

## Publications, Talks and Teaching (December 2022)

### Papers in refereed journals

- 2022 Hsiu-Hsien Lin et al. BURSTT: Bustling Universe Radio Survey Telescope in Taiwan. *Publ. Astron. Soc. Pac.*, 134(1039):094106, 2022, 2206.08983.
- 2022 Noemie Globus, Anatoli Fedynitch, and Roger D. Blandford. Treasure Maps for Detections of Extreme Energy Cosmic Rays. *Under review by ApJ*, 10 2022, 2210.15885.
- 2022 Anatoli Fedynitch, William Woodley, and Marie-Cecile Piro. On the Accuracy of Underground Muon Intensity Calculations. *Astrophys. J.*, 928(1):27, 2022, 2109.11559.
- 2022 Anatoli Fedynitch and Matthias Huber. Data-driven hadronic interaction model for atmospheric lepton flux calculations. *Phys. Rev. D*, 106(8):083018, 2022, 2205.14766.
- 2022 Johannes Albrecht et al. The Muon Puzzle in cosmic-ray induced air showers and its connection to the Large Hadron Collider. *Astrophys. Space Sci.*, 367(3):27, 2022, 2105.06148.
- 2021 Noemie Globus, Anatoli Fedynitch, and Roger D. Blandford. Polarized radiation and the Emergence of Biological Homochirality on Earth and Beyond. *Astrophys. J.*, 910(2):85, 2021, 2101.00530.
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- 2020 Felix Riehn, Ralph Engel, Anatoli Fedynitch, Thomas K. Gaisser, and Todor Stanev. The hadronic interaction model Sibyll 2.3d and extensive air showers. *Phys. Rev. D*, 102(6):063002, 2020, 1912.03300.
- 2020 Jonas Heinze, Daniel Biehl, Anatoli Fedynitch, Denise Boncioli, Annika Rudolph, and Walter Winter. Systematic parameter space study for the UHECR origin from GRBs in models with multiple internal shocks. *Mon. Not. Roy. Astron. Soc.*, 498(4):5990–6004, 2020, 2006.14301.
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- 2019 Andrea Palladino, Anatoli Fedynitch, Rasmus W. Rasmussen, and Andrew M. Taylor. IceCube Neutrinos from Hadronically Powered Gamma-Ray Galaxies. *JCAP*, 1909:004, 2019, 1812.04685.
- 2019 Leonel Morejon, Anatoli Fedynitch, Denise Boncioli, Daniel Biehl, and Walter Winter. Improved photomeson model for interactions of cosmic ray nuclei. *JCAP*, 1911(11):007, 2019, 1904.07999.

- 2019 Jonas Heinze, Anatoli Fedynitch, Denise Boncioli, and Walter Winter. A new view on Auger data and cosmogenic neutrinos in light of different nuclear disintegration and air-shower models. *Astrophys. J.*, 873(1):88, 2019, 1901.03338.
- 2019 Shan Gao, Anatoli Fedynitch, Walter Winter, and Martin Pohl. Interpretation of the coincident observation of a high energy neutrino and a bright flare. *Nature Astron.*, 3(1):88–92, 2019, 1807.04275.
- 2019 Anatoli Fedynitch, Felix Riehn, Ralph Engel, Thomas K. Gaisser, and Todor Stanev. Hadronic interaction model sibyll 2.3c and inclusive lepton fluxes. *Phys. Rev.*, D100(10):103018, 2019, 1806.04140.
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## IceCube Collaboration papers

- 2022 A. Albert et al. Search for Spatial Correlations of Neutrinos with Ultra-high-energy Cosmic Rays. *Astrophys. J.*, 934(2):164, 2022, 2201.07313.
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- 2016 Anatoli Fedynitch, Ralph Engel, Thomas K. Gaisser, Felix Riehn, and Todorov Stanev.  $MCE_Q$  - numerical code for inclusive lepton flux calculations. *PoS*, ICRC2015:1129, 2016.
- 2016 Anatoli Fedynitch. Phenomenology of atmospheric neutrinos. *EPJ Web Conf.*, 116:11010, 2016.
- 2016 Sebastian Baur, Colin Baus, Anatoli Fedynitch, Igor Katkov, Tanguy Pierog, Ralf Ulrich, and Hauke Wöhrmann. Combined analysis of accelerator and ultra-high energy cosmic ray data. *PoS*, ICRC2015:418, 2016.

- 2015 Felix Riehn, Ralph Engel, Anatoli Fedynitch, Thomas K. Gaisser, and Todor Stanev. Charm production in SIBYLL. *EPJ Web Conf.*, 99:12001, 2015, 1502.06353.
- 2015 Anatoli Fedynitch, Ralph Engel, Thomas K. Gaisser, Felix Riehn, and Todor Stanev. Calculation of conventional and prompt lepton fluxes at very high energy. *EPJ Web Conf.*, 99:08001, 2015, 1503.00544.
- 2015 Anatoli Fedynitch and Ralph Engel. Revision of the high energy hadronic interaction models PHOJET/DPMJET-III. *14th International Conference on Nuclear Reaction Mechanisms, Villa Monastero, Varenna*, 2015.
- 2015 A. Fedynitch, R. Engel, T. K. Gaisser, F. Riehn, and T. Stanev. The contribution of charm to high energy atmospheric neutrinos. *Nucl. Part. Phys. Proc.*, 265-266:271–273, 2015.
- 2014 F. Cerutti et al. New developments in FLUKA. In *Proceedings, 12th Meeting of Task-Force on Shielding Aspects of Accelerators, Targets and Irradiation Facilities (SATIF-12): Batavia, IL, USA, April 28-30, 2014*, pages 220–230, 2014.
- 2013 Eun-Joo Ahn, Ralph Engel, Anatoli Fedynitch, Thomas K. Gaisser, Felix Riehn, and Todor Stanev. Atmospheric neutrinos at high energy. In *Proceedings, 33rd International Cosmic Ray Conference (ICRC2013): Rio de Janeiro, Brazil, July 2-9, 2013*, page 1144, 2013.

## Thesis

- 2015-11-01 Anatoli Fedynitch. *Cascade equations and hadronic interactions at very high energies*. PhD thesis, KIT, Karlsruhe, Dept. Phys., 2015-11-01.

## Academic training

- 2014 ISAPP: Multi-wavelength and multi-messenger investigation of the visible and dark universe, Belgirate, IT
- 2013 Diffractive and electromagnetic processes at high energies, Heidelberg, DE
- 2012 International School of Cosmic Ray Astrophysics, Erice, IT

## Invited plenary talks at international conferences and workshops

- 2022 3rd Atmospheric Neutrino Workshop, Nagoya, Japan
- 2022 CORSIKA 8 Workshop, Heidelberg, Germany
- 2022 NEUTRINO 2022, virtual, Seoul, South Korea
- 2022 ISVHECRI 2022, virtual, India
- 2021 Cosmology Frontier in Particle Physics, Taipei, Taiwan
- 2021 (parallel talk) International Cosmic Ray Conference (ICRC), Berlin, Germany (online)
- 2021 2nd Atmospheric Neutrino Workshop, Nagoya, Japan (online)
- 2020 YITP workshop at Yukawa Institute, Kyoto, Japan
- 2020 Cosmic Rays and Neutrinos in the Multi-Messenger Era, Paris, France (online)
- 2020 Neutrino telescope workshop, TDLI, Shanghai, China (online)
- 2020 CORSIKA 8 workshop, Heidelberg, Germany (online)
- 2020 Rencontres du Vietnam, TMEX 2020, Quy Nhon, VN
- 2019 NuPhys 2019, London, UK
- 2019 Cosmic Neutrinos and Multi-messenger Workshop, TDLI Institute, Shanghai, China

2019 Heavy-Quark Hadroproduction from Collider to Astroparticle Physics, MITP, Mainz, Germany  
2019 Diffuse Workshop on Global Fit, ERI, Tokyo, Japan  
2019 (2 parallel talks + 2 posters) International Cosmic Ray Conference (ICRC), Madison, USA  
2019 Workshop for Atmospheric Neutrino Production from MeV to PeV, Nagoya University, Japan  
2018 10th International Workshop on Multiple Partonic Interactions at the LHC, Perugia, IT  
2018 H2020 Workshop on oscillation physics IFIC, Valencia, ES  
2018 Forward Physics And Instrumentation From Colliders To Cosmic Rays, Stony Brook, USA  
2018 Very Large Volume Neutrino Telescope symposium (VLVnT), Dubna, RU  
2018 Particle physics convener at TeVPA, Berlin, DE  
2018 FCFP, Hyderabad, IN  
2018 PANE, Trieste, IT  
2018 ISVHECRI, Nagoya, JP  
2018 MIAPP, Munich, DE  
2018 AAPCOS workshop, Kolkata, IN  
2017 Mt. Elbrus Conference, Pyatigorsk, RU  
2017 (parallel talk) International Cosmic Ray Conference (ICRC), Busan, KR  
2017 VietNus Workshop, Quy Nhon, VN  
2017 NEUCOS Workshop, Zeuthen, DE (organization)  
2017 52nd Rencontres de Moriond, Moriond, IT  
2016 8th International Workshop on Multiple Partonic Interactions at the LHC, Chiapas, MX  
2016 Lake Baikal Conference, Listvyanka, RU  
2016 HAP Workshop, Erlangen, DE  
2016 Hyper-K Open Meeting, London, UK  
2016 Cosmic Ray International Seminar, Ischia, IT  
2016 First atmospheric neutrino workshop, Munich, DE  
2015 Very Large Volume Neutrino Telescopes, Rome, IT  
2015 International Conference on Nuclear Reaction Mechanisms, Varenna, IT  
2015 Mediterranean-Antarctic Neutrino Telescope Symposium, Amsterdam, NL  
2015 International Particle Astrophysics Symposium, Madison, USA  
2014 Mediterranean-Antarctic Neutrino Telescope Symposium, CERN, CH  
2014 ISVHECRI, CERN, CH  
2013 Workshop on Multi-Parton Interactions, Antwerp, BE  
2013 Cosmic-Rays @ LHC, CERN, CH  
2012 ISVHECRI, Berlin, Germany

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### Invited lectures and seminars

2022 NPAC Seminar at UW, Madison  
2022 WIPAC Seminar at UW, Madison

2022 Seminar at Michigan State University  
2022 Seminar at DESY Zeuthen  
2022 Seminar at the National Yang Ming Chiao Tung University  
2021 Lecture at the National Taiwan University  
2021 Seminar at the Hamburg University, Germany  
2021 Lecture on neutrino astronomy at ICRR, U Tokyo, Japan  
2021 Colloquium at the Physics Institute, Academia Sinica, Taipei, Taiwan  
2020 Theory seminar at Academia Sinica, Taipei, Taiwan (online)  
2020 iTHEMS/ABBL seminar, RIKEN, Wako, Japan (online)  
2019 Joint ICRR-IMPU seminar, Kavli IPMU, Kashiwa, Japan  
2019 Highlight talk at the annual German Physical Society (DPG) meeting, Aachen, Germany  
2019 Seminar at New York University, NY, USA  
2019 Seminar at University of Delaware, DE, USA  
2019 Colloquium at the Faculty of Science, University of Alberta, Edmonton, CA  
2019 Seminar at University of Alberta, Edmonton, CA  
2018 Seminar at T. D. Lee Institute, Shanghai, CN  
2018 Seminar at GSSI, l'Aquila, IT  
2018 Lecturer at ISAPP school, CERN, CH  
2018 "Informal discussion", Weizmann Institute, IL  
2018 Astrophysics seminar, Hebrew U., IL  
2018 Astrophysics Seminar, University of Tel Aviv , IL  
2018 UHECR Seminar, Hebrew U., IL  
2018 Seminar, ERI Tokyo U., JP  
2018 Seminar, DESY, Zeuthen, DE  
2017 Seminar, Erlangen University, DE  
2017 Seminar, Ångströmlaboratoriet, Uppsala, SE  
2017 Seminar, Chiba University, JP  
2017 Seminar, TUM, Garching, DE  
2017 Seminar, DESY, Zeuthen, DE  
2015 Seminar, DESY, Zeuthen, DE  
2015 Seminar, University of Wisconsin, Madison, USA  
2014 Lecturer at the CORSIKA School, Freudenstadt-Lauterbad, DE  
2013 Seminar Ruhr-University, Bochum, DE

## Outreach

2018 Lecture for „Physikalische Schülergesellschaft“ of the Humboldt University, Berlin, DE  
2017 High school teacher training at BBMNU (Brandenburg Math and Physics congress), Berlin, DE  
2017 Technical Seminar, DESY, Zeuthen, DE  
2016 Open days, series of short public lectures, DESY, Zeuthen, DE