

# Oleksandr Gituliar, PhD

Date of birth: 7 April, 1987

Place of birth: Dnipro (Ukraine)

Nationality: Ukrainian

Family: Married, 1 child

Current city: Copenhagen (Denmark)

Languages: English and Polish (fluent), Russian and Ukrainian (native)

Education: Theoretical Particle Physics

**22 articles** ~ 300 citations at Google Scholar

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## Experience

2020.11 – present **Quantitative Analyst** (Senior), **Danske Bank**, Copenhagen (Denmark).

2018.07 – 2020.10 **Quantitative Analyst** (Associate), **Credit Suisse**, Wroclaw (Poland).

2016.10 – 2018.06 **Postdoc**, **Hamburg University**, Hamburg (Germany).

2015.01 – 2016.09 **Postdoc**, **Institute of Nuclear Physics**, Krakow (Poland).

2014.04 – 2014.12 **Postdoc**, **German Electron Synchrotron (DESY)**, Zeuthen (Germany).

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## Skills

Mathematics: **Machine Learning, Monte-Carlo, Linear Algebra, Probability and Statistics, Differential Equations.**

Computer: **C++, Python, F#, SQL, Git, Linux.**

Physics: **Quantum Particle Physics, Feynman Integrals.**

Personal: **Optimist, pragmatic, curious, concrete, social.**

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## Software

**Fuchsia** — Python program for solving Differential Equations for Feynman integrals.  
Published in **Comput.Phys.Commun. 219 (2017) 329-338**, **130+ citations**, open-source.

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## Teaching

**Quantitative Finance: an overview for physicists.**

**Computer Algebra and Particle Physics 2019**, Hamburg (Germany).

**Introduction to Differential Equations.**

**Computer Algebra and Particle Physics 2017**, Hamburg (Germany).

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## Education

2009.10 – 2014.06 **PhD in Theoretical Physics**, **Institute of Nuclear Physics**, Krakow (Poland).

Thesis: *Higher-order corrections in QCD evolution equations and tools for their calculation*, [arXiv:1403.6897](https://arxiv.org/abs/1403.6897).

2004.09 – 2009.06 **MSc in Theoretical Physics**, **Dnipropetrovsk National University**, Dnipro (Ukraine).

Thesis: *Heavy neutral vector boson search in the LHC experiment.*

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## Publications (selected)

- 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, 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: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

- 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 Workshop at CERN,*  
Geneva, SWITZERLAND.
- 2017.09.26 **Fuchsia and master integrals for energy-energy correlations at NLO in QCD,**  
*Radcor – arXiv:1711.05549,*  
St. Gilgen, AUSTRIA.
- 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 (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 – arXiv:1607.00759,*  
Leipzig, GERMANY.
- 2016.01.07 **Splitting functions for high-energy factorization at leading order,**  
*XXII Cracow Epiphany Conference – Acta Phys. Polon. B47, 1667 (2016),*  
Krakow, POLAND.
- 2015.06.15 **Higher-order corrections to the splitting functions from differential equations in QCD,**  
*Radcor-Loopfest Symposium – arXiv:1601.03657,*  
Los Angeles, USA.
- 2015.01.10 **Towards three-loop QCD corrections to the time-like splitting functions,**  
*XXI Cracow Epiphany Conference – arXiv:1505.02901,*  
Krakow, POLAND.
- 2014.11.26 **Higher-order corrections in QCD evolution equations and tools for their calculation,**  
*LHCPhenoNet Meeting,*  
Berlin, GERMANY.

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## Conference Talks (continue)

- 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,**  
*XX Cracow Epiphany Conference* – [arXiv:1406.4283](https://arxiv.org/abs/1406.4283),  
Krakow, POLAND.
- 2013.09.06 **Virtual corrections to the NLO splitting functions for Monte Carlo: non-singlet case,**  
*Matter to the Deepest Conference* – [arXiv:1310.7537](https://arxiv.org/abs/1310.7537),  
Ustron, POLAND.
- 2013.01.09 **Automatic calculation of NLO kernels with loops for exclusive Monte-Carlo,**  
*XIX Cracow Epiphany Conference,*  
*Acta Phys. Polon. B44, 1496 (2013),*  
Krakow, POLAND.
- 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.