

# Jason A. Kamin

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CONTACT INFORMATION	CERN - Building 6 R-015 CH-1211 Genève 23, Switzerland	phone, CH: +41 78-72-414-75 phone, US: +1 (412) 414-7167
CITIZENSHIP	USA	
CURRENT EMPLOYMENT	<b>University of Illinois at Chicago</b> , Chicago, IL, USA <i>Postdoctoral Research Associate (stationed at CERN)</i> ◦ Experimental Nuclear Particle Physicist for the CMS experiment at CERN. Investigating heavy flavor production in p+p, p+Pb, and Pb+Pb collisions in the Large Hadron Collider (LHC). ◦ Member of the heavy ion physics working group.	April 2015 to present
EDUCATION	<b>Stony Brook University</b> , Stony Brook, NY USA <i>Ph.D., Experimental Nuclear Physics</i> ◦ <i>A Search for Charm and Beauty in a Very Strange World</i> Dielectron Mass and $p_T$ Spectra in d+Au Collisions in PHENIX at RHIC. <i>M.A., Physics and Astronomy</i> <b>Hampshire College</b> , Amherst, MA USA <i>B.A., Physics and Astronomy</i> ◦ Senior Thesis: <i>Performance Studies of Serial and Parallel Gas Distribution Systems in Monitored Drift Tube Chambers for the ATLAS detector at LHC, CERN</i>	September 2012 7 Aug 2012  December 2006  May 2004
TEACHING EXPERIENCE	<b>CERN</b> , Genève, Switzerland <i>Summer Student Supervisor</i> ◦ Advisee: Alena Loesle - <i>Material Budget Estimation Using Zero-Field Data</i> ◦ Advisee: Miguel Campos - <i>Fast-MC development for PHOS and EMCal at ALICE</i> ◦ Advisee: Malte Hecker - <i>Neutral pion reconstruction w/ full efficiency calc. in PHOS</i> <i>PhD Student Mentor</i> ◦ Advisee: Haitao Zhang - <i>Neutral pion invariant yield in the EMCal, pp (<math>\pi^0 \rightarrow \gamma\gamma</math>)</i> ◦ Advisee: Hongsheng Zhu - <i>Neutral pion invariant yield in the PHOS, p-Pb (<math>\pi^0 \rightarrow \gamma\gamma</math>)</i> <b>Helmholtz Research School</b> , Frankfurt, Germany <i>Instructor/Lecturer</i> ◦ Lecture-week for 1 <sup>st</sup> and 2 <sup>nd</sup> year graduates students in Bosau, Germany. ◦ Organized and implemeted daily lectures (Intro to Experimental Research). ◦ Designed and instructed hands-on daily research activities. <b>Stony Brook University</b> , Stony Brook, NY USA <i>Master's Student Supervisor</i> ◦ Advisee: Morgan Lynch - <i>Systematic uncertainty calculations for dilepton measurements</i> <i>Teaching Assistant</i> ◦ Physics 121/122 - Undergraduate Physics Laboratory. <i>REU Summer Student Supervisor</i> ◦ Rebuild/upgrade of Hadron Blind Detector for PHENIX. ◦ CsI photocathode production and quantum efficiency testing facility. ◦ Technique development for thin-film CsI evaporation. ◦ Fast-MC implementation for PHENIX. <b>Hampshire College</b> , Amherst, MA USA <i>Teaching Assistant - Hampshire College</i> ◦ Physics 1 & 2 - Undergraduate Physics and Laboratory. ◦ Physics of Musical Acoustics.	2013-2014    2013-2015  2012  2011-2012 August 2004 to June 2005 2004, 2005, 2006, 2007  2002 to 2003

RESEARCH  
EXPERIENCE

**Goethe Universität Frankfurt AM Main, Frankfurt, Germany**

*Postdoctoral Research Associate (stationed at CERN)*

*Oct 2012 to April 2015*

- Convenor for EMCAL Neutral Meson Working Group.
- $\pi^0$  spectral analysis in  $p+p$  and  $p+Pb$  collisions.  
Investigating “cold” nuclear matter baseline for neutral pion production at unprecedented LHC energies. Pion data from both  $p+p$  and  $p+Pb$  collisions are vital as fundamental baselines for direct photon, dilepton, and other measurements.
- Energy calibrations for the electromagnetic calorimeter in ALICE.  
Overall calorimeter energy calibration based on test-beam data, GEANT3 monte carlo simulations, and real data.
- Member in good standing of ALICE Collaboration

**Stony Brook University, Stony Brook, NY USA**

*Research Assistant with PHENIX*

*May 2005 to Sept 2012*

- Invariant mass spectra of  $e^+e^-$  pairs in  $p+p$  and  $d+Au$  collisions.  
Established the crucial “cold” nuclear matter baseline for observed heavy ion phenomena in the dielectron mass spectrum from the Quark-Gluon Plasma. Pioneered a measurement of the charm ( $\sigma_{cc}$ ) and beauty ( $\sigma_{bb}$ ) cross-sections for inelastic  $d+Au$  collisions utilizing next-to-leading order pQCD calculations.
- Design, construction and commissioning of the Hadron Blind Detector.  
4.5 years experience with all aspects of GEM cleaning, testing and assembly including clean room and ultra-dry glovebox techniques, high-vacuum chambers, crystal deposition, gas systems and high voltage operation including automation software development.
- Member in good standing of PHENIX Collaboration

*Research Experience for Undergraduates,*

*NSF Physics Summer Program*

*2003*

- Investigation of the Cronin Effect in relativistic heavy ion collisions at RHIC  
The magnitude of the Cronin Effect, an empirical  $p_T$  dependent particle suppression in heavy ion collisions, is observed to exhibit a mass ordering. This project attempted to explain the phenomenon with a simple picture of relativistic kinematics.

**Laboratori Nazionali di Frascati, Frascati, Italia**

*DOE-NSF/INFN Fellowship*

*Aug 2003 to Nov 2003*

- Test beam data analysis for the muon spectrometer in the ATLAS detector at the LHC at CERN
- Supervisor - Dr. Bellisario Esposito

OUTREACH

**CERN/Fermilab Summer School Discussion Leader**

*Moderated post-lecture discussion/Q&A sessions for heavy ions*

*2015*

**Official ALICE Tour Guide**

*Lead public tours of the ALICE detector and underground cavern facility*

*2013 to 2015*

**International Masterclass Moderator**

*Moderate video-conferencing for high school students analyzing LHC data*

*2014 to present*

**Private Physics Tutoring, Long Island, NY USA**

*Physics Tutor - high school through undergraduate level*

*2006 to 2010*

**High School Science Fair Judge**

*Long Island Science and Engineering Fair - Physics/Space*

*2008*

PUBLICATIONS  
AS LEADING  
AUTHOR/  
CONTRIBUTOR

1. **Neutral pion production at high- $p_T$  in pp collisions at  $\sqrt{s_{NN}} = 2.76$  TeV**  
B. Abelev *et al.* [ALICE Collaboration] *in preparation for Phys.Rev.D* 2016
2. **Neutral pion production at midrapidity in pp and Pb-Pb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV**  
B. Abelev *et al.* [ALICE Collaboration] *Eur.Phys.J C*, 74:3108 2014
3. **Performance of the ALICE Experiment at the CERN LHC**  
B. Abelev *et al.* [ALICE Collaboration] *Int.J.Mod.Phys. A29*, 1430044 2014
4. **The Cross Section for  $b\bar{b}$  Production in  $d+Au$  Collisions at  $\sqrt{s_{NN}} = 200$  GeV**  
A. Adare *et al.* [PHENIX Collaboration] *Phys.Rev.C91:014907* 2015
5. **Nuclear modification of  $\psi'$ ,  $\chi_{c\prime}$  and  $J/\psi$  production in  $d+Au$  collisions at  $\sqrt{s_{NN}} = 200$  GeV**  
A. Adare *et al.* [PHENIX Collaboration] *Phys.Rev.Lett.111:202301* 2013
6. **Direct photon production in  $d+Au$  collisions at  $\sqrt{s_{NN}} = 200$  GeV**  
A. Adare *et al.* [PHENIX Collaboration] *Phys.Rev.C87:054907* 2013
7. **Design, Construction, Operation and Performance of a Hadron Blind Detector for the PHENIX Experiment**  
W. Anderson *et al.* *NIM A, Vol 646.1* 2011
8. **Detailed measurement of the  $e^+e^-$  pair continuum in  $p+p$  and Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV and implications for direct photon production**  
A. Adare *et al.* [PHENIX Collaboration] *Phys.Rev.C81:034911* 2010
9. **Enhanced production of direct photons in Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV and implications for the initial temperature**  
A. Adare *et al.* [PHENIX Collaboration] *Phys.Rev.Lett.104:132301* 2010
10. **Dilepton mass spectra in  $p+p$  collisions at  $\sqrt{s} = 200$  GeV and the contribution from open charm**  
A. Adare *et al.* [PHENIX Collaboration] *Phys.Lett.B670:313-320* 2009

As member of PHENIX Collaboration, 70 publications.

As member of ALICE Collaboration, 30 publications.

CONFERENCE  
PROCEEDINGS

10. **Hot and Cold Nuclear Effects in p-Pb Collisions at the LHC**  
Jason A. Kamin *Eur.Phys.J.95:03018* 2015
11. **Characterizing cold nuclear matter effects through dielectrons in  $d + Au$  collisions at  $\sqrt{s} = 200$  GeV at PHENIX**  
J. Kamin *et al.* *J.Phys.G38:124181,2011.* 2011
12. **A Hadron Blind Detector for the PHENIX experiment at RHIC**  
Jason A. Kamin for the PHENIX Collaboration *Eur.Phys.J.C49:177-180* 2007

INVITED  
COLLOQUIA/  
SEMINARS/  
PUBLIC TALKS

1. **Southern Methodist University Physics Seminar** Dallas, Texas, USA - Oct 2015  
*Quarkonia in Heavy Ions*
2. **QCD@LHC 2015** London, UK - Sept 2015  
*Quarkonia Results in Heavy Ions from CMS*
3. **International Conference on New Frontiers in Physics** Kolymbari, GR - Aug 2014  
*Hot and Cold Nuclear Matter Effects in p-Pb Collisions at the LHC*
4. **Nuclear Physics Colloquium** Goethe-Universität Frankfurt, DE - June 2013  
*Dileptons at RHIC*
5. **Heavy Quark Production** Utrecht, NL - Nov 2012  
*Heavy Flavor Dileptons at PHENIX*
6. **Quark Matter '11** Annecy, FR - May 2011  
*Characterizing Cold Nuclear Matter Effects Through Dielectrons in  
d + Au Collisions at PHENIX*
7. **ECT\* - EM Probes of Strongly Interacting Matter** Trento, IT - Sept 2010  
*Photons and Dileptons from RHIC*
8. **ECT\* - EM Probes of Strongly Interacting Matter** Trento, IT - Sept 2010  
*Hadron Blind Detector: Upgrade to the PHENIX Dielectron Program*
9. **RIKEN BNL Research Center Workshop** Ridge, New York, USA - May 2010  
*Photons and Dileptons: What Have We Learned at RHIC?*
10. **APS - April Meeting** Washington, DC, USA - Feb 2010  
*Characterizing Cold Nuclear Matter Effects Through Dielectrons in  
d + Au Collisions at PHENIX*
11. **APS - DNP '09** Waikoloa Village, Hawaii, USA - Oct 2009  
*Characterizing Cold Nuclear Matter Effects Through Dielectrons in  
d + Au Collisions at PHENIX*
12. **Quark Matter '09 (poster)** Knoxville, Tennessee, USA - Apr 2009  
*Dielectron Continuum in p + p Collisions at  $\sqrt{s} = 200\text{GeV}$  measured by PHENIX at RHIC*
13. **APS - DNP '08** Oakland, California, USA - Oct 2008  
*Dielectron Continuum in p + p Collisions at  $\sqrt{s} = 200\text{GeV}$  measured by PHENIX at RHIC*
14. **Hot Quarks '06** Sardegna, IT - May 2006  
*A Hadron Blind Detector for the PHENIX Experiment at RHIC*

Internal collaboration talks and presentations omitted.

TECHNICAL  
REPORTS /  
INTERNAL  
NOTES

**ALICE Internal Analysis Notes**

1. *High  $p_T$  Merged-Cluster  $\pi^0$  with ALICE EMCAL in pp collisions at  $\sqrt{s} = 2.76$  TeV* 2015
2. *Estimating Material Budget Mismatch for TRD and TOF* 2014
3.  *$\pi^0$  Measured by the EMCAL in p-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV* 2014
4. *High  $p_T$   $\pi^0$  Measurement in  $\sqrt{s} = 2.76$  TeV pp Collisions* 2014
5.  *$\pi^0$  Measured by the EMCAL in pp collisions at  $\sqrt{s} = 2.76$  TeV* 2013

**PHENIX Internal Analysis Notes**

6. *PYTHIA and MC@NLO simulations for Run8 d+Au dielectron analysis for  $bb$  cross-section extraction at  $\sqrt{s_{NN}} = 200$  GeV* 2013
7. *Measurement of dielectrons in p + p collisions in Run9* 2012
8. *Calibration of the Drift Chamber Response in GEANT using the  $J/\psi$  and  $\phi$  Peaks* 2011
9. *Dielectron Continuum in d+Au Collisions at  $\sqrt{s_{NN}} = 200$  GeV* 2009

COMPUTING &  
SOFTWARE

**Languages:** C/C++/STL, Fortran  
**Operating Systems:** Unix/Linux, MAC OSX, Windows/DOS  
**Scripting:** csh, perl/Tk  
**Web:** HTML, PHP, XML, twiki  
**Scientific Software:** ROOT, CERNLIB, L<sup>A</sup>T<sub>E</sub>X, MathCad  
**Event Generators:** PYTHIA, MC@NLO  
**Databases:** SQL, PostgreSQL  
**Batch Queue Systems:** LSF, Condor

HARDWARE &  
ELECTRONICS

**Front-End Electronics, High Voltage, DAQ:**

NIM & CAMAC modules, Lecroy, VME, signal processing, various oscilloscopes (analog and digital).

**Clean Room Assembly/Maintenance:**

Built and maintained Level 1 Clean Room conditions for GEM assembling, handling and HV testing.

**Gas Electron Multipliers:**

Design/construct/commissioned the Hadron Blind Detector (HBD) upgrade at PHENIX, the first large-scale photosensitive GEM detector used in a major collider experiment. > 4 years experience working directly with GEMs.

**Thin-Layer Crystal Deposition:**

Evaporated 300 nm layers of photosensitive CsI onto GEM surfaces. Evaporation performed in high vacuum ( $\sim 3 \times 10^{-6}$  P). Quantum Efficiency testing and monitoring.

**Glovebox Handling/Techniques:**

Logged >1000 hours operating large volume (3 m<sup>3</sup>) glovebox with < 30 ppm of H<sub>2</sub>O dry nitrogen environment.

**High Pressure Gas Systems, Plumbing, Electrical Wiring, High Vacuum:**

High pressure Ar, CO<sub>2</sub>, CF<sub>4</sub>, N utilized for detector flow and backfilling of vacuum vessels. Vacuum cleaning/storage of GEMs and equipment. 4 years experience working with compressed air tools (auto repair garage).

**Workshop/Machine Shop:**

Electrical wiring/soldering, large/small scale drilling, metal construction/manipulation including general workshop skills.