

Oleksandr Gituliar, PhD

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Date of birth: 7 April 1987
Place of birth: Dnipro (Ukraine)
Nationality: Ukrainian
Family: married, 1 child
Current city: Wrocław (Poland)
Languages: English (very good), Polish (fluent), Russian and Ukrainian (native)
Hobby: yoga
Education: theoretical physicist

Experience

2018.07 – present **Quantitative Analyst**, *Credit Suisse*, Wrocław (Poland).
2016.10 – 2018.06 **Postdoc**, *Hamburg University*, Hamburg (Germany).
2015.01 – 2016.09 **Postdoc**, *The PAS Institute of Nuclear Physics*, Krakow (Poland).
2014.04 – 2014.12 **Postdoc**, *German Electron Synchrotron (DESY)*, Zeuthen (Germany).

Skills

Physics: **Particle Physics, Quantum Field Theories, Feynman Integrals.**
Mathematics: **Calculus, Differential Equations, Linear Algebra, Monte-Carlo Simulations.**
Computer: **Python, F#, Wolfram, Git, Linux,**
(also moderate C/C++, SQL, VBA, Go, JavaScript, LISP, Asm/x64).
Personal: **purposeful, open-minded, team player.**

Software

Fuchsia — an open-source program for solving differential equations for Feynman integrals, *Comput.Phys.Commun.* 219 (2017) 329-338 (cited 60+).

Part-Time Experience

2012.03 – 2013.12 **Software Developer**, *Cracow Cloud One*, Krakow (Poland),
Python (REST, WSGI, Amazon API).
2010.10 – 2012.12 **Software Developer (remote)**, *Cloudreach Ltd*,
Python, JavaScript, Google App Engine.
2009.01 – 2009.05 **High-School Teacher**, *Dnipro (Ukraine)*,
Lyceum of Information Technologies.
Class: Introduction to Python.
2007.03 – 2009.10 **QA Automation Engineer**, *Ultimate Risk Solutions*, *Dnipro (Ukraine)*,
Excel/VBA, IBM Rational Robot (IBM SQABasic).
Role: verify reinsurance risk models, develop automated tests, report bugs.

Teaching

2017.03.23 **Introduction to Differential Equations,**
Computer Algebra and Particle Physics 2017, Hamburg (Germany).

Education

- 2009.10 – 2014.06 **PhD in Particle Physics**, *The PAS Institute of Nuclear Physics*, Krakow (Poland).
Thesis: *Higher-order corrections in QCD evolution equations and tools for their calculation*.
Supervisors: prof. dr hab. M. Skrzypek and dr A. Kusina.
- 2004.09 – 2009.06 **MSc in Theoretical Physics**, *Dnipro National University*, Dnipro (Ukraine).
Thesis: *Heavy neutral vector boson search in the LHC experiment*.
Supervisor: dr O.V. Gulov.

Prizes

- 2004 **3rd place** Dnipro Region Contest in Physics
1st place Dnipro City Olympiad in Programming
3rd place Dnipro City Olympiad in Mathematics
- 2003 **3rd place** Dnipro City Olympiad in Programming
3rd place Dnipro City Olympiad in Mathematics

Publications (selected list)

- [arXiv:1803.09084](#) **O. Gituliar, V. Magerya, A. Pikelner**,
Five-Particle Phase-Space Integrals in QCD, *JHEP* **1806 (2018) 099**.
- [arXiv:1701.04269](#) **O. Gituliar and V. Magerya**,
Fuchsia: a tool for reducing differential equations for Feynman master integrals to epsilon form,
Comput.Phys.Commun. **219 (2017) 329-338**.
- [arXiv:1512.02045](#) **O. Gituliar**,
Master integrals for splitting functions from differential equations in QCD,
JHEP **1602 (2016) 017**.
- [arXiv:1511.08439](#) **O. Gituliar, M. Hentschinski, K. Kutak**,
Transverse-momentum-dependent quark splitting functions in k_T -factorization: real contributions,
JHEP **1601 (2016) 181**.
- [arXiv:1505.02901](#) **O. Gituliar, S. Moch**,
Towards three-loop QCD corrections to the time-like splitting functions,
Acta Phys.Polon. **B46, 1279 (2015)**.
- [arXiv:1403.6897](#) **O. Gituliar (PhD thesis)**,
Higher-Order Corrections in QCD Evolution Equations and Tools for Their Calculation.
- [arXiv:1401.5087](#) **O. Gituliar, S. Jadach, A. Kusina, M. Skrzypek**,
On regularizing the infrared singularities in QCD NLO splitting functions with the new Principal Value prescription,
Phys. Lett. **B732, 218 (2014)**.

Conference Talks

- 2018-05-01 **Five-Particle Phase-Space Integrals in QCD**,
Loops and Legs 2018, [arXiv:1808.05109](#),
St. Goar (Austria).
- 2018-01-13 **Fuchsia and differential equations for multi-scale master integrals**,
FCC Mini Workshop,
Geneva (Switzerland).
- 2017-09-26 **Fuchsia and master integrals for energy-energy correlations at NLO in QCD**,
Radcor, [arXiv:1711.05549](#),
St. Gilgen (Austria).

Conference Talks (continue)

- 2017.09.07 **Fuchsia and master integrals for energy-energy correlations at NLO in QCD, Matter to the Deepest**, [arXiv:1711.05549](#), Podlesice (Poland).
- 2016.09.28 **Constructing epsilon form of differential equations for master integrals with Fuchsia**, *Rethinking Quantum Field Theory*, Hamburg (Germany).
- 2016.04.26 **Fuchsia and master integrals for splitting functions from differential equations in QCD**, *Loops and Legs in Quantum Field Theory*, [PoS LL2016 \(2016\) 030](#), Leipzig (Germany).
- 2016.01.07 **Splitting functions for high-energy factorization at leading order**, *Cracow Epiphany Conference*, [Acta Phys.Polon. B47 \(2016\) 1667-1675](#), Krakow (Poland).
- 2015.06.15 **Towards three-loop QCD corrections to the time-like splitting functions**, *Radcor-Loopfest Symposium 2015*, [PoS RADCOR2015 \(2016\) 017](#), Los Angeles (USA).
- 2015.01.10 **Towards three-loop QCD corrections to the time-like splitting functions**, *Cracow Epiphany Conference 2015*, [Acta Phys.Polon. B46 \(2015\) no.7, 1279-1289](#), Krakow (Poland).
- 2014.11.26 **Higher-Order Corrections in QCD Evolution Equations and Tools for Their Calculation**, *LHCPhenoNet Meeting 2014*, Berlin (Germany).
- 2014.06.05 **Higher-Order Corrections in QCD Evolution Equations and Tools for Their Calculation**, *LHCPhenoNet Workshop on Particle Physics 2014*, Paris (France).
- 2014.01.09 **Calculation of QCD NLO Splitting Functions in the light-cone gauge: a new regularization prescription**, *Cracow Epiphany Conference 2014*, [Acta Phys.Polon. B45 \(2014\) no.7, 1361](#), Krakow (Poland).
- 2013.09.06 **Virtual Corrections to the NLO Splitting Functions for Monte Carlo: non-singlet case**, *Matter to the Deepest Conference 2013*, [Acta Phys.Polon. B44 \(2013\) no.11, 2197-2206](#), Ustron (Poland).
- 2013.01.09 **Automatic Calculation of NLO Kernels with Loops for Exclusive Monte-Carlo**, *Cracow Epiphany Conference 2013*, [Acta Phys.Polon. B44 \(2013\) no.7, 1469-1479](#), Krakow (Poland).
- 2012.09.05 **Axiloop: a Tool for the Symbolic Calculation of Splitting Kernels at Higher Orders**, *High Precision for Hard Processes (HP2) Workshop 2012*, Munich (Germany).
- 2009.07.01 **Cross Section of Processes which Involve Z' Boson**, *Trans-European School of High-Energy Physics 2009*, Zakopane (Poland).