

CURRICULUM VITAE

ALEKSANDER KUSINA

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Personal Details

Date of birth: 31 October 1983
Place of birth: Kraków, Poland
Citizenship: Polish
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Academic Positions

10.2011 - present Postdoctoral position at **Southern Methodist University** (SMU), Dallas, TX, USA

Education

10.2007 - 06.2011 PhD Studies at the **Institute of Nuclear Physics PAN** in Kraków, Poland; supervisor: Prof. Stanisław Jadach; thesis title: “Exclusive Kernels for NLO QCD Non-singlet Evolution”.

10.2002 - 06.2007 M.Sc. studies in theoretical physics at the Institute of Physics **Jagiellonian University** in Kraków, Poland. M.Sc. thesis: “Evolution of parton distributions in QCD as a two-level Markovian process and its Monte Carlo simulation.” Supervisor: Prof. Stanisław Jadach.

Student Supervision

03.2013 - 06.2014 Co-supervision of PhD student Oleksandr Gituliar in the Institute of Nuclear Physics, Kraków, Poland. Thesis title: “Higher-Order Corrections in QCD Evolution Equations and Tools for Their Calculation.” Defended on 3 June 2014.

Research Interests

QCD, collider physics phenomenology, parton distribution functions, Monte Carlo showers, factorization, evolution equations, perturbative calculations, heavy quark schemes.

Research

- 05.05 - 07.06.2014 Research visit to **Institute of Nuclear Physics PAN in Krakow**, Poland to work on KRKMC parton shower project.
- June 2012 Research visit to **LPSC in Grenoble**, France to work with Ingo Schienbein on nCTEQ parton distributions.
- 10.2011 - present Postdoc position at **Southern Methodist University (SMU)**, working with Prof. Fredrick Olness on PDFs and nuclear PDFs (nCTEQ), heavy quarks in ACOT scheme.
- 2008 - present NLO Parton Shower Monte Carlo at the **Institute of Nuclear Physics, Krakow**, Poland in the group of Prof. Stanisław Jadach.
- 10.03 - 10.06.2010 Studentship program in Monte Carlo network **MCnet** at the **University of Manchester** under the supervision of Prof. Mike Seymour. NLO Parton Shower
- 24.05 - 20.06.2008 Research visit at **CERN** - working with Prof. Maciej Skrzypek on recalculation of NLO coefficient functions for DIS.
- 01.09 - 30.09.2007 Research visit at **DESY Hamburg** - working with Dr Hannes Jung on comparison of programs for CCFM evolution.
- 26.07 - 19.09 2006 **DESY Summer Student Programme 2006 Hamburg**. Research in H1 group in HERA experiment under the supervision of Dr Hannes Jung. Project title "Fitting MC for H1 measurements of D^* production".
- 01.08 - 30.09.2005 Student project in the **Institute of Nuclear Physics**, Kraków, Poland. Solving DGLAP evolution equation with Markovian Monte Carlo algorithm.

Conference Presentations

- **DIS2014 XXII International Workshop on Deep-Inelastic Scattering and Related Subjects**, 28.04-02.05.2014, Warsaw, Poland.
"Update on nCTEQ PDFs: nuclear PDF uncertainties and LHC applications".
- **LoopFest XII**, 13-15.05.2013, Tallahassee, Florida State University, USA.
"Merging the Fixed and Variable Flavor Number PDF schemes".
- **Phenomenology 2013 Symposium**, 06-08.05.2013, University of Pittsburgh, USA.
"nCTEQ nuclear PDFs for the LHC".
- **DIS2013 XXI International Workshop on Deep-Inelastic Scattering and Related Subjects**, 22-26.04.2013, Marseille, France.
"A N_F -Dependent VFNS for Heavy Flavours: Merging the FFNS and VFNS".
- **LCWS12 International Workshop on Future Linear Colliders**, 22-26.10.2012, University of Texas Arlington, USA.
"New method of including QCD NLO corrections to hard process in Monte Carlo shower".
- **Light Cone 2012**, 08-13.07.2012, Kraków, Poland.
"Strange Quark PDF Uncertainty and its Implications for W/Z Production at the LHC".

- **LoopFest XI**, 10-12.05.2012, University of Pittsburgh, USA.
“NNLO and N3LO DIS structure functions in ACOT scheme”.
- **Phenomenology 2012 Symposium**, 7-9.05.2012, University of Pittsburgh, USA.
“Strange Quark PDFs and Implications for W/Z Boson Production at the LHC”.
- **Cracow Epiphany Conference** on Present and Future of B-Physics, 09-11.01.2012, Kraków, Poland.
“Heavy Quark Production in the ACOT Scheme beyond NLO”.
- **Cracow Epiphany Conference** on the First Year of the LHC, 10-12.01.2011, Kraków, Poland.
“NLO evolution kernels: Monte Carlo vs. \overline{MS} ”.
- **ICHEP 2010** 35th International Conference on High Energy Physics, Paris, France, 22-28.07.2010.
“Monte Carlo modeling of NLO DGLAP QCD evolution in the fully unintegrated form”.
- **Cracow Epiphany Conference** on Physics in Underground Laboratories and its Connection with LHC, 05-08.01.2010, Kraków, Poland.
“Properties of inclusive vs. exclusive QCD evolution kernels”.
- **XLIIIth Rencontres de Moriond** QCD and High Energy Interactions, La Thuile, Italy, 08-15.03.2008.
“Hierarchical Markovian algorithm in QCD evolution”.
- **Cracow Epiphany Conference** on Precision Physics and Monte Carlos for LHC, 04-06.01.2007, Kraków, Poland.
“Fitting Monte Carlo for H1 measurements of D* meson production”.
- **Cracow Epiphany Conference** on Neutrinos and Dark Matter, 05-08.01.2006, Kraków, Poland.
“Two methods of solving QCD evolution equations”.

Other presentations

- **HEP seminar at Baylor University**, 03.02.2014, Waco, TX, USA.
“Nuclear Parton Distributions”.
- **CTEQ Collaboration Meeting**, 16.11.2013, Fermilab, USA.
“First nCTEQ PDFs with errors”.
- **HERAFitter User’s Meeting**, 16.10.2013, video
“An update on lead PDFs in HeraFitter”.
- **CTEQ Collaboration Meeting**, 15-17.11.2012, Jefferson Lab, Newport News, VA, USA.
“Towards fully NLO MC shower”.
- **HERAFitter User’s Meeting**, 27.06.2012, video
“ACOT scheme in QCDNUM”.
- **CTEQ Collaboration Meeting**, 18.11.2011, Fermilab, USA.
“NLO Parton Shower Monte Carlo”.

Training events and conferences

- “Fermilab Theoretical Physics 2013 Summer Visitors Program”, 18.07 - 05.08.2013, Fermilab, Batavia, IL, USA.
 - “2013 CTEQ School”, 07-17.07.2013, University of Pittsburgh, Pennsylvania, USA.
 - “QCD@LHC 2012 Conference”, 20-24.08.2012, Michigan State University, East Lansing, USA.
 - “Confronting Theory with Experiment: Puzzles, Challenges and Opportunities in the LHC Era”, 17-18 November, 2011, Fermilab, USA.
 - “The 2009 Europhysics Conference on High Energy Physics”, 16-22.07.2009 Krakow, Poland.
 - MCnet school “MC4LHC: from Parton Showers to NNLO”, 04-08.05.2009, CERN.
 - “Cracow Epiphany Conference on hadron interactions at the dawn of the LHC”, 05-07.01.2009 Krakow, Poland.
 - “School on Parton Distribution Functions”, 12-14.11.2008, Zeuthen, Germany.
 - “A workshop on the implications of HERA for LHC physics”, 26-30.05.2008, CERN.
 - Third Graduate School in Physics at Colliders “From twistors to Monte Carlos”, 07-11.01.2008, Turin, Italy.
 - “Cracow Epiphany Conference on Precision Physics and Monte Carlos for LHC”, 04-06.01.2008, Kraków, Poland.
 - DESY School on “Computer Algebra and Particle Physics 2007”, 25-30.03.2007, Zeuthen, Germany.
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Other skills

Computer skills	<ul style="list-style-type: none">• Operating systems: Linux, Windows, Mac OSX• Programming: Fortran, Python, C• Applications/packages: Mathematica, LaTeX, Form, ROOT, QCDNUM
Languages	Polish: native, English: fluent

Department service

2012-present	Organization of seminars at the Department of Physics, Southern Methodist University
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References

1. **Fredrick Olness**
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Email: olness@physics.smu.edu

2. Stanislaw Jadach

Institute of Nuclear Physics PAN
ul. Radzikowskiego 152, 31-342 Kraków, Poland
Email: Stanislaw.Jadach@cern.ch

3. Ingo Schienbein

Laboratoire de Physique Subatomique et de Cosmologie
53 Rue des Martyrs, Grenoble, France
Email: schien@lpsc.in2p3.fr

4. Hannes Jung

DESY
Notkestr.85, 22603 Hamburg, Germany
Email: hannes.Jung@desy.de

5. Karol Kovařík

University of Münster, Institute of Theoretical Physics
Email: kovarik@particle.uni-karlsruhe.de