

Angelos Fotopoulos

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Northeastern University
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Education :

09/91-06/95 BS in physics with highest honors (1st in class, **8.95/10**),
University of Patras, Greece

09/95-09/97 Masters in Science, Physics Department (GPA 3.67/4.00),
Northeastern University, Boston, USA

09/97-06/01 Ph.D. in Theoretical Physics, *Northeastern University,*
Boston, USA

PhD Thesis: "Aspects of Duality in Quantum Field Theory and Superstring Theory",
Northeastern University January 2001.

Advisor: Prof Tomasz Taylor

Research:

Research Topics and Interests:

- Quantum Gravity and String Theory
- General relativity and Black Holes
- Dualities in Field and String theory
- AdS/CFT and Holography
- Conformal Field Theory
- Higher Spin theories
- Theoretical and mathematical Physics
- Experimental detection of gravitational phenomena (LIGO)

Other Research Interests: Big Data, Machine Learning and applications to physics, Mathematical and computational methods for Data Analysis

Research Experience:

9/19-present Assistant Professor, Wentworth Institute of Technology, Boston MA

9/14-present Research Associate, Northeastern University, Boston MA 02115

10/10-08/14 Senior Research associate, **National Technical University of Athens**, Greece

11/08-10/10 Senior Postdoctoral Fellow, *INFN, University of Torino*, Italy.

10/06-09/08 Postdoctoral Fellow (European Community Network), *University of Torino*, Italy.

11/04-10/06 Postdoctoral Fellow (Pythagoras Fellowship), *University of Crete*, Heraklion, Greece (**Military Service from 2/2005-11/2005**)

01/03-10/04 Postdoctoral Fellow (European Community Network), *Imperial College*, London, UK

02/01-12/02 Postdoctoral Fellow, Centre de Physique Theorique, *Ecole Polytechnique*, France [Chateaubriand Fellowship and Ecole Polytechnique Fellowship]

Additional Research Experience:

11/10-09/14 Visiting Senior Research Associate, *Department of Engineering Sciences, University of Patras*, Greece

01/03- 10/04 Visiting Scholar, *Ecole Polytechnique*, Paris, France

07/99-09/99 Visitor, *CERN*, Geneva, Switzerland

06/98-09/98 Visitor, *University of Orsay*, Paris, France

09/95-09/00 Research assistant, *Northeastern University*, Boston, USA

Published Research Work:

- Publications: 22,
- Citations: 930+(810+ excluding self-cites),
- h-index: 15
- i-10 index: 18

Google Scholar:

<https://scholar.google.com/citations?hl=en&user=u6c0QE4AAAAJ>

Inspire:

http://inspirehep.net/search?ln=en&ln=en&p=f+a+fotopoulos,+a&of=hcs&action_search=Search&sf=&so=d&rm=&rg=25&sc=0

Conferences and Workshops: Attended and invited speaker (20+)

Referee for Journals and Grant proposals:

- *SIGMA* (*Symmetry, Integrability and Geometry: Methods and Applications*),
- Journal of High Energy Physics (JHEP),
- Physics Letters B (Phys. Lett. B),
- Journal of Physics A (IOP),
- De Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO)
research funding organization of Netherlands, (grant referee)

Teaching Experience:

09/19- present Assistant Professor,
Wentworth Institute of Technology Boston, MA, USA

09/14- present Lecturer-Research Affiliate
Northeastern University, Boston MA, USA

09/18-08/19 Visiting Assistant Professor, Assumption College
Worcester MA, USA

09/12 –07/14 Adjunct Professor,
National Technical University of Athens
Athens, Greece

Courses Taught

Introductory and upper level courses

- College Physics I & II with Lab, for Science Majors: a two semester course which introduces students to mechanics, electromagnetism, thermodynamics and optics.
- Engineering Physics I & II with Interactive Learning Sessions a calculus based course which focuses on mechanics, thermal physics and electromagnetism. Includes sessions designed to emphasize organized approaches and use of mathematical techniques through interactive problem solving and group assignments
- Electromagnetic Waves and Optics: junior and senior course which provides a systematic study about the physical nature of light, wave propagation, geometrical optics, polarization, the principles of interference and diffraction, and the interaction of light with anisotropic materials.
- General Physics: an introductory algebra based course designed for students who need some basic understanding of physics.
- Physics for Life Sciences (Pre-Med): an algebra-based physics class in Newtonian Mechanics, Fluid Mechanics, and Kinetic Theory and Thermodynamics.
- Space-Time and Uncertainty: General Science course for Liberal Arts Majors
- Statistics for Behavioral Science: an introduction to descriptive statistics and inferential statistics

- Thermodynamics and Statistical Physics: an one-semester calculus-based physics course discusses the laws of thermodynamics, statistical mechanics, and phase transitions.

Senior and Graduate level courses:

- Astrophysics and Cosmology: senior Undergraduate/Graduate course with emphasis to introduce students to Astronomy, Astrophysics and Cosmology.
- Quantum Field Theory I and II, Advanced undergraduate and graduate course for Physics majors
- Quantum Mechanics II undergraduate course for physics and engineering major students.

Undergraduate Research Supervisor:

- Undergraduate Advisor: Undergraduate diploma thesis "Path integral methods in Quantum Mechanics and Quantum Field Theory", P. Papachristou (NTUA)
- Research and undergraduate research supervision at NTUA, Wentworth Institute of Technology, Northeastern University and Assumption College

Other Teaching Experience:

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|-------------|--|
| 01/03-10/04 | Part-time Instructor , Imperial College London, UK |
| 09/95-09/00 | Teaching assistant, Northeastern University Boston, USA |

Additional Experience and Skills:

- Mathematics: Advanced Calculus, Probability Theory, Statistics, Time Series Analysis, Differential Equations, Differential Geometry, Topology, Complex Analysis.
- Computational software: Mathematica(intermediate), Matlab(basic), Latex(advanced), Excel (advanced including pivots and macros).
- Operating Systems: Unix, Linux, Windows, MacOS
- Computer programming: C + +, Java, Fortran, Pascal, Python(basic).
- Good knowledge of economics and finance theory, familiarity with accounting methods and practices (undergraduate coursework)
- Proficient in online teaching assistance tools: **Mastering Physics, My MathLab, Learning Catalytics and BlackBoard.**

Awards and Scholarships:

Scholarship for academic excellence (top of my class) 91-92, 92-93, 93-94, 94-95
National Foundation of Scholarships of Greece (IKY)

Member of ΦΚΦ Honor Society (May 2001). Elected based on academic excellence demonstrated during the course of the Ph.D. program at Northeastern University.

Languages:

English (fluent), French (intermediate), Italian (intermediate),
Spanish (beginner),

References

Research

Prof. Konstantinos Sfetsos
Department of Nuclear and
Particle Physics,
National University of Athens,
15771 Athens, Greece,
tel: +30 210 7276938,
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Professor Stephan Stieberger,
Max–Planck–Institut für Physik
Werner-Heisenberg-Institut,
80805 München, Germany
stephan.stieberger@mpp.mpg.de

Professor Tomasz Taylor,
Northeastern University
Physics Department,
360 Huntington Ave,
111 Dana Research Center,
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tel (617)373-2979,
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Professor Nikos Irges,
National Technical University of Athens,
School of Applied Mathematical and Physical
Sciences, Department of Physics
Zografou Campus 157 80, Athens - Greece,
tel +30 210 7722923,
irges@mail.ntua.gr

Professor Marios Petropoulos
Ecole Polytechnique
Centre de Physique Theorique
91128 Palaiseau, France
Tel: +33 1 69 33 42 15
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Teaching:

Professor George Alverson
Northeastern University
Physics Department,
360 Huntington Ave,
111 Dana Research Center,
Boston, MA 02115 ,
tel (617)373-2938
g.alverson@northeastern.edu

Professor Armen Stepanyants
Northeastern University
Physics Department,
360 Huntington Ave,
111 Dana Research Center,
Boston, MA 02115 ,
tel (617)373-2944
a.stepanyants@northeastern.edu

Professor Georgi Georgiev
Assumption College, Natural
Sciences Department,
500 Salisbury St,
Worcester MA, 01609,
tel (508) 767 7251
ggeorgiev@assumption.edu

LIST OF PUBLICATIONS

930+ citations:

http://inspirehep.net/search?ln=en&ln=en&p=f+a+fotopoulos,+a&of=hcs&action_search=Search&sf=&so=d&rm=&rg=25&sc=0

- 1) A.Fotopoulos, T.R. Taylor, "Remarks on Two-Loop Free Energy in $N=4$ Supersymmetric Yang-Mills Theory at Finite Temperature" Phys. Rev. D59 (1999) 061701, hep-th/9811224
- 2) A.Fotopoulos, "On $(a')^2$ corrections to the D-brane action for non-geodesic world-volume embeddings", JHEP 09(2001)005, hep-th/0104146
- 3) A. Fotopoulos and A.A. Tseytlin, "On gravitational couplings in the D-brane action", JHEP 0212 (2002)001, hep-th/0211101
- 4) A. Fotopoulos, " Semiclassical description of D-branes in $SL(2)/U(1)$ gauged WZW model", Class. Quant. Grav. 20, S465 (2003), hep-th/0304015
- 5) A. Fotopoulos and A.A. Tseytlin, " On open superstring partition function in inhomogeneous rolling tachyon background", JHEP 0312 (2003) 025, hep-th/0310253
- 6) A.Fotopoulos, V. Niarchos and N. Prezas, "D-branes and extended characters in $SL(2,R)/U(1)$ " , Nucl.Phys.B710:309-370,2005 [hep-th/0406017]

- 7) A.Fotopoulos, V. Niarchos and N. Prezas, "D-branes and SQCD in non-critical Superstring Theory" , JHEP 0510 (2005) 081 [hep-th/0504010]
- 8) A. Fotopoulos, K.L. Panigrahi, M. Tsulaia, "On Lagrangian formulation of Higher Spin Theories on AdS", Phys.Rev. D74 (2006) 085029 [hep-th/0607248]
- 9) I.L. Buchbinder, A. Fotopoulos, A. C. Petkou and M. Tsulaia, "Constructing the cubic interaction vertex of higher spin gauge fields" Phys. Rev. D74 (2006) 105018 [arXiv:hep-th/0609082].
- 10) A. Fotopoulos and M. Tsulaia, "Interacting Higher Spins and the High Energy Limit of the Bosonic String," Phys. Rev. D76 (2007) 025014 [arXiv:0705.2939 [hep-th]].
- 11) A.Fotopoulos, N.Irges, A.C.Petkou and M.Tsulaia, "Higher-Spin Gauge Fields Interacting with Scalars: The Lagrangian Cubic Vertex." JHEP10(2007)021 [arXiv:0708.1399 [hep-th]].
- 12) A. Fotopoulos, P. M. Petropoulos, N. Prezas and K. Sfetsos, "Holographic approach to deformations of NS5-brane distributions and exact CFTs" JHEP 0802 (2008) 087, [arXiv:0712.1912 [hep-th]], 45pp. 2007.
- 13) A. Fotopoulos and M. Tsulaia, "Gauge Invariant Lagrangians for Free and Interacting Higher Spin Fields. A Review of the BRST formulation" Int.J.Mod.Phys.A24:1-60,2009, [arXiv:0805.1346 [hep-th]].
- 14) A.Fotopoulos and M.Tsulaia, " Current Exchanges for Reducible Higher Spin Multiplets and Gauge Fixing," JHEP 0910:050,2009, [arXiv:0907.4061 [hep-th]].
- 15) A.Fotopoulos, P.M.Petropoulos, N.Prezas and K.Sfetsos, "NS5-branes, holography and CFT deformations," Fortsch. Phys. 58 (2010) 888 [arXiv:1002.4090 [hep-th]].
- 16) A.Fotopoulos and M.Tsulaia, "Current Exchanges for Reducible Higher Spin Modes on AdS," [arXiv:1007.0747 [hep-th]].
- 17) A.Fotopoulos and M.Tsulaia, "On the Tensionless Limit of String theory, Off - Shell Higher Spin

Interaction Vertices and BCFW Recursion Relations," JHEP 1011 (2010) 086 [arXiv:1009.0727 [hep-th]].

18) A.Fotopoulos and N.Prezas,
"Pomerons and BCFW recursion relations for strings on D-branes," Nucl.Phys. B845 (2011) 340-380, [arXiv:1009.3903 [hep-th]].

19) A. Fotopoulos, "BCFW construction of the Veneziano Amplitude," J.Phys.A A44 (2011) 235402 [arXiv:1010.6265 [hep-th]].

20) Wei Fan, A. Fotopoulos, S. Stieberger, T.R. Taylor, "SV-map between Type I and Heterotic Sigma Models" Nov 15, 2017. 28 pp.
Nuc. Phys B930 (2018) 195 [e-Print: arXiv:1711.05821 [hep-th]].

21) Wei Fan, A. Fotopoulos, T.R. Taylor, "Soft Limits of Yang-Mills Amplitudes and Conformal Correlators", March 5 2019, JHEP05 (2019) 121 [e-print: arXiv:1903.01676]

22) A. Fotopoulos, T.R. Taylor, "Primary Fields in Celestial CFT", June 24 2019, 9pp. [e-print arXiv:1906.10149]

23) B. Zhu, A. Fotopoulos, S. Stieberger, T.R. Taylor, "BMS Algebra from Soft and Collinear Limits", to appear 11-2019

24) A. Fotopoulos and W. Fan, "Comments on the SV-map between Type I And Heterotic string sigma models", to appear 11-2019

Schools and Conferences (partial list):

03/98 Pascos '98 Particles Strings and Cosmology Northeastern University, Boston

07/98 Cargese '98 Gauge Hierarchy and the Mass problem Cargese, Corsica, France

09/02 RTN workshop 2002: "The quantum structure of spacetime and the geometric nature of fundamental interactions", Leuven, Belgium (**Invited Speaker, Proceedings**)

06/03 Mideast 2003, Second Crete Regional Meeting in String Theory, Crete, Greece

09/03 RTN workshop 2003: "The quantum structure of spacetime and the geometric nature of fundamental interactions", Copenhagen, Denmark

01/04 RTN workshop 2004: "The quantum structure of spacetime and the geometric nature of fundamental interactions", Barcelona, Spain

07/04 The Onassis Foundation Science Lecture Series: "Fields and Strings" Heraklion, Greece

09/04 RTN workshop 2004: "The quantum structure of spacetime and the geometric nature of fundamental interactions", Kolymbari, Greece

08/05 Mideast 2005: "Third Crete Regional Meeting in String Theory", Kolymbari, Greece

10/06 RTN Workshop "Constituents, Fundamental Forces and Symmetries of the Universe" 2nd Workshop and Midterm Meeting, Napoli, Italy, October 9-13, 2006

01/07 RTN Winter School on Strings, Supergravity and Gauge Theories CERN, January 15 - January 19, 2007

05/07 **Invited talk** at University of Torino, Torino Italy

06/07 Mideast 2007: "Fourth Regional Meeting in String Theory", Patras, Greece

10/07 RTN Workshop "Constituents, Fundamental Forces and Symmetries of the Universe", Valencia, Spain October 1-5, 2007

01/08 RTN Winter School on Strings, Supergravity and Gauge Theories, on Jan 21-25, 2008

06/08 Theories of the fundamental forces, Villa Mondragone, Frascati, Italy, June 26-28 2008

10/09 Superfields first Joint Seminar, Scuola Normale Superiore, Pisa, Italy, 23 October 2009

09/2009 Elementary particle physics and gravity. **Proceedings**, Corfu Summer Institute, August 30-September 13, 2009

12/09 Superfields second Joint Seminar, Dipartimento di Fisica, Padova, Italy, 16 December 2009

01/10 CERN Winter School on Supergravity, Strings and Gauge Theories, CERN, Geneva, Switzerland, January 25-29 2010

06/10 Integrable systems and quantum symmetries 2010, Technical Univeristy of Prague, Prague, Czech Republic, June 17-19 2010 (**Invited Speaker, Proceedings**)

10/10 **Invited talk** at Pisa Scuola Superiore, Pisa Italy

05/11 **Invited talk** at Department of Engineering Sciences, University of Patras, Greece

03/19 **Invited talk** at Department of Applied Sciences, Assumption College, Worcester, USA