Miroslav Šimko

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Education

2013–2019, Ph.D., Experimental Nuclear and Particle Physics
Czech Technical University
Faculty of Nuclear Sciences and Physical Engineering
Thesis: Study of Heavy Flavor at the STAR Experiment

2011–2013, M.Sc., Experimental Nuclear and Particle Physics
Czech Technical University
Faculty of Nuclear Sciences and Physical Engineering
Thesis: Design and Optimalization of the Optical Readout System for Electromagnetic Calorimeter FOCAL for the ALICE Experiment

2008–2011, B.Sc., Experimental Nuclear and Particle Physics
Czech Technical University
Faculty of Nuclear Sciences and Physical Engineering
Thesis: Detector Control System for the ALICE Experiment

Experience

2019–present: ioLabs: Geometry engine for collision detection, written in C++ and Python, using Open CASCADE and VTK

2014–2019: Analysis: Reconstruction of the Λ_c baryon at the STAR experiment Brookhaven National Laboratory, USA; Collaboration between Lawrence Berkeley National Laboratory, USA, and Czech Technical University; Analysis, using "big-data" techniques on computing clusters;
Code written in C++ and Root, using machine learning from the TMVA package (Boosted-Decision Trees)

2015–2019: STAR Zero-Degree-Calorimeter on-call expert at Brookhaven National Laboratory, USA; Responsible for calibration, checks, maintenance, and upgrades of crucial detetector components; Calibration code written in C++ and Root

2013–2014: Lawrence Berkeley National Laboratory, USA: Simulations for the Pixel sensors at the STAR experiment; Written in C++ and Root

2012–2013: Development of the Prague prototype (scintillator version) of the electromagnetic-forward calorimeter FoCal for ALICE, LHC, CERN, Switzerland; R&D of optical readout; Built an optical-testing facility; Testing performed, using National Instruments control systems, programmable in NIM LabView; Analysis, using C++, Root, and Matlab

2011–2013: Detector-Control-System expert for the Silicon-Drift Detector for the ALICE experiment, LHC, CERN, Switzerland; Responsible for maintenance and smooth operation of the detector, written upgrades to the system in PVSS

Languages and Skills

Czech/Slovak (native), English (fluent), French (intermediate), Japanese (intermediate)

Statistical analysis on "Big data", machine learning, programming for computing clusters

Programming in C, C++, Python, Root, Matlab, Mathematica, BASH, PVSS, National Instruments LabView

Driver's license B

Teaching

Czech Technical University
Faculty of Nuclear Sciences and Physical Engineering
Student Physics Laboratory Practice, 2014–2019

Interests

Physics, informatics, photography, hiking, sport (bicycle, ski, canoeing), literature

Conferences

Quark Matter 2018, Venice, Italy May 13–19, 2018
Poster: Measurement of $\overline{\Lambda_c}^-/\Lambda_c^+$ ratio in Au+Au collisions at $\sqrt{s_{NN}} = 200\,\text{GeV}$ with the STAR experiment

3-Kings Conference 2018, Košice, Slovakia Jan 5, 2018
Talk: Measurement of open charm in relativistic-heavy-ion collisions

19th Conference of Czech and Slovak Physicists, Prešov, Slovakia Sep 4–7, 2017
Talk: Measurement of the Λ_c baryon at $\sqrt{s_{NN}} = 200\,\text{GeV}$ with the STAR experiment

EPS Conference on High Energy Physics, Venice, Italy Jul 5–12, 2017
Talk: Measurements of open charm hadron production in Au+Au collisions by the STAR experiment

Hot Quarks, South Padre Island, Texas, USA Sep 12–17, 2016
Talk: Measurements of open charm hadrons at the STAR experiment

Quark Matter 2015, Kobe, Japan Sep 27–Oct 3, 2015
Poster: Λ_c baryon production at $\sqrt{s_{NN}} = 200\,\text{GeV}$

ICPAQGP2015, Kolkata, India Feb 2–6, 2015
Talk: Heavy Flavor Tracker at the STAR Experiment

18th Conference of Czech and Slovak Physicists, Olomouc, Czech Republic Sep 16–19 2014
Talk: Simulations for the HFT–Pixel detector at the STAR experiment

Workshop VERTEX2014, Mácha Lake, Czech Republic Sep 15–19, 2014
Poster: Simulations for the HFT–Pixel detector at the STAR experiment

References

Jaroslav Bielčík (Current supervisor)
Faculty of Nuclear Sciences and Physical Engineering
Czech Technical University in Prague
jaroslav.bielcik@fjfi.cvut.cz

Zhangbu Xu (Work on STAR ZDC)
Brookhaven National Laboratory
STAR Spokesperson
xzb@bnl.gov

Vojtěch Petráček (Former supervisor)
Czech Technical University in Prague
University Director
vojtech.petracek@fjfi.cvut.cz

Xin Dong (Supervisor at LBNL)
Lawrence Berkeley National Laboratory
xdong@lbl.gov