

# Oleksandr Gituliar, PhD

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Profession: physicist  
Date of birth: 1987.04.07  
Place of birth: Dnipro (Ukraine)  
Nationality: Ukrainian  
Family status: married, one child  
Current city: Hamburg (Germany)  
Languages: English and Polish (fluent), Russian and Ukrainian (native)  
Hobby: sport climbing (RP – 7a+, 7A; OS – 6c)

## Academic Positions

2016.10 – present **postdoc**, *University of Hamburg (UHH)*, Hamburg (Germany).  
2015.01 – 2016.09 **postdoc**, *The PAS Institute of Nuclear Physics (IFJ PAN)*, Cracow (Poland).  
2014.04 – 2014.12 **postdoc**, *German Electron Synchrotron (DESY)*, Zeuthen (Germany).

## Education

2009.10 – 2014.06 **PhD in Theoretical Physics**, *The PAS Institute of Nuclear Physics*, Cracow (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**, *Dnipropetrovsk National University*, Dnipro (Ukraine).  
Thesis: *Heavy neutral vector boson search in the LHC experiment*.  
Supervisor: **dr O.V. Gulov**.

## Teaching

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

## Software

**Fuchsia**, *An open-source tool for reducing differential equations for Feynman master integrals to an epsilon form*, <http://github.com/gituliar/fuchsia>.

## Technical Skills

Physics: **Perturbative Calculations, Symbolic Computation, Feynman Integrals, IBP Reduction, Differential Equations**.  
Computer: **C/C++, FORM, Git, Go, Linux, Maple, Mathematica, Python, Scheme**.  
Personal: **Sanguine, commitment, openness, willing to learn, social skills**.

## Publications

arXiv:1701.04269 **O. Gituliar, V. Magerya**,  
*Fuchsia: a tool for reducing differential equations for Feynman master integrals to epsilon form*,  
Comput.Phys.Commun. 219 (2017) 329-338.

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## Publications (continue)

- [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:1403.6897](#) **O. Gituliar**,  
*Higher-Order Corrections in QCD Evolution Equations and Tools for Their Calculation*,  
PhD thesis.
- [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).

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## Conference Talks

- 2017-09-26 **Fuchsia and master integrals for energy-energy correlation at NLO in QCD**,  
*Radcor*, St. Gilgen (Austria).
- 2017-09-07 **Fuchsia and master integrals for energy-energy correlation at NLO in QCD**,  
*Matter to the Deepest*, Podlesice (Poland).
- 2016-09-28 **Progress in constructing epsilon form of differential equations for master integrals with Fuchsia**,  
*Rethinking Quantum Field Theory (DESY Theory Workshop)*, Hamburg (Germany).
- 2016-04-26 **Fuchsia and master integrals for splitting functions from differential equations in QCD**,  
*Loops and Legs in Quantum Field Theory*, Leipzig (Germany),  
PoS LL2016 [[arXiv:1607.00759](#)].
- 2016-01-07 **Splitting functions for high-energy factorization at leading order**,  
*Cracow Epiphany Conference*, Cracow (Poland),  
Acta Phys. Polon. B47, 1667 (2016).
- 2015-06-15 **Higher-order corrections to the splitting functions from differential equations in QCD**,  
*Radcor-Loopfest Symposium*, Los Angeles (USA),  
PoS RADCOR2015 [[arXiv:1601.03657](#)].
- 2015-01-10 **Towards three-loop QCD corrections to the time-like splitting functions**,  
*Cracow Epiphany Conference*, Cracow (Poland),  
Acta Phys. Polon. B46, 1279 (2015) [[arXiv:1505.02901](#)].
- 2014-11-26 **Higher-order corrections in QCD evolution equations and tools for their calculation**,  
*LHCPhenoNet Meeting*, Berlin (Germany).
- 2014-06-05 **Higher-order corrections in QCD evolution equations and tools for their calculation**,  
*LHCPhenoNet Workshop on Particle Physics*, Paris (France).
- 2014-01-09 **Calculation of QCD NLO splitting functions in the light-cone gauge**,  
*Cracow Epiphany Conference*, Cracow (Poland),  
Acta Phys. Polon. B45, 1361 (2014) [[arXiv:1406.4283](#)].
- 2013-09-06 **Virtual corrections to the NLO splitting functions for Monte Carlo: non-singlet case**,  
*Matter to the Deepest Conference*, Ustron (Poland),  
Acta Phys. Polon. B44, 2197 (2013) [[arXiv:1310.7537](#)].
- 2013-01-09 **Automatic calculation of NLO kernels with loops for exclusive Monte-Carlo**,  
*Cracow Epiphany Conference*, Cracow (Poland),  
Acta Phys. Polon. B44, 1496 (2013).
- 2012-09-05 **Axiloop: a tool for the symbolic calculation of splitting kernels at higher orders**,  
*High Precision for Hard Processes Workshop*, Munich (Germany).
- 2009-07-01 **Cross-section of processes which involve  $Z'$  boson**,  
*Trans-European School of High-Energy Physics*, Zakopane (Poland).