

Emma Chizzali

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Education

- 2022–2025 **Technical University of Munich, Max Planck Institut für Physik**, Germany, Dr. rer. nat., Physics
A Strange and Charming Tale on Hadronic Interactions, supervised by Prof. Dr. Laura Fabbietti, degree awarded on 05/05/2025 with Summa Cum Laude
- 2019–2021 **Technical University of Munich**, Germany, M.Sc., Physics
First Experimental Evidence of an Attractive Proton- ϕ Interaction, supervised by Prof. Dr. Laura Fabbietti
- 2016–2019 **Technical University of Munich**, Germany, B.Sc., Physics
2018 **University of Edinburgh**, UK, ERASMUS exchange during Bachelor Studies

Professional experience

- 09/2025–present Research Assistant, **Glaciology (Department of Earth and Environmental Sciences Geophysics), Ludwig-Maximilians-Universität München**, Germany
Analysis of active seismic data from the Grenzgletscher in Switzerland.
- 02/2022–04/2025 Doctoral Student, **Max Planck Institut für Physik**, Germany
Dissertation, teaching, ALICE detector shifts, ALICE service work (Quality control of LHC Run 3 data and simulations for future ALICE 3 tracking detector).
- 12/2021–01/2022 Research Assistant, **Dense and Strange Hadronic Matter, Technical University of Munich**, Germany
Data analysis of the interaction between charm and light-flavor mesons using femtoscopy.
- 06/2021–07/2021 Technical Student (Chip testing related to ALICE ITS3 detector), **CERN**, Switzerland
Performance tests of flat and bent ALPIDE chips for ALICE ITS3.
Preparation of several SPS beam test setups and recording of experimental data.
- 09/2019–09/2020 Technical Student (Data Analysis), **Dense and Strange Hadronic Matter, Technical University of Munich**, Germany
First measurement of the p - ϕ interaction employing femtoscopy to constrain meson-Proton exchange processes using ALICE data. Continuation of work done for Bachelor Thesis. Results later lead to a Master Thesis project.
- 10/2017–09/2018 Technical Student (Detector Development and Testing related to ALICE TPC upgrade), **Dense and Strange Hadronic Matter, Technical University of Munich**, Germany
Discharge stability measurements and gain performance of GEM foils for ALICE TPC upgrade (normal GEM, THGEM and GEM stacks)
Development and construction of testing equipment with SolidWorks and Eagle
GEM foil support structure framing
Programming Raspberry Pi to readout NIM logic on PC

Awards and Fellowships

- 2022-2025 *IMPRS EPP (International Max Planck Research School on Elementary Particle Physics)*
Ph.D. Fellowship of the *Max Planck Institut für Physik (MPP)*
- 2021 *Best SFB1258 Master thesis award* of the Collaborative Research Center *Neutrinos and Dark Matter in Astro- and Particle Physics (SFB1258)*

Teaching and mentoring

Technical University of Munich

- 2024 **Tutorial** *Introduction to Nuclear, Particle, and Astrophysics (in English)*
- 2023-2024 **Tutorial** *Nuclear, particle and astrophysics Part 1*
- 2023 **Exercise Coordination** *Nuclear, particle and astrophysics Part 2*
- 2022-2023 **Technical student advisor** *Work on Λ - K^+ femtoscopy*, Rossana Facen
- 2022-2023 **Tutorial** *Nuclear, particle and astrophysics Part 1*
- 2022 **Tutorial and Exercise Coordination** *Physics for future Presidents*
- 2022 **Basic Lab Course Part 2** (*Thermodynamics and Electrodynamics*), *Oscilloscope Experiment*

Invited talks

- 03/2025 Invited seminar at **GRASP Colloquium, University of Utrecht** on *A Charming Tale on Hadronic Interactions*, Utrecht, Netherlands
- 09/2024 Invited parallel talk at **Hard Probes 2024** on *Studying the interaction between charm and light-flavor mesons with ALICE*, Nagasaki, Japan
- 07/2024 Invited seminar at **Effective Field Theory Seminar, Technical University of Munich** on *Unveiling the charm hadron interactions with femtoscopy*, Garching, Germany
- 05/2024 Invited seminar at **QCD seminar of the Centre of Excellence in Quark Matter, University of Jyväskylä** on *Studying the Interaction Between Charm and Light-Flavor Mesons*, Jyväskylä, Finland
- 02/2024 Invited talk at **53. Arbeitstreffen Kernphysik 2024** on *D^* -pion/kaon and D -pion/kaon: first measurement of the residual strong interaction*, Schleching, Germany
- 11/2023 Invited talk at **Nagoya Workshop on Exotic Hadrons 2023** on *Studying exotic particles and interactions using femtoscopy*, Nagoya, Japan
- 07/2023 Invited talk at **EMMI Workshop "Bound states and particle interactions in the 21st century"** on *D -hadron interaction from correlation measurements*, Trieste, Italy
- 02/2023 Invited talk at **ALICE WEEK** on *Evidence of a p - ϕ bound state*, CERN, Swiss
- 10/2022 Invited talk at **EXOTICO "Exotic atoms meet nuclear collisions for a new frontier precision era in low-energy strangeness nuclear physics"** on *Proton- ϕ interaction from femtoscopy and comparison to lattice QCD*, Trento, Italy
- 09/2022 Invited talk at **EMMI Workshop "Meson and Hyperon Interactions with Nuclei"** on *Experimental evidence for an attractive proton- ϕ interaction*, Kitzbuehel, Austria
- 08/2022 Invited talk at **FemTUM workshop on femtoscopy and interactions** on *$p\phi$: experimental and theoretical overview*, Garching, Germany
- 06/2022 Invited parallel talk at **Strangeness in Quark Matter 2022** on *ALICE determines the scattering parameters of D mesons with light-flavor hadrons*, online

- 02/2022 Invited talk at **Reimei Workshop "Hadrons in dense matter at J-PARC"** on *First experimental Evidence of an Attractive Proton- ϕ Interaction*, online
- 07/2021 Invited talk at **ALICE Juniors Day** on *Proton- ϕ and Λ - Ξ interactions studied in pp collisions with ALICE at the LHC*, online
- 05/2021 Invited parallel talk at **Online Strangeness in Quark Matter Conference 2021** on *Proton- ϕ and Λ - Ξ interactions studied in pp collisions with ALICE at the LHC*, online

Contributed presentations

- 06/2024 Talk at **IMPRS Young Scientist Workshop** on *Studying the Interaction Between Charm and Light-Flavor Mesons*, Schloss Ringberg, Germany
- 01/2024 Talk at **60th International Winter Meeting on Nuclear Physics** on *First measurement of the residual strong interaction between open-charm and light-flavor meson*, Bormio, Italy
- 09/2023 Talk at **ALICE FSP Meeting 2023** on *Accessing the strong interaction between Λ baryons and strange hadrons with femtoscopy*, Franken-Akademie Schloss Schney, Germany
- 06/2023 Talk at **IMPRS Colloquium** on *Evidence for a ϕ -N bound state*, Munich, Germany
- 03/2023 Poster at **DPG SMuK Conference** on *Constraining the interaction between Λ and Kaons with femtoscopy at LHC*, Dresden, Germany
- 03/2023 Parallel talk at **DPG SMuK Conference** on *Evidence for a ϕ -N bound state*, Dresden, Germany
- 05/2022 Talk at **IMPRS Young Scientist Workshop** on *Experimental Evidence for an Attractive Proton- ϕ Interaction*, Schloss Ringberg, Germany
- 03/2022 Parallel talk at **DPG SMuK Conference** on *Proton- ϕ interaction studied in pp collisions with ALICE at the LHC*, online
- 10/2021 Talk at **ALICE FSP Meeting 2021** on *Proton- ϕ and Λ - Xi interactions studied in pp collisions with ALICE at the LHC*, online
- 08/2021 Parallel talk at **DPG SMuK Conference** on *Investigation of the p - ϕ and p - D interaction in pp collisions at $\sqrt{s} = 13$ TeV with ALICE*, online
- 05/2021 Talk at **STRANU: Hot topics in strangeness nuclear and atomic physics** on *Proton- ϕ interaction studied in pp collisions with ALICE at the LHC*, online
- 09/2019 Talk at **ALICE FSP Meeting 2019** on *p - ϕ correlation studies with ALICE in pp collisions at $\sqrt{s} = 13$ TeV*, Kloster Seeon, Germany

List of publications

Main Author

- ALICE Collaboration - chair of the paper committee, *Studying the interaction between charm and light-flavor mesons*, PRD 110 (2024) 032004
- E. Chizzali, Y. Kamiya, R. Del Grande, T. Doi, L. Fabbietti, T. Hatsuda and Y. Lyu, *Indication of a p - ϕ bound state from a correlation function analysis*, PLB 848 (2024) 138358
- ALICE Collaboration - chair of the paper committee, *Experimental Evidence for an Attractive p - ϕ Interaction*, PRL 127 (2021) 172301 - Editors' Suggestion

Contributing Author

- L. Lautner, E. Chizzali, et al., *Detection efficiency and spatial resolution of Monolithic Active Pixel Sensors bent to different radii*, arXiv:2502.04941 - under peer review
- ALICE Collaboration - member of the paper committee, *Accessing the strong interaction between Λ baryons and charged kaons with the femtoscopy technique at the LHC*, PLB 845 (2023) 138145

Outreach, organisations, event planning

- 04/2025 Talk at **Science night 2025** for High-school Students on *TURBO PHYSIK* at Realgymnasium Meran, Merano, Italy
- 2023-2024 Co-organizer of **PSI Seminar** of the group **Dense and Strange Hadronic Matter**, **Technical University of Munich**, Munich, Germany
- 08/2023 Talk at **Forschung trifft Schule: CERN Summer School** for High-school Teachers on *Vom LHC zu Neutronen Sternen*, CERN, Swiss
- 2022 Co-organiser of **FemTUM workshop on femtoscopy and interactions**, August 31st to September 2nd, Garching, Germany
- 2021-2022 Interviews about PRL publication on p - ϕ interaction for Quanta Magazine and Weltmaschine.de

Skills

- Programming C++, C, Python, bash, ROOT
- General IT Git, L^AT_EX, GNU/Linux, MacOS, Windows, ECDL

Languages

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|----------------|---------------------------------------------------------------|----------------|----------------------------|
| German | native | Italian | fluent |
| English | fluent, higher education in English and IELTS C1 (21/12/2017) | Spanish | basic communication skills |