

# Silvia Onorato

## Curriculum Vitae

670 N. A'Ohoku Place, 96720  
Hilo, HI, USA  
★ 15 June 1996  
📱 +39 393 0566026  
✉️ silvia.onorato@noirlab.edu  
🌐 silviaonorato.github.io  
👤 silvia-onorato-4932a2271  
👤 SilviaOnorato  
>ID 0009-0009-1715-4157

I am a post-doc at Gemini Observatory working with JWST/NIRSpec IFU data of high redshift quasars. In my Ph.D., I have developed skills in handling optical and near-infrared high-z quasar spectra, to constrain the fraction of neutral hydrogen, and quasar lifetimes. I am also a researcher in stellar astrophysics, specialized in the study of multiple stellar populations through ultraviolet and optical photometry.

5 papers, of which 3 as a first-author; a complete publication list is enclosed and available on [NASA/ADS](#).

### Work experience

- 2025–present **Postdoctoral Researcher**, *Gemini Observatory/NSF NOIRLab*, Hilo, Hawaii, USA  
Topic: High-redshift quasar studies with JWST; Supervisor: Dr. Emanuele Paolo Farina.
- 2022–2024 **Teaching assistant**, *Leiden Observatory*, Leiden, The Netherlands
- 2022 **Telescope observations**, *Leiden Observatory*, Leiden, The Netherlands  
We observed for two nights remotely using Keck/LRIS.

### Education

- 2021–2025 **Ph.D. in Astrophysics**, *Leiden Observatory*, Leiden, The Netherlands  
Thesis title: "*Chronicles of Cosmic Dawn - High redshift quasars as probes of supermassive black holes and the intergalactic medium*"; Supervisors: Prof. Joseph F. Hennawi, Prof. Joop Schaye.
- 2018–2021 **MSc in Astrophysics and Cosmology**, *Alma Mater Studiorum University of Bologna*, Bologna, Italy, Final grade: 109/110. GPA: 28.24/30.  
Thesis title: "*The primordial structure of Multiple Populations in the Globular Cluster NGC 2419*"; Supervisors: Dr. Mario Cadelano, Dr. Emanuele Dalessandro, Prof. Barbara Lanzoni
- 2015–2018 **BSc in Astronomy**, *Alma Mater Studiorum University of Bologna*, Bologna, Italy, Final grade: 106/110. GPA: 27.35/30.  
Thesis title: "*Mechanisms of Energy Transport in Astrophysics*"; Supervisor: Prof. Daniele Dalla-casa

### Scientific collaborations

- 2024–present **Member of the EREBUS collaboration**
- 2021–present **Member of the Pypelt collaboration**

### Honours and grants

- 2024 **Travel funding for "Probing the Genesis of Supermassive Black Holes" conference**,  
*Kavli IPMU*, Kashiwa, Japan

**2017 Incentives to deserving students enrolled in the a.y. 2015/16 in courses belonging to classes L-41, L-27, L-30 and L-35**

Winner of the scholarship: "Notice of competition for the allocation of incentives for deserving students enrolled in courses of study in the a.y. 2015/16 of special national and community interest at the University of Bologna" issued by Alma Mater Studiorum.

## Telescope experience

I have reduced data obtained from the following facilities: HST WFC3/UVIS, VLT/X-Shooter, Gemini/GNIRS, Keck/NIRES, Gemini/GMOS, Keck/LRIS, Keck/DEIMOS, LBT/MODS, LBT/LBC, MPI/WFI, VLT/GIRAFFE, Chandra, VLA.

## Digital skills

Analysis of optical and near-infrared spectra with PypeIt.

Analysis of ultraviolet and optical data with DAOPHOT and IRAF.

Analysis of X-ray data with CIAO and XSPEC.

Analysis of radio data with AIPS.

Knowledge of Python, Fortran90, R, GitHub, L<sup>A</sup>T<sub>E</sub>X, and Microsoft Office.

Knowledge of DS9, Ginga, TopCat, Sculptor, SuperMongo, and CataPack.

## Colloquia/Conference contributions

### Invited talk

**2024 Invited colloquium, University of Bologna/INAF-OAS, Bologna, Italy**

### Contributed talk

**2025 HERA 25 - The Physics of Galaxies at the Epoch of Reionization, Scuola Normale Superiore, Pisa, Italy**

**2025 EREBUS/COSMOS-3D meeting 2025, INAF-OAS, Bologna, Italy**

**2024 Probing the Genesis of Supermassive Black Holes: Emerging Perspectives from JWST and Expectation toward New Wide-Field Survey Observations, Kavli IPMU, Kashiwa, Japan**

**2024 The Origin and Evolution of Supermassive Black Holes, Sexten, Italy**

**2024 Massive Black Holes in the First Billion Years, Kinsale, Ireland**

**2023 NOVA Fall School, ASTRON, Dwingeloo, The Netherlands**

**2023 Young Astronomers on Galactic Nuclei, YAGN23, Palermo, Italy**

**2023 Reionisation in the Summer, Heidelberg, Germany**

**2022 Panchromatic view of the life-cycle of AGN, ESAC, Madrid, Spain**

### Lightning talk

**2024 Cosmic Dawn Revealed by JWST: The Physics of the First Stars, Galaxies, and Black Holes, KITP, Santa Barbara, USA**

**2024 European Astronomical Society Annual Meeting 2024, EAS24, Padua, Italy**

**2023 First Light in the Early Universe, MIT, Cambridge, USA**

**2022 What Drives the Growth of Black Holes?, Reykjavík, Iceland**

## Proposals

- 2025 **Co-I of accepted JWST Cycle 4 proposal, *Ushering in the JWST Era of Precision Constraints on Reionization: A Survey of Quasar IGM Damping Wings at  $6.5 < z < 7.4$***   
Proposal ID: 9180; 12 months; 01/07/2025 - 30/06/2026  
PI: Joseph F. Hennawi
- 2021 **Co-I of accepted DOLORES/LBT proposal, *Does the host galaxy set the IMF of star clusters?***  
Proposal ID: IT-2021B-039; 12h; 30/05/2022 - 03/09/2023  
PI: Mario Cadelano

## Other activities and Service

- 2022–2023 **Borrel Committee, Leiden Observatory**, Leiden, The Netherlands  
Organizer of weekly social gatherings for colleagues. Responsible for providing food and drinks, scheduling activities, and inviting people to the events.
- 2018 **Science outreach activity as a tour guide, Specola Astronomical Museum**, Bologna, Italy
- 2012–2015 **Tutor in Math and Physics**, Bagheria, Italy
- 2004–present **Volleyball player**  
2023–present: SKC Leiden. 2017: PGS Welcome Bologna. 2004–2015: U.S. Volley Bagheria.

## Languages

- Italian Mother tongue  
English Fluent

## Other interests

I am very passionate about volleyball, skiing, and cycling. While I discovered the first of my passions long ago, the last two proved to me that I can always learn new beautiful things, as I learned skiing in 2023 and cycling in 2022. From my Sicilian heritage, I inherited a deep connection with the sea, but recently I also discovered I like to hike to the mountains. I really love traveling and discovering new places to take pictures of. In my chilling time, I love to read books and watch TV series.

## References

- Emanuele Paolo Farina, *Gemini Observatory/NSF NOIRLab* emanuele.farina@noirlab.edu  
Joseph F. Hennawi, *UCSB/Leiden Observatory* joe@physics.ucsb.edu  
Mario Cadelano, *University of Bologna/INAF-OAS* mario.cadelano@unibo.it  
Jan-Torge Schindler, *Hamburg Observatory* jtschindler@hs.uni-hamburg.de

## Main collaborators

- Roberto Decarli, *INAF-OAS*  
Bram P. Venemans, *Leiden Observatory*  
Anna-Christina Eilers, *MIT Kavli Institute for Astrophysics and Space Research*  
Silvia Belladitta, *MPIA*  
Jinyi Yang, *University of Michigan*  
Feige Wang, *University of Michigan*

Frederick B. Davies, *MPIA*

Sarah E. I. Bosman, *MPIA/Institute for Theoretical Physics, Heidelberg University*

## Publications

### Published/Submitted

1. **Silvia Onorato**, Mario Cadelano, Emanuele Dalessandro, Enrico Vesperini, Barbara Lanzoni, and Alessio Mucciarelli 2023. The structural properties of multiple populations in the dynamically young globular cluster NGC 2419. *Astronomy and Astrophysics*, 677, A8.
2. **Silvia Onorato**, Joseph F. Hennawi, Jan-Torge Schindler, Jinyi Yang, Feige Wang, Aaron J. Barth, Eduardo Bañados, Anna-Christina Eilers, Sarah E. I. Bosman, Frederick B. Davies, Bram P. Venemans, Chiara Mazzucchelli, Silvia Belladitta, Fabio Vito, Emanuele Paolo Farina, Irham T. Andika, Xiaohui Fan, Fabian Walter, Roberto Decarli, Masafusa Onoue, and Riccardo Nanni 2025. Optical and near-infrared spectroscopy of quasars at  $z > 6.5$ : public data release and composite spectrum. *Monthly Notices of the Royal Astronomical Society*, staf787.
3. **Silvia Onorato**, Joseph F. Hennawi, Elia Pizzati, Bram P. Venemans, and Anna-Christina Eilers 2025. Homogeneous measurements of proximity zone sizes for 59 quasars in the Epoch of Reionization. *ArXiv e-print*; under review for publication in MNRAS.
4. Suk Sien Tie, Joseph F. Hennawi, Feige Wang, **Silvia Onorato**, Jinyi Yang, Eduardo Bañados, Frederick B. Davies, Jose Oñorbe 2024. First measurement of the Mg II forest correlation function in the Epoch of Reionization. *Monthly Notices of the Royal Astronomical Society*, stae2193.
5. Silvia Belladitta, Eduardo Bañados, Zhang-Liang Xie, Roberto Decarli, **Silvia Onorato**, Jinyi Yang, Manuela Bischetti, Masafusa Onoue, Federica Loiacono, Laura N. Martínez-Ramírez, Chiara Mazzucchelli, Frederick B. Davies, Julien Wolf, Jan-Torge Schindler, Xiaohui Fan, Feige Wang, Fabian Walter, Tatevik Mkrtchyan, Daniel Stern, Emanuele P. Farina, Bram P. Venemans 2025. Discovery and Characterization of 25 new Quasars at  $4.6 < z < 6.9$  from Wide-Field Multi-Band Surveys. *Astronomy and Astrophysics*, 699, A335.

### In preparation

1. **Silvia Onorato**, Timo Kist, Joseph F. Hennawi, and Frederick B. Davies in prep. The Ly $\alpha$  transmission probability distribution function from the E-XQR-30 sample. (Overleaf draft [here](#))