# ADRIANA ZACHAROVÁ

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## EDUCATION

### Master's Degree in Astrophysics

**Masaryk University**

📅 Sept 2024 – Ongoing

Thesis topic: *Investigating Stellar Populations and the Impact of a Variable Initial Mass Function in High-Redshift Galaxies*
Thesis supervisor: Tereza Jeřábková

In thesis we are investigating the role of a variable stellar initial mass function (IMF) in shaping the properties of massive galaxies formed within a few hundred million years after the Big Bang. The scope includes chemical modeling, comparisons with cosmological simulations, and observational data.

Relevant courses:
- Introduction to Machine Learning in Astronomy
- High Energy Astrophysics
- Structure and kinematics of galaxies
- Data processing and imaging

### Bachelor's Degree in Astrophysics

**Masaryk University**

📅 Sept 2021 – June 2024

Thesis topic: *Building a Reissner-Nordström black hole from scratch*, grade: very good
Thesis supervisor: Klaus Bering Larsen

The aim of the thesis was to prove that energy of a charged black hole can be expressed using sum of energies of infalling, spherically symmetric, infinitesimally thin shells of matter.

Relevant courses:
- Structure and Evolution of the Universe
- Basic numerical methods
- Python for physicists
- Introduction to Astrometry and Photometry

## WORK EXPERIENCE

### Science Communication

**Masaryk University**

📅 Oct 2022 – Ongoing

- Participation in events for public (STARMUS, Researchers' night, Festival of Science, MjUNI – junior university)
- Organising and designing science education activities (Researchers' night)

### Video Editing

**Masaryk University**

📅 Mar 2024 – Ongoing

- Editor of department's science education videos – Conversation about the Cosmos
- Shooting, editing audio, video, translating subtitles and adding graphics
- Experience with Adobe Premiere Pro, Adobe Photoshop, Adobe Audition

## SKILLS

**Programming:** Python (sklearn, tensorflow, seaborn, lightkurve, gdt.core – fermi-gdt, numpy, scipy, astropy, matplotlib)

**OS:** Linux (Ubuntu and Debian), Windows

**Software:** DS9, Munipack, VSCode, Rawtran, QTIPlot, Adobe Premiere Pro, Adobe Photoshop, Adobe Audition, Handbrake, OBS Studio

**Other:** Bash, LaTeX

## LANGUAGES

**Slovak**
**Czech**
**English**
**German**
**Spanish**

## HOBBIES

Advocating for social and climate justice, climate activism, veganism, star gazing and observations, cycling, hiking, creative writing, drawing and painting

## REFERENCES

Master Thesis supervisor: **Tereza Jerabkova**

@ bering@physics.muni.cz

Data processing and imaging lectures tutor: **Filip Hroch**

@ hroch@physics.muni.cz

Bachelor Thesis supervisor: **Klaus Bering Larsen**

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PR manager at Department of Theoretical Physics and Astrophysics: **Václav Glos**

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