

Curriculum Vitae

Solomon Endlich

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Education

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| 2008–2013 | PhD in Physics, Columbia University, USA.
Theoretical high energy physics and cosmology, advisor: Alberto Nicolis. |
| 2008–2010 | MA in Physics, Columbia University, USA. |
| 2004–2008 | BA in Physics, Columbia University, USA. |

Research Experience

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| 2015– | Scientist, Stanford Institute of Theoretical Physics (SITP), Stanford University: Postdoctoral researcher position under the supervision of Professor Leonardo Senatore. |
| 2013–2015 | Scientist, Institut de Théorie des Phénomènes Physiques, EPFL: Postdoctoral researcher in the group of Professor Rattazzi focusing on general aspects of theoretical physics: spontaneous breaking of spacetime symmetries, effective field theories, and applications in condensed matter and astrophysics/cosmology. |
| 2008–2013 | Alberto Nicolis (advisor), Columbia University: Theoretical high energy physics and cosmology, with particular focus on effective field theories, relativistic fluid dynamics, general relativity and inflation. |
| 2007 | Brian Greene, Columbia University: Theoretical explorations into how the Bohmian picture of quantum mechanics can possibly resolve/clarify issues in quantum cosmology. |
| 2006–2007 | Philip Kim Lab, Columbia University: Investigation and fabrication of 2-dimensional condensed matter systems including Graphene and the high temperature superconductor BSCOO. |
| 2005 | PHENIX (Pioneering High Energy Nuclear Interaction eXperiment): Analysis of the properties of the quark-gluon plasma produced at the Relativistic Heavy Ion Collider (RHIC). |

Publications

- 2015 S. Endlich and R. Penco, “An effective field theory approach to tidal dynamics of astrophysical systems,” [arXiv:1510.08889 [gr-qc]].
- 2014 T. Brauner, S. Endlich, A. Monin, and R. Penco, “General coordinate invariance in quantum many-body systems,” published in Phys. Rev. **D90**, 105016 (2014), selected as an “editors pick” [arXiv:1407.7730 [hep-th]].
- 2014 L. V. Delacretaz, S. Endlich, A. Monin, R. Penco, and F. Riva, “(Re-)Inventing the Relativistic Wheel: Gravity, Cosets, and Spinning Objects,” published in JHEP **1411** 008 (2014) [arXiv:1405.7384 [hep-th]].
- 2013 S. Endlich, A. Nicolis, and R. Penco, “UV completion without symmetry restoration,” published in Phys. Rev. **D89** 065006 (2014) [arXiv:1311.6491 [hep-th]].
- 2013 S. Endlich, A. Nicolis, and R. Penco, “Spontaneously broken mass,” submitted for publication in JHEP [arXiv:1310.2272 [hep-th]].
- 2013 S. Endlich, B. Horn, A. Nicolis, and J. Wang, “The squeezed limit of the solid inflation three-point function,” published in Phys. Rev. **D90** 063506 (2014) [arXiv:1307.8114 [hep-th]].
- 2013 S. Endlich, and A. Nicolis, “The incompressible fluid revisited: vortex-sound interactions,” [arXiv:1303.3289 [hep-th]].
- 2012 S. Endlich, A. Nicolis, R. Porto and J. Wang, “Dissipation in the effective field theory for hydrodynamics: First order effects,” published in Phys. Rev **D88** 105001 (2013) [arXiv:1211.6461 [hep-th]].
- 2012 S. Endlich, A. Nicolis and J. Wang, “Solid Inflation,” published in JCAP **1310** 011 (2013) [arXiv:1210.0569 [hep-th]].
- 2011 S. Endlich and J. Wang, “Classical stability of the galileon,” published in JHEP **1111** 065 (2011) [arXiv:1106.1659 [hep-th]].
- 2010 S. Endlich, A. Nicolis, R. Rattazzi and J. Wang, “The quantum mechanics of perfect fluids,” published in JHEP **1104** 102 (2011) [arXiv:1011.6396 [hep-th]].
- 2010 S. Endlich, K. Hinterbichler, L. Hui, A. Nicolis and J. Wang, “Derrick’s theorem beyond a potential,” published in JHEP **1105**, 073 (2011) [arXiv:1002.4873 [hep-th]].

Invited Talks and Presentations

- 2015 “Spontaneously breaking space-time: Poincare, gravity, cosmology and spinning objects”. A technical talk given at the CERN theory division.
- 2015 “Spontaneously breaking space-time: Poincare, gravity, cosmology and spinning objects”. A technical talk given at the Université de Genève.
- 2014 “Spontaneous symmetry breaking, gravity, and spinning objects”. A technical talk given at Carnegie Mellon University .
- 2014 “Radical Reality”. A public science talk given at TEDxSitka, Alaska.
- 2014 “Spontaneous symmetry breaking, gravity, and spinning objects”. A technical talk given at the Low Energy Challenges for High Energy Physicists workshop, Perimeter Institute, Canada.
- 2014 “Effective field theory, fluid dynamics, and the spontaneous breaking of space-time symmetries”. A technical talk given at the Scuola Normale Superiore seminar, Italy.
- 2014 “Effective field theory, fluid dynamics, and the spontaneous breaking of space-time symmetries”. A technical talk given for the Stanford Institute of Theoretical Physics seminar, Stanford University.
- 2014 “Effective field theory, fluid dynamics, and the spontaneous breaking of space-time symmetries”. A technical talk given for the high energy theory seminar of University of California, Davis.
- 2013 “Effective field theory and Fluid Dynamics”. A technical talk given for the high energy theory seminar of École polytechnique fédérale de Lausanne.
- 2012 “Effective field theory and Fluid Dynamics”. A technical talk given at New York University’s Center of Center for Cosmology and Particle Physics.
- 2012 “Solid of Inflation: An alternative symmetry breaking pattern for an EFT of inflation”. A technical talk given as a seminar at the Perimeter Institute.
- 2012 “Solid of Inflation: Breaking space, not time”. A technical talk given at the CalTech High Energy Physics Seminar.
- 2012 “Solid of Inflation: An Alternative Symmetry Breaking Pattern for an EFT of Inflation”. A technical talk given for the Princeton University/Institute for Advanced Study Early Universe/Cosmology Lunch Discussion.
- 2011 “Quantum field theory and fluid dynamics: Is one useful for the other?”. A technical talk given at the Center for Particle Cosmology, University of Pennsylvania.
- 2011 “The Drone and the Universe”. A public science talk given as part of the series “Entertaining Science” founded by nobel laureate Roald Hoffmann, Cornelia Street Cafe New York.
- 2010 “Cosmos: Travels in Space and Time”. Discussion moderator as part of The New York Academy of Sciences’ “Science & the City” series, Rubin Museum of Art, New York.
- 2010 “Derrick’s theorem beyond a potential: Scalar fields with derivative interactions”. A technical talk given at the Institute of Strings, Cosmology, and Astroparticle Physics at Columbia University.

Teaching Experience and Mentorship

2015	Facilitator, Sitka Fellow Program of the Island Institute: working in a leadership and logistical role as the head a seven week residency program for creative minds in Sitka, Alaska.
2014–2015	Advisor, EPFL Physics Department: Mentoring and advising the masters student project of Michele Oliosi entitled "Space-time symmetry breaking, gravity and rapidly rotating spinning objects".
2014–	Instructor, EPFL Physics Department: Co-instructor of "TP4" an advanced class focused around working through problems (in quantum field theory and particle physics), co-instructor of the problem session component of "Electromagnetism".
2013	Instructor, Columbia University Summer Programs for High School Students: Co-taught "Investigations in Theoretical and Experimental Physics" and "Mathematical Boot Camp for Budding String Theorists" with Professor Halpin-Healy to talented high school students.
2009–2013	Instructor, Columbia University Science Honors Program: Designed, developed, and taught "Exploring Black Holes: An Introduction to General Relativity", "Modern Physics: Relativity and Quantum Mechanics" and "Quantum Theory and Information" to high caliber students in the New York area who have a strong interest in science and mathematics.
2008–2011	Teaching assistant, Columbia University Physics Department: Graded and lectured in "Quantum Field Theory I", "Quantum Field Theory II", "Relativity, Black Holes, and Cosmology", "Advanced Mechanics", "Electricity-Magnetism", "Advanced Laboratory Work", and "General Physics II Laboratory".

Summer Schools and Workshops

2015	Founder, organizer and participant of "Sitka Sound Summer Workshop" for early career theoretical physicists, Sitka Sound Science Center, Sitka, AK.
2015	Facilitator, Sitka Fellows Program, the Island Institute, Sitka, Alaska.
2015	Participant and contributor of "First ICTP Advanced School on Cosmology", International Center of Theoretical Physics, Trieste, Italy.
2014	Sitka Fellow of the Island Institute, a seven week residency program for creative minds in Sitka, Alaska.
2014	Organizer and participant of "Low Energy Challenges for High Energy Physicists" workshop, Perimeter Institute, Canada.
2014	Participant of "Quantum Fields beyond Perturbation Theory" conference, Kavli Institute for Theoretical Physics, Santa Barbara, USA.
2012	Participant of "Summer School on Cosmology", International Center of Theoretical Physics, Trieste, Italy.
2011	Participant of "Effective Field Theory and Gravitational Physics" workshop, Perimeter Institute, Canada.
2011	Participant of "Frontiers of Physics in Cosmology", Prospects in Theoretical Physics summer school, Institute of Advanced Study, Princeton, USA.
2011	Participant of "Galileons" workshop, the Center for Particle Cosmology, University of Pennsylvania, USA.
2009	Participant of "Summer School on Particle Physics, Cosmology and Strings", Perimeter Institute, Canada

Awards

2014	Sitka Fellow of the Island Institute: one of six fellows for a seven week summer residency program for creative minds in Sitka, Alaska.
2010–2013	National Science Foundation Graduate Fellowship: three years of graduate level support (\$30,000 annual stipend and \$12,000 cost-of-education allowance) in pursuit of proposed research goals.
2004–2008	James Family Foundation Scholarship: full scholarship to Columbia University. Awarded to one student per year at selected high schools based on academic achievement, extra-curricular activities, community service and financial need.