

QIANHANG CHEN

+31 0645599453 ◊ Amsterdam, The Netherlands ◊ erwin.chen@student.uva.nl ◊ personal website

EDUCATIONAL BACKGROUND

Master's Degree in Astronomy & Astrophysics <i>University of Amsterdam, Amsterdam, The Netherlands</i> Specialization: High-Energy Astrophysics Thesis on neutron-star X-ray binaries (XRISM/XMM-Newton spectroscopy)	Sep 2024 – Jul 2026 (expected)
Bachelor's Degree in Applied Physics <i>University of Shanghai for Science and Technology, Shanghai, China</i> Average Score: 80.54/100 <i>Graduation Project (Dissertation): Calculation of Geodesics in the Schwarzschild Black Hole (94/100);</i>	Sep 2019 – Jun 2023

RESEARCH EXPERIENCE

Master's Thesis (60 ECTS) — Disk-Atmosphere Spectroscopy of 4U 1916–053 (XRISM + XMM) <i>Sep 2025 – Jul 2026 (expected)</i> University of Amsterdam & SRON & ESO Supervisors: Dr. Nathalie Degenaar; Dr. Elisa Costantini; Dr. María Díaz Trigo (ESO) <i>Amsterdam · Leiden · Garching, Germany</i>	
<ul style="list-style-type: none">The detailed physical properties of accretion-disk atmospheres remain largely unknown and can only be constrained through high-inclination X-ray binaries such as 4U 1916–053.Conduct a joint XRISM–XMM investigation to study its ionized disk atmosphere and search for potential winds.Combine XRISM/Resolve high-resolution line spectroscopy with XMM-Newton RGS and EPIC-pn soft-band data for a time- and phase-resolved view of the plasma.Perform spectral modeling with photoionized absorption to derive the plasma's ionization, column density, and velocity, linking the soft and hard X-ray diagnostics into a self-consistent physical picture of the disk plasma.	

Short Research Project (6 ECTS) — Systematic Search for Bow Shocks around X-ray Binaries <i>Jan 2025 – Jul 2025</i> University of Amsterdam Supervisor: Dr. Nathalie Degenaar <i>Amsterdam, The Netherlands</i>	
<ul style="list-style-type: none">XRB bow shocks trace compact-object–ISM interaction, yet remain rare.Built Python scripts to select 74 HMXBs/140 LMXBs; searched WISE W3/W4 and RACS 887.5 MHz.Found ~8 HMXB and 2 LMXB IR candidates; no RACS detections; radio bow shocks confirmed only for Vela X-1 and Cyg X-1; noted a tentative extended radio feature near 4U 1630-47.Concluded they are rare and radio-faint (weak jet–ISM coupling); proposed deeper MeerKAT/ATCA/JVLA + NIR astrometry follow-up.	

Undergraduate Thesis (15 ECTS) — Calculation of Geodesics for Schwarzschild Black Holes <i>Dec 2022 – Jun 2023</i> University of Shanghai for Science and Technology Supervisor: Dr. Wenjun Guo <i>Shanghai, China</i>	
<ul style="list-style-type: none">Solved differential equations to construct the Schwarzschild black hole model and analyze space-time structure.Studied geodesics for particles and photons under different masses; calculated structural forms of orbits.Outstanding Undergraduate Thesis (94/100).	

China Space Station Telescope (CSST) Summer School of Galaxy Science Peking University Summer School Student	<i>Jul 2022</i> <i>Beijing, China</i>
<ul style="list-style-type: none">Python iso-illumination analysis of UCG9476 (referencing NGC628 example).Quasar image decomposition with galight; fitted CID 216 and computed host-galaxy light fraction.	

- Galaxy disk/core decomposition using `astropy.modeling` on HSC i-band; single/two-component fits with B/T, D/T calculated.
- Installed **BayeSED 3.0**; estimated photometric redshift and stellar parameters; plotted posterior distributions.

Short Research Project (6 ECTS) — First-Principles Calculations of Superconducting Materials

Jan 2022 – May 2022

University of Shanghai for Science and Technology | Research Group Member

Shanghai, China

- Studied first-principle superconductivity via theory and experiments.
- Obtained results for band structure, dispersion relations, magnetic susceptibility and dielectric under different variables.
- Developed literature retrieval, summarization and review-writing skills.

INTERNSHIP EXPERIENCE

Yunnan Observatories, Chinese Academy of Sciences

Jul 2022

Intern

Kunming, China

- Received solar physics training; studied CME, magnetic reconnection, solar approach detection.
- Programmed simple MHD equations on a supercomputer as part of a team.
- Gained early exposure to frontier solar physics research.

SKILLS & LANGUAGES

Data & Simulation: Numerical simulations, spectral fitting, large-survey data analysis

Programming: Python, Linux, MATLAB, C/C++, Mathematica

Scientific Tools: SPEX (spectral modeling), HEASOFT (X-ray data reduction), DISKLAB (disk modeling), MESA (stellar evolution)

Version Control & Collaboration: Git, GitHub

Languages: Chinese (Native), English (Advanced) [IELTS: 6.5 (6.0)]