

Yuri Gershtein

Curriculum Vitae

Education

Ph.D., Institute for Theoretical and Experimental Physics, Moscow. Thesis: "A Study of $\bar{B}^0 \rightarrow D^{*-} \ell^+ \nu$ and $B^0 - \bar{B}^0$ Mixing Using Partial D^{*-} reconstruction", 1996. *Advisor: M. Danilov*
B.Sc., Moscow Institute for Physics and Technology, 1992

Fellowships and Awards

Rutgers University Trustees Award for Excellence in Research, 2014
LPC Fellow, 2012
NSF CAREER Award, 2010
DOE Outstanding Junior Investigator, 2006
Alikhanov's Fellowship, 1998

Positions Held

2015 – current Professor of Physics at Rutgers University, Piscataway NJ
2010 – 2015 Associate Professor of Physics at Rutgers University, Piscataway NJ
2008 – 2010 Assistant Professor of Physics at Rutgers University, Piscataway NJ
2004 – 2008 Assistant Professor of Physics at Florida State University, Tallahassee, FL
1999 – 2004 Research Associate at Brown University, Providence, RI
1996 - 1999 Research Scientist at Institute for Theoretical and Experimental Physics, Moscow, Russia.
1991 - 1995 Research Assistant at Institute for Theoretical and Experimental Physics, Moscow, Russia.

Experiments

2004 – present CMS Experiment. Searches for / discovery of the Higgs boson; searches for physics beyond the Standard Model; HL-LHC Upgrades, photon reconstruction and identification, calorimeter test beam studies.
1997 – present DØ Experiment. Searches for physics beyond the Standard Model, photon and τ -lepton reconstruction and identification, track triggers, silicon detector assembly, muon scintillation counters design and production.
1994 – 1997 CMS Experiment. Quartz Fiber Čerenkov calorimeter development and beam tests, case studies for Higgs discovery strategy, especially in WW and $\tau\tau$ decay modes
1994 HERA-B Experiment. Rare τ decays
1993 GEM Experiment. Muon system alignment.
1991 – 1999 ARGUS Experiment. Semileptonic B decays, $B^0 - \bar{B}^0$ mixing, D^0 decays.

Service And Leadership positions

2013 - 2015 Co-convener of CMS SUSY Photon subgroup
2012 - 2014 DPF Executive committee member (elected post)
2012 - 2013 Co-convener of the Snowmass-2013 New Particles subgroup
2009 – 2013 US CMS Physics Liaison (elected post)
2009 – 2010 Coordinator of the “High pT photon” group in CMS Exotica PAG
2008 – 2009 Convener of the Photon+X Signature Group at the Fermilab’s LPC
2006 – 2007 Convener of the DØ New Phenomena group
2004 – 2007 Head of the Electron-Photon Group at the LHC Physics Center at FNAL.
2003 – 2004 Convener of the DØ Common Samples Group
2000 – 2003 Convener of the DØ Tau ID group
1999 – 2000 Manager of the Silicon Barrel assembly project for the DØ Upgrade

Invited Talks

“SUSY & Naturalness in Run 2 and beyond”, **GGI**, October 2015
“Not-quite mainstream Run 2 Physics”, **NPKI**, September 2015
“Overview of recent BSM results from ATLAS and CMS” - **PHENO2014**, May 2014
“Higgs search in di-photons” – **LHC@BNL After Discovery workshop**, October 2012
“Higgs search in di-photons” – **Aspen workshop**, 2012
“Higgs search in di-photons” – **TeraHiggs workshop**, University of Oregon, 2012
“Cool non-standard searches” - **LHC New Physics Forum** Heidelberg, 2011
“Search for the Higgs at CMS” - **Higgs @ Tevatron and LHC**, Washington, 2011
“Non-SUSY Searches”, **Recontres de Blois**, 2010
“Early CMS results and techniques”, **LHC 0.5**, Washington, 2010
“Hidden Valley Searches at DZero” –**SLAC “Dark Forces” Workshop**, September 2009
“Searched for Hidden Valleys with Photons” –**SUSY09**, May 2009
“Searches for New Physics at CMS and ATLAS” – **Invited talk at the APS April Meeting**, Denver, CO, May 2009
“Tevatron Searches for Higgs Boson and Supersymmetry” – **SLAC Summer Institute**, August 2008
“Searches for Gauge-Mediated Supersymmetry” - **SUSY07**, June 2007
“Searches for Supersymmetry” - **SUSY06**, June 2006

Colloquia

UIC (2015), Rutgers (2014, 2012), New York University (Fall 2010), University of Oklahoma (Spring 2010), Rice University (Fall 2009), SUNY Buffalo (Fall 2009), Washington University of St Louis (Fall 2008), University of Virginia (Spring 2006)

Recent Seminars

Cornell (2015), Kansas State (2015), Fermilab (2014), New York U (2013), Yale (2012), University of Maryland (2012), IHEP- Protvino (2012), Boston U (2012), Florida State (2012), Massachusetts Amhurst (2010), Oklahoma (2010), Stony Brook (2009), Caltech (2008), Harvard (2007), Fermilab (2007), Rochester (2007), Illinois at Urbana-Champaign (2006), Maryland (2006), ITEP, Moscow (2007)

Conference & workshop organization

- Org. committee member for the Winter Aspen HEP conference (2017)
- Organizer of “Preparing for the High Luminosity Run of the LHC” workshop at Perimeter Institute
- Advisor of KITP-2013 Summer Conference “Exploring TeV Scale New Physics with LHC Data”
- Org. committee member for SUSY at the LHC, BNL, 2012
- Org. Committee member for Aspen Summer workshop 2012
- Organized the 2008 Aspen Winter Conference on High Energy Physics “Revealing the Nature of the Electroweak Symmetry Breaking”
- Organized the Mini-Workshop “Exploring New Phenomena at the Tevatron”

Teaching

Physics 386 (Electromagnetism-II) - Spring 2014, 15, 16
Physics 385 (Electromagnetism-I) - Fall 2013, 14, 15
Physics 418 (Nuclei and Particles) – Spring 2010, 2011
Physics 271 (intro physics, honors) – Fall 2009, 2010, 2011
Physics 204 (intro physics, non-science majors) – Spring 2009
Astronomy 1020 (non-science majors) – Spring 2008, Fall 2007
Physics 2041/2042 (intro physics, science/engineering majors) Spring 2007, Fall 2006, Spring 2006, Fall 2005

Post-docs

Kevin Nash (2015-)
Vladimir Rekovic (2012-2014)
Oleksiy Atramentov (2006-2011)
Andrew Askew (2005-2009)

PhD Students

Savvas Kyriacou (expected 2017)
Anthony Barker (2015)
Rishi Patel (2014)
Edgar Carrera (2008)

External Funding

URA Visiting Scholar Program at Fermilab, PI, URA (2014)

“Experimental Research in Elementary Particle Physics”, co-PI (one of five), NSF award #1306801 (2013-2016)

“LPC Fellowship”, PI, DOE/Fermilab, (2012)

“CAREER: Physics with CMS Detector”, PI, NSF award number #0952482, (2010-2014)

“Experimental Research in Elementary Particle Physics”, co-PI (one of five), NSF award #0969282 (2010-2013)

“Research in Experimental High Energy Physics”, PI, NSF award #0855019 (2009)

Outstanding Junior Investigator Award: “Recovering EM energy resolution in CMS”, DOE, PI, (2006-2008)

“High Energy Physics at FSU”, co-PI (one of seven), DOE (2005-2008)

Papers with significant personal involvement *in approximate inverse chronological order*

“Search for stealth supersymmetry in events with jets, either photons or leptons, and low missing transverse momentum in pp collisions at 8 TeV,” Phys.Lett. B743 (2015) 503–525, arXiv:1411.7255 [hep-ex]

Searches for electroweak production of charginos, neutralinos, and sleptons decaying to leptons and W, Z, and Higgs bosons in pp collisions at 8 TeV,” Eur.Phys.J. C74 no. 9, (2014) 3036, arXiv:1405.7570 [hep-ex]

“Observation of the diphoton decay of the Higgs boson and measurement of its properties” Eur. Phys. J. C74 no. 10, (2014) 3076, CMS-HIG-13-001, [arXiv:1407.0558](https://arxiv.org/abs/1407.0558),

“Measurement of the W gamma and Z gamma inclusive cross sections in pp collisions at $\sqrt{s} = 7$ TeV” [Phys. Rev. D 89 \(2014\) 092005](https://arxiv.org/abs/1409.2005)

“Search for top squark and higgsino production using diphoton Higgs boson decays,” Phys.Rev.Lett. 112 (2014) 161802, arXiv:1312.3310 [hep-ex]

“New Particles Working Group Report of the Snowmass 2013 Community Summer Study”, arXiv:1311.0299

“Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC” [CMS experiment] Phys.Lett. B716 (2012) 30-61

“A search using multivariate techniques for a standard model Higgs boson decaying into two photons” [CMS experiment] CMS-HIG-12-001

“Search for supersymmetry in events with photons and missing energy”, [CMS experiment] CMS-SUS-12-001, JHEP 1303 (2013) 111

“Search for the fermiophobic model Higgs boson decaying into two photons”, [CMS experiment] CMS-HIG-12-002, JHEP 1209 (2012) 111

“Search for new physics with long-lived particles decaying to photons and missing energy” [CMS experiment] CMS-EXO-11-067, JHEP11(2012)172

“Search for the standard model Higgs boson in the decay channel H to two photons in pp collisions at $\sqrt{s} = 7$ TeV” [CMS Experiment] CMS-HIG-11-033, arXiv:1202.1997

“Search for Supersymmetry in events with a lepton, photon and large missing transverse energy” [CMS Experiment] CERN-PH-EP-2011-058, JHEP 1106:093 (2011)

“Search for Supersymmetry in pp Collisions at $s = 7$ TeV in Events with Two Photons and Missing Transverse Energy” [CMS Experiment] arXiv:1103.0953, Phys. Rev. Lett. 106, 211802 (2011)

“Search for events with leptonic jets and missing transverse energy in p-pbar collisions at $\sqrt{s} = 1.96$ TeV”, [D0 Experiment] Phys. Rev. Lett. 105, 211802 (2010)

“Search for quirks at the Fermilab Tevatron Collider”, [D0 Experiment], Phys. Rev. Lett. 105, 211803 (2010)

“Measurement of the Z gamma \rightarrow nu anti-nu gamma cross section and limits on anomalous Z Z gamma and Z gamma gamma couplings in p anti-p collisions at $s^{1/2} = 1.96$ -TeV”, V. M. Abazov et al. [D0 Experiment], Phys. Rev. Lett. 102, 201802-1 – 201802-7 (2009).

“The CMS barrel calorimeter response to particle beams from 2-GeV/c to 350-GeV/c”, S. Abdullin et al. [USCMS Experiment and ECAL/HCAL Experiment], Eur. Phys. J. C 60, 359-373 (2009).

“Search for Large extra spatial dimensions in the dielectron and diphoton channels in p anti-p collisions at $s^{1/2} = 1.96$ -TeV”, V. M. Abazov et al. [D0 Experiment], Phys. Rev. Lett. 102, 051601-1 – 051601-7 (2009).

“Discovering hidden sectors with mono-photon Z-prime searches”, Y. Gershtein, F. Petriello, S. Quackenbush and K. M. Zurek, Phys. Rev. D 78, 095002-1 – 095002-13 (2008).

“Search for scalar leptoquarks and T-odd quarks in the acoplanar jet topology using 2.5 fb^{-1} of p anti-p collision data at $s^{1/2} = 1.96\text{-TeV}$ ”, V. M. Abazov et al. [D0 Experiment], Phys. Lett. B 668, 357-363 (2008) .

“Measurement of the electron charge asymmetry in p anti-p \rightarrow W + X \rightarrow e nu + X events at $s^{1/2} = 1.96\text{-TeV}$ ”, V. M. Abazov et al. [D0 Experiment], Phys. Rev. Lett. 101, 211801-1 – 211801-7 (2008).

“Search for long-lived particles decaying into electron or photon pairs with the D0 Detector”, V. M. Abazov et al. [D0 Experiment], Phys. Rev. Lett. 101, 111802-1 – 111802-7 (2008).

“First study of the radiation-amplitude zero in W gamma production and limits on anomalous WW gamma couplings at $s^{1/2} = 1.96\text{-TeV}$ ”, V. M. Abazov et al. [D0 Experiment], Phys. Rev. Lett. 100, 241805-1 - 241805-7 (2008)

“Search for decay of a fermiophobic Higgs boson $h(f) \rightarrow \gamma \gamma$ with the D0 detector at $s^{1/2} = 1.96\text{-TeV}$ ”, V. M. Abazov et al. [D0 Experiment], Phys. Rev. Lett. 101, 051801-1 – 051801-7 (2008).

“Search for large extra dimensions via single photon plus missing energy final states at $s^{1/2} = 1.96\text{-TeV}$ ”, V. M. Abazov et al. [D0 Experiment], Phys. Rev. Lett. 101, 011601-1 – 011601-7 (2008).

“Search for supersymmetry in di-photon final states at $s^{1/2} = 1.96\text{-TeV}$ ”, V. M. Abazov et al. [D0 Experiment], Phys. Lett. B 659, 856-863 (2008).

“First measurement of $\sigma(p \text{ anti-p} \rightarrow Z) \cdot \text{Br}(Z \rightarrow \tau \tau)$ at $s^{1/2} = 1.96\text{-TeV}$ ”, V. M. Abazov et al. [D0 Experiment], Phys. Rev. D 71, 072004-1 - 072004-7 (2005). *ibid.* D 77, 039901 (2008).

“Search for supersymmetry with gauge-mediated breaking in diphoton events at D0”, V. M. Abazov et al. [D0 Experiment], Phys. Rev. Lett. 94, 041801-1 - 041801-7 (2005). [arXiv:hep-ex/0408146].

“The Muon system of the run II D0 detector”, V. M. Abazov et al., Nucl. Instrum. Meth. A 552, 372-398 (2005).

“On the differences between high-energy proton and pion showers and their signals in a non-compensating calorimeter”, N. Akchurin et al., Nucl. Instrum. Meth. A 408, 380-396 (1998).

“Test beam results of CMS quartz fibre calorimeter prototype and simulation of response to high-energy hadron jets”, N. Akchurin et al., Nucl. Instrum. Meth. A 409, 593-597 (1998).

“Beam test results from a fine-sampling quartz fiber calorimeter for electron, photon and hadron detection”, N. Akchurin et al., Nucl. Instrum. Meth. A 399, 202-226 (1997).

“Test beam of a quartz-fibre calorimeter prototype with a passive front section”, N.

Akchurin et al., Nucl. Instrum. Meth. A 400, 267-278 (1997).

“Physics with ARGUS”, H. Albrecht et al. [ARGUS Experiment], Phys. Rept. 276, 223-405 (1996).

“ Measurement of the semileptonic branching fractions of the D^0 meson”,
H. Albrecht et al. [ARGUS Experiment], Phys. Lett. B 374, 249-255 (1996).

“Measurement of the absolute branching fractions for D^0 decays into $K^- \pi^+$, $K^+ \pi^+ \pi^-$,
 $\bar{K}^0 \pi^+ \pi^-$ “, H. Albrecht et al. [ARGUS Experiment], Phys. Lett. B 340, 125-
128(1996).

“A Study of $\bar{B}^0 \rightarrow D^{*+} \text{lepton}^- \bar{\nu}$ and B^0 anti- B^0 mixing using
partial D^{*+} reconstruction”, H. Albrecht et al. [ARGUS Experiment], Phys. Lett.
B 324, 249-254 (1994).