

# Ing. Jakub Vicha, Ph.D.

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## Work Experience and Education

Since 2020: **Researcher** at [FZU](#) - Institute of Physics of the Czech Academy of Sciences  
2016-2019: **Postdoctoral** position at FZU  
2010-2016: **PhD** in Experimental Nuclear Physics, Faculty of Nuclear Sciences and Physical Engineering ([FNSPE](#)) at the Czech Technical University in Prague (CTU)  
*Thesis: Analysis of Air Showers with respect to Primary Composition of Cosmic Rays*

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## International Experience

Responsibility: **Country Representative in the Steering Committee** of [SWG0](#) Collaboration of 15 countries and more than 150 scientists, since 2019  
**Executive Board member** in the International Doctorate Network in Particle Physics, Astrophysics and Cosmology ([IDPASC](#)), since 2022

Stays: 12 weeks (2012-2019) at Laboratory of Instrumentation and Experimental Particle Physics ([LIP](#)), Lisbon, Portugal - projects: Pierre Auger Observatory and LATTES  
8 weeks (2010) at [CERN](#), Geneva, Switzerland  
Testing of alignment of scintillator fibers in [ALFA](#) Roman Pot detectors of ATLAS

Memberships: [Pierre Auger Collaboration](#) since 2011 - ongoing cosmic-ray experiment  
[SWG0 Collaboration](#) since 2019 - gamma-ray experiment in R&D phase  
[CTA Consortium](#) since 2013 - gamma-ray experiment being constructed  
[SST-1M Collaboration](#) since 2023 - gamma-ray experiment in R&D phase  
Active participation in the [LATTES project](#) 2017 – 2019 - precursor of SWG0

Organizations: [9<sup>th</sup> SWG0 Collaboration Meeting](#) (2023) in Prague, Czech Republic - **main organizer**  
[11<sup>th</sup> IDPASC School](#) (2022) for PhD students in Olomouc, Czech Republic  
**Main program organizer** of the school  
[6<sup>th</sup> LATTES Meeting](#) (2018) in Prague, Czech Republic - **main organizer**

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## Research Activities

ResearcherID: [G-8440-2014](#)

<https://inspirehep.net/authors/1073836>

**Cosmic-ray physics:** mass composition, testing of models of hadronic interactions, propagation, energy calibration of surface detectors, detection of muons

**Gamma-ray physics:** detection possibilities using imaging and non-imaging Cherenkov detectors

- 97 publications according to the Web of Science (31<sup>st</sup> Mar 2023):  
5035 citations (no autocitations), 3144 citations in articles (no autocitations), H-index 33

**International conferences:** 21 presentations (7 talks, 5 posters as main author, 9 contributions as co-author)  
**Invited talk** at [6<sup>th</sup> International Symposium on Ultra High Energy Cosmic Rays](#), Oct 2022, Gran Sasso Science Institute, L'Aquila, Italy, [arXiv:2303.14788](#)

## Research activities within international Collaborations (Auger & SWGO)

- **Coordinator of the Editorial Board** of the full-author-list paper of Auger Coll. on own research
  - **Responsibility** for [evaluation of MARTA detector](#) at the Pierre Auger Observatory using Monte Carlo simulations, 2012-2014
  - 38 talks at Collaboration meetings, main author of 4 internal articles, co-author of 13 internal articles
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## Supervisions

Ongoing: **2 PhD** students (A. Bakalová, N. Denner) and **2 Master** students at FNSPE, CTU  
Defended: 3 Master and 3 Bachelor theses at FNSPE, CTU and Faculty of Mathematics, Physics and Informatics (FMFI UC), 2016–2022  
Mentoring: **2 foreign postdocs**, A. Parra (2019), M. Stadelmaier (2022-2023), during [Mobility Program](#) of the Czech Academy of Sciences

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## Teaching

Since 2019: **Guaranting Lectures on:** *Astroparticle Physics 1,2* at FNSPE, CTU  
2013-2019: **Lectures on:** *Cosmic Rays and Detection Techniques* at Faculty of Science, Palacky University in Olomouc (UP)  
2015-2020: **Lectures on:** *Experimental High-energy Physics* at Faculty of Science, UP  
2009-2014: Assistance in leading of *Physical Laboratories* at FNSPE, CTU

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## Grants and Awards

2023-2025: **Principal Investigator** of GACR 23-05827S (6 people)  
Extension of Scientific Potential of Gamma-ray Observatory SWGO by Cherenkov Telescopes  
2020-2022: **Principal Investigator** of LTT 20002 (6 people)  
Participation in the Future Wide field-of-view Gamma-ray Observatory - SWGO  
2017: **The Otto Wichterle Award**, Czech Academy of Sciences  
2016-2018: Post-doctoral Fellowship of the Czech Academy of Sciences for young researchers

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## Outreach Activities

- **Organizer** of outreach activities of Astroparticle Physics Department of FZU since 2020
- **Development of scientific content** of Virtual Reality of the Pierre Auger Observatory for outreach activities of FZU, 2020-2022
- **Technical guarantor** of the Cloud Chamber at FZU for outreach activities since 2020

For high-school students: lecture at [International Masterclasses 2023 with the Pierre Auger Observatory](#)  
lecture at *Open days at FZU*, November each year from 2014  
lecture at [Summer camp of YMCA](#) (2022)  
supervision of high-school student in the project *Open Science* (2013-2014)

For public: Exhibition at *Science Fair* (2022), lecture at *Colors of Ostrava* (2022)  
exhibition at *Science Festival* (2013-2014)