

# Matej Pivoluska

Institute of Computer Science, Masaryk University  
Botanická 68 a, 60200 Brno, Czechia

Phone: +420608381070

Orcid: [0000-0001-6876-2085](https://orcid.org/0000-0001-6876-2085)

email: [pivoluska.matej@gmail.com](mailto:pivoluska.matej@gmail.com)

Born: February 6, 1986—Levice, Slovakia

Nationality: Slovak

## Current position

*Researcher*, Institute of Computer Science, Brno

*Researcher*, Institute of Physics SAS, Bratislava

## Areas of specialization

Cryptography, Quantum Cryptography, Quantum Information Processing

## Appointments held

- 2015-2016 Assistant researcher at FI MUNI, Brno (June 2015 - Sep 2016)
- 2016-2017 PostDoc at Austrian Academy of Sciences, IQOQI, Vienna (Oct 2016 - Sep 2017)
- 2017-present Institute of Physics SAS, Bratislava ( Oct 2017 - present)
- 2017-2019 Researcher, ICS MUNI, Brno (Oct 2017 - present)

## Education

- 2010 MGR in Informatics, Faculty of Informatics MUNI Brno
- 2015 PHD in Informatics, Faculty of Informatics MUNI Brno

## Honors & awards

- 2012 AQIS 2012 conference best student poster award
- 2014 AQIS 2014 conference best student poster award
- 2015 Dean's award for an excellent dissertation thesis
- 2016 Štefan Schwarz fund to join Physics Institute of Slovak Academy of Sciences
- 2016 SAIA stipend to join group of Marcus Huber in Vienna
- 2018 SAV top publication award for "Measurements in two bases are sufficient for certifying high-dimensional entanglement"

## Selected publications & talks

### SELECTED JOURNAL ARTICLES

- 2014 J. Bouda, M. Pawłowski, **M. Pivoluska** and M. Plesch, *Device-independent Randomness Extraction from an Arbitrarily Weak Min-Entropy Source*, Physical Review A, Vol. 90, pp. 032313-032318

- 2015 **M. Pivoluska** and M. Plesch, *Device Independent Random Number Generation*, Acta Physica Slovaca 64, No.6, 600 – 663
- 2018 **M. Pivoluska**, M. Huber, M. Malik, *Layered quantum key distribution*, Phys. Rev. A 97, 032312
- 2018 J. Bavaresco, N. Herrera Valencia, C. Klöckl, **M. Pivoluska**, P. Erker, N. Friis, M. Malik, M. Huber, *Measurements in two bases are sufficient for certifying high-dimensional entanglement*, Nature Phys 14, 1032–1037

#### IMPORTANT PREPRINTS

- 2020 M. Doda, M. Huber, G. Murta, **M. Pivoluska**, M. Plesch, C. Vlachou, *Quantum key distribution overcoming extreme noise: simultaneous subspace coding using high-dimensional entanglement*, arXiv:2004.12824
- 2020 N. H. Valencia, V. Srivastav, **M. Pivoluska**, M. Huber, N. Friis, W. McCutcheon, M. Malik, *High-Dimensional Pixel Entanglement: Efficient Generation and Certification*, arXiv:arXiv:2004.04994
- 2020 **M. Pivoluska**, M. Plesch, M. Farkas, N. Ružičková, C. Flegel, N. H. Valencia, W. McCutcheon, M. Malik, E. A. Aguilar, *Semi-Device-Independent Random Number Generation with Flexible Assumptions*, arXiv:2002.12295
- 2020 X.-M. Hu, W.-B. Xing, C. Zhang, B.-H. Liu, **M. Pivoluska**, M. Huber, Y.-F. Huang, C.-F. Li, G.-C. Guo, *Experimental creation of Multi-Photon High-Dimensional Layered Quantum States*, arXiv:2001.06253
- 2020 M. Doda, **M. Pivoluska**, M. Plesch, *Choice of MUBs Affects Measurement Outcome Secrecy*, arXiv:2006.08226

#### CONFERENCE TALKS

- 2017 SCQC 2017, Bielefeld, *Layered Quantum Key Distribution*
- 2018 AQIS 2018, Nagoya, *Measurements in two bases are sufficient for certifying high-dimensional entanglement*
- 2018 Qturns 2018, Florianopolis, *Measurements in two bases are sufficient for certifying high-dimensional entanglement*

## Teaching

- 2010-present Coding, Cryptography and Cryptographic Protocols at Faculty of Informatics, MUNI, Brno

## Scientific projects

- 2012-2014 GAČR project P202/12/1142 (team member)
- 2013-2016 EU FP7 under grant agreement no 323970 “RAQUEL” (team member)
- 2019-2019 GAČR-FWF project “MULTIQUEST” (GF17-3378oL) (principal investigator) GAMU project “Qubits4PhysChem” (principal investigator)

## Scientometrics

*Total journal articles:* 13  
*Total citations (WOK):* 116  
*h-index (WOK):* 5