Ing. Oliver Matonoha, PhD.

Researcher in physics, interested in open science, open knowledge, and AI
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Curriculum vitae
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Education

- **Lund University** — Lund, Sweden
  PhD programme in Particle Physics — *2018–2023*
  - **Doctoral dissertation:** *Production of strangeness in partonic interactions at the LHC* (defended June 2023)
  - Notable courses taken: Neural Networks, Scientific Computing, Teaching in Higher Education
- **Czech Technical University, FNSPE** — Prague, Czech Republic
  Master's and Bachelor's degree studies in Experimental Nuclear and Particle Physics — *2013–2018*
  - Graduated with honours ("red diploma")
  - **Master's thesis:** Upsilon meson production at the STAR experiment (June 2018, graded A)
  - **Bachelor's thesis:** Heavy Ion Physics at the ATLAS experiment (September 2016, graded A)
  - Notable courses taken: Functional Calculus, Quantum Field Theory, Bayesian Statistics

Experience

- **Researcher** — ALICE experiment, CERN, Switzerland
  Analysed data of ∼ 1 B events of proton-proton collisions at the LHC with search for strange particles; commissioning of the GEM detector technology — *November 2018–present*
- **Ambassador for Sweden** — ALICE experiment, CERN, Switzerland
  Communicating the Swedish junior scientists' needs to the ALICE collaboration (1000+ scientists) and vice versa — *April 2019–present*
- **Teaching Assistant** — CTU, Prague / LU, Sweden
  Teaching practical classes in Physics/Particle Physics At LU, also responsible for the class format and preparation — *September 2016–September 2022*
- **Junior Researcher** — STAR experiment, BNL, USA
  Data analysis on high energy physics: Upsilon meson production studies — *June 2016–June 2021*
- **Physics outreach** — CTU, Prague / LU, Sweden
  Co-organised/supervised e.g. CERN Masterclasses for high schoolers — *2017–2023*
- **CERN Summer Student** — ALICE experiment, CERN, Switzerland
  Study of online-tracklet reconstruction efficiency of the TRD detector — *July 2017–September 2017*
- **Physics Internships** — Lehigh University, USA
  Internships in high energy physics related to the Upsilon research at STAR — *January 2018–March 2018 + July 2016–August 2016*

Skills and Expertise

- **Computer skills**
  - **Advanced:** C++, Python, ML/DL, Jupyter, Git, Linux, ROOT, Keras, Pandas, Excel, Latex, Fortran
- **Language skills**
  - **Czech, Slovak:** native
  - **English:** fluent (C2)
  - **German:** advanced (B2)
  - **Swedish:** beginner (B1)
- **Other:** data analysis, public speaking, teaching, creative/technical writing, science communication

Other recent activities

- **Executive team member, Tutor** — Discover Academy, Prague
  Annualy helped create a series of summer schools for high-schoolers Teaching "AI in Particle Physics", have acted as school coordinator/ombudsperson/data analyst/tutor guide — *2019–present*
- **Committee Member** — Equal Opportunities Committee at LU, Sweden
  PhD representative on the departmental committee for promoting equal opportunities, gender equality, and counteracting discrimination — *2021–2022*
- **Mentor** — YODA, Discover mentorship, Prague
  Annually mentored high-schoolers on personal and academic development — *2018–2021*

Publications

- *InspireHEP profile*, 180 citable publications, 2600+ citations, h-index 26, main author of 8 publications
- Published in journals such as Nature, Nature Physics, Physics Review Letters, European Physics Journal

Conferences and Workshops

- **CERN School of Physics 2022** — Jerusalem, Israel, *December 2022*
- **Hot Quarks 2022** — Colorado, USA, *October 2022*
  Talk: "Light-flavour hadron production as a function of the underlying event"
- **Partikeldagarna 2021 – Swedish National Meeting** — Gothenburg, Sweden, *November 2021*
  Talk:
  "Event-structure dependence of light-flavour-hadron production in pp collisions with ALICE"
- **CLASH retreat** — Örenas, Sweden, *October 2021*
  Talk: "Experimental efforts to isolate QGP-like behaviour in pp collisions at ALICE"
- **55th Rencontres de Moriond 2021 – QCD** — La Thuile, Italy (virtual), *March-April 2021*
  Talk: "Light-flavour hadron production as a function of the underlying event"
  Proceedings: https://moriond.in2p3.fr/2021/Registration/proceedings.html
- **Quark Matter 2019** — Wuhan, China, *November 2019*
  Poster:
  "Production of id. hadrons in pp collisions as a function of underlying event activity R_{T} using the ALICE detector"
- **CERN School of Computing** — Cluj-Napoca, Romania, *September 2019*
- **ALICE Physics Week** — Prague, Czech Republic, *July 2019*
  Talk:
  "Using underlying event activity R_{T} to look for QGP-like behaviour in pp collisions"
- **Hot Quarks 2018** — Amsterdam, The Netherlands, *September 2018*
  Talk:
  "Measurements of the Υ production in Au+Au collisions at $\sqrt{s_{\mathrm{NN}}} = 200$ GeV by the STAR experiment"
- **Quark Matter 2018** — Venice, Italy, *May 2018*
  Poster:
  "Measurements of the Υ production in Au+Au collisions at $\sqrt{s_{\mathrm{NN}}} = 200$ GeV by the STAR experiment"
- **STAR Collaboration Meeting 2018** — Lawrence Berkeley National Lab, California, *January 2018*
  Talk: "Υ di-electron analysis in BHT2 of Run14 Au+Au"
- **CTU FNSPE Winter School 2018** — Bily Potok, Czech Republic, *January 2018*
  Talk: "The effects of QGP and CNM on production of heavy quarkonia"
- **Zimanyi Heavy-Ion Winter School 2017** — Budapest, Hungary, *December 2017*
  Talk: "Measurements of the Υ production in Au+Au collisions by the STAR experiment"
- **European Physical Society HEP 2017** — Venice, Italy, *July 2017*
  Talk: "Measurements of the Υ production in Au+Au collisions by the STAR experiment"
  Proceedings: https://pos.sissa.it/314/174/pdf
- **STAR Regional Meeting 2017** — Warsaw, Poland, *June 2017*
  Talk: "Measurements of the Υ production in Au+Au collisions by the STAR experiment"
- **STAR Collaboration Meeting 2017** — Brookhaven National Lab, New York, *May 2017*
  Talk: "Υ di-electron analysis in Run14 Au+Au"
- **CTU FNSPE Winter School 2017** — Bily Potok, Czech Republic, *January 2017*
  Talk: "Υ meson production at the STAR experiment"
- **Zimanyi Heavy-Ion Winter School 2016** — Budapest, Hungary, *December 2016*
- **STAR Analysis Meeting 2016** — Lawrence Berkeley National Lab, California, *November 2016*
  Talk: "Υ di-electron analysis in Run14 Au+Au"
- **STAR Collaboration Meeting 2016** — Ohio State University, Ohio, *August 2016*
- **STAR Regional Meeting 2016** — Cracow, Poland, *June 2016*
- **CTU FNSPE Winter School 2016** — Bily Potok, Czech Republic, *January 2016*
  Talk: "Heavy Ion Physics at the ATLAS experiment"