), Python

Cosmological tools — CAMB, CLASS, polSPICE, HEALPix

Collaborations

Sept 2014 - Present — **Atacama Cosmology Telescope (ACT)**, *Main contributions: Remote Control Observer, map-making working group, kSZ working group.*

Sept 2010 - Aug 2012 — **Large-Scale Polarization Explorer (LSPE)**, *Main contributions: optimization of the scanning strategy and suppression of systematic effects for different cosmological goals.*

Talks and Poster Presentations

Dec 2015 — **'New Probes of Large-scale CMB Anomalies'**, contributed talk.
Cosmology Seminar - University of Oxford, UK

Nov 2015 — **'New Probes of Large-scale CMB Anomalies'**, contributed talk.
Cosmology Seminar - SISSA (International School of Advanced Studies), Trieste, IT

Nov 2015 — **'New Probes of Large-scale CMB Anomalies'**, contributed talk.
Astro Seminar - McGill University, CA

July 2015 — **'Microwave Background Correlations from Dipole Anisotropy Modulation'**, contributed talk.
Santa Fe Cosmology Workshop - St. John's College, Santa Fe, USA

Feb 2015 — **'Systematic Effects and Map-making with ACT'**, contributed talk.
ACT Collaboration Meeting - Princeton University, USA

Nov 2014 — **'Extreme-value Statistics for Testing Dark Energy'**, contributed talk.
Astro-statistics meeting - Carnegie Mellon University, USA

Oct 2014 — **'Extreme-value Statistics for Testing Dark Energy'**, contributed talk.
Physics Seminar - University of KwaZulu-Natal, ZA

Sept 2014 — **'A Constraint on the Dipole Modulation of the CMB'**, contributed talk.
Large-scale anomalies: from a priori to a posteriori - Center for Education and Research in Cosmology in Astrophysics, Case Wester Reserve University, USA

May 2014 — **'Extreme-value Statistics for Testing Dark Energy'***, Poster.
Statistical Challenges in 21^{st} Century Cosmology - 306 IAU Symposium, Lisbon, PT

April 2014 — **'Extreme-value Statistics for Testing Dark Energy'**, contributed talk.
Neighborhood Workshop on Astrophysics and Cosmology - Penn State University, USA

Dec 2013 — **'ΛCDM Predictions on the Stacked Late-ISW signal'***, contributed talk.
27^{th} Texas Symposium - Dallas, USA

*= Awarded Travel Grant

References

Prof. Arthur Kosowsky, email: kosowsky@pitt.edu.

Prof. Glenn Starkman, email: glenn.starkman@case.edu.

Prof. Jonathan Sievers, email: jonathan.sievers@gmail.com.

December 10, 2015

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Publications

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Electronic Records

Click for hyperlink: Google Scholar, inSPIRE, Research Gate, LinkedIn

Publications as Lead Author or Main Science Team

[1] **Aiola S., Wang B., Kosowsky A., Kahniashvili T., Firouzjahi H.**, *Microwave Background Correlations from Dipole Anisotropy Modulation*, Phys. Rev. D 92 063008 (2015).
arxiv:1506.04405

[2] **Yoho A., Aiola S., Copi C., Kosowsky A., Starkman G.**, *Using Polarization to Constrain the Lack of Large-Angle Correlation in CMB Temperature*, Phys. Rev. D 91, 123504 (2015).
arxiv:1503.05928

[3] **Aiola S., Kosowsky A., Wang B.**, *Gaussian Approximation of Peak Values in the Integrated Sachs-Wolfe Effect*, Phys. Rev. D 91, 043510 (2015).
arxiv:1410.6138

Please contact me for a list of manuscripts in preparation.

Publications as Member of Collaboration

[4] **Schaan E., Ferraro S., Vargas-Magaña M., Smith K., Ho S., et al. (including Aiola S.)**, *Evidence for the kinematic Sunyaev-Zeldovich effect with ACTPol and velocity reconstruction from BOSS*, submitted for publication (2015).
arxiv:1510.06442

Proceedings

[5] **Aiola S., Kosowsky A., Wang B.**, *Extreme-Value Statistics for Testing Dark Energy*, Proceedings of the International Astronomical Union 10, 54-56 (2014).

[6] **P.de Bernardis, et al. (including Aiola. S.)**, *SWIPE: a bolometric polarimeter for the Large-Scale Polarization Explorer*, Proc. SPIE Int. Soc. Opt. Eng. 8452 3F (2012).
arxiv: 1208.0282

[7] **LSPE Collaboration (including Aiola S.)**, *The Large-Scale Polarization Explorer (LSPE)*, Proc. SPIE 8446, Ground-based and Airborne Instrumentation for Astronomy IV, 84467A (2012).
arxiv: 1208.0281

December 10, 2015