

Curriculum Vitae

Yevgeny Kats

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Interests Collider physics; particle physics beyond the Standard Model; cosmology; applications of the AdS/CFT correspondence.

Education

2010 **Ph.D. in Physics**, Harvard University
(expected) Advisors: Nima Arkani-Hamed and Howard Georgi

Awards and recognitions:

- Harvard University Certificate of Distinction in Teaching (Spring 2006, Fall 2006, Fall 2007)
- White Prize for Excellence in Teaching, Harvard Physics Department (2006, 2007)
- A.M. in Physics (June 2007)

Conferences and schools:

- SidneyFest: QFT & QCD: Past, Present and Future (Harvard University, 2005)
- School on Particle Physics, Gravity and Cosmology (Dubrovnik, 2006)
- Prospects in Theoretical Physics (PiTP): The Standard Model and Beyond (Princeton IAS, 2007)
- Young Researchers Conference (Perimeter Institute, 2008)
- Beyond the Standard Model Physics and LHC Signatures (Northeastern University, 2009)
- SUSY09 (Northeastern University, 2009)
- Strings 2009 (Rome, 2009)

2004 **M. Sc. in Physics (Summa Cum Laude)**, Bar-Ilan University, Israel
Thesis: "Extraordinary Hall effect in SrRuO₃" (Advisor: Lior Klein)

Awards and recognitions:

- Wolf Foundation scholarship (2002)
- Prize for Excellence in Research from the Physics Department (2002)
- Dean's Prize for Excellent Research Students (2004)

Conferences:

- Strongly Correlated Electron Systems (SCES2001) (Ann Arbor, 2001)
- 49th meeting of the Israel Physical Society (IPS2003) (Bar-Ilan University, 2003)
- Transport and Magnetism: From the Thermodynamic Limit to the Nano Scale (Eilat, 2004)

2001 **B. Sc. in Physics and Computer Science (Summa Cum Laude)**, Bar-Ilan University, Israel

Awards and recognitions:

- Merit-based full scholarship from the Physics Department for the 1st year of studies (1999)
- Prize for Excellence in Studies from the Physics Department (1999, 2000, 2001)
- Dean's List of Honors (1999, 2000, 2001)
- Rector's Prize (1999)
- Mark of Distinction from the Knesset (1999, 2000)
- 2nd prize in posters competition for Physics research students (2000)
- Wolf Foundation scholarship (2001)
- 2nd prize in Bar-Ilan University Competition in Mathematics (2001)

1998 **Handesaim high school** (Tel Aviv University Technical College)

and **HEMDA** (Center for Science Education, Tel-Aviv)

- Majors: Mathematics, Physics, Chemistry, Technological Sciences, English.
- Final project in Technological Sciences: analysis of the patient database of the ERA-EDTA Medical Association using statistical methods and neural networks. Presented at the ERA-EDTA Congress in Geneva (Advisor: Shalom Mendel)
- 3rd place in 17th Mathematics Tournament of Towns (1995-1996)
- Final stage of the Israeli National Physics Olympiad (1996-1997, 1997-1998)
- Member of the Israeli team to the 29th International Physics Olympiad (1998)

Computing skills

- Mathematical software: MATLAB, Mathematica.
- Programming languages: BASIC, Pascal, Delphi, C, C++, etc.
- Particle physics tools: PYTHIA8, ROOT, etc.

Teaching experience

Teaching Fellow at Harvard University:

Physics 1a (Harvard Summer School): Principles of Physics

Summer 2005 and Summer 2006 | Lecturer: John Wills

Physics 15b: Introductory Electromagnetism

Spring 2006 | Lecturers: Nima Arkani-Hamed and Markus Greiner
awarded Certificate of Distinction in Teaching

Physics 16: Mechanics and Special Relativity

Fall 2005 and Fall 2007 | Lecturer: Howard Georgi
awarded Certificate of Distinction in Teaching in Fall 2007

Physics 151: Mechanics

Fall 2006 | Lecturer: Arthur Jaffe

awarded Certificate of Distinction in Teaching

Physics 253c: Quantum Field Theory III

Spring 2008 | Lecturer: Howard Georgi

Other experience

- Trained groups of students for the Israeli and International Physics Olympiads (theory and laboratory): sporadically during 1998-2000, in the following places:
 1. Physics Olympiad Summer Camp, Technion
 2. HEMDA – Center for Science Education, Tel-Aviv
 3. Bar-Ilan University
- Military service in Israel – work in industry (2001-2004):
 - Development of algorithms.
 - Simulations of algorithms feasibility.
 - Software testing: definition of tests, participation in tests, supervision.
- Assistant for a blind student in the following courses at Harvard:
 - Physics 283b: Beyond the Standard Model (Fall 2006 | Lecturer: Nima Arkani-Hamed)
 - Physics 253c: Quantum Field Theory III (Spring 2008 | Lecturer: Howard Georgi)and at MIT:
 - 8.325: Relativistic Quantum Field Theory III (Spring 2007 | Lecturer: Iain Stewart)
 - 8.831J: Supersymmetric Quantum Field Theories (Spring 2007 | Lecturer: Dan Freedman).

Miscellaneous

- Referee for the Journal of Mathematical Physics
- (Post) Doctoral Advisory Board: The Harvard Undergraduate Research Journal (THURJ)

List of Publications

Theoretical

Frenet algorithm for simulations of fluctuating continuous elastic filaments

Yevgeny Kats, David A. Kessler, and Yitzhak Rabin
Phys. Rev. E **65** (2002) 020801(R) [arXiv:cond-mat/0108038]

Higher-order corrections to mass-charge relation of extremal black holes

Yevgeny Kats, Lubos Motl, and Megha Padi
JHEP **12** (2007) 068 [arXiv:hep-th/0606100]

Effect of curvature squared corrections in AdS on the viscosity of the dual gauge theory

Yevgeny Kats and Pavel Petrov
JHEP **01** (2009) 044 [arXiv:0712.0743 [hep-th]]

Unparticle example in 2D

Howard Georgi and Yevgeny Kats
Phys. Rev. Lett. **101** (2008) 131603 [arXiv:0805.3953 [hep-ph]]

Unparticle self-interactions

Howard Georgi and Yevgeny Kats
arXiv:0904.1962 [hep-ph]

Experimental (past):

Domain wall resistivity in SrRuO₃

L. Klein, Y. Kats, A. F. Marshall, J. W. Reiner, T. H. Geballe, M. R. Beasley, and A. Kapitulnik
Phys. Rev. Lett. **84**, 6090 (2000) [arXiv:cond-mat/9912404]

Magnetic resistivity in SrRuO₃ and the ferromagnetic phase transition

Y. Kats, L. Klein, J. W. Reiner, T. H. Geballe, M. R. Beasley, and A. Kapitulnik
Phys. Rev. B **63**, 054435 (2001)

Negative deviations from Matthiessen's rule in SrRuO₃ and CaRuO₃

L. Klein, Y. Kats, N. Wisner, M. Konczykowski, J. W. Reiner, T. H. Geballe, M. R. Beasley, and A. Kapitulnik
Europhys. Lett. **55**, 532 (2001) [arXiv:cond-mat/0011376]

Testing the Berry phase model for extraordinary Hall effect in SrRuO₃

Y. Kats, I. Genish, L. Klein, J. W. Reiner, and M. R. Beasley
Phys. Rev. B **70**, 180407(R) (2004) [arXiv:cond-mat/0405645]

Large anisotropy in the paramagnetic susceptibility of SrRuO₃ films

Y. Kats, I. Genish, L. Klein, J. W. Reiner, and M. R. Beasley
Phys. Rev. B **71**, 100403(R) (2005) [arXiv:cond-mat/0311341]