

Alexia Simon

PhD Candidate in Astrochemistry

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[Personal website](#)

Research Interests

Laboratory Astrochemistry: My research focus on mimicking chemical reactions on ices in cold space environments where stars and planets form. Through these experiments, I aim to understand the composition of planets and other celestial bodies, as well as understanding the different pathways leading to the composition of our Solar System.

Education

Ph.D. in Astronomy Astrophysics, **Harvard University**, Cambridge, MA, USA *exp. May 2025*
Advisor: Karin I. Öberg

A.M. in Astronomy Astrophysics *May 2023*

Master in Chemistry, University of Pierre and Marie Curie (UPMC), Paris, FR *2016–2018*
Specialization: Analytical, Physical and Theoretical Chemistry, Major in Spectroscopy

Bachelor in Chemistry, University of Paris-Sud, Orsay, FR *2015–2016*

Diploma in Technological Studies (DUT) in Chemistry, University of Paris-Sud, Orsay, FR *2013–2015*
European Section, Laboratory Technician Diploma

Professional Experience

Community Advisor, Harvard University Housing (*Cambridge, MA*) *Sep 2022–2025*
Graduate Commons Program Team – Community and events team at Harvard University Housing
Advisor in charge of creation, organization and management of events. Responsible of Harvard credit card, calendar planning and event creation

Media and Design Fellow, Derek Bok Center for Teaching and Learning, (*Cambridge, MA*) *Sep 2023–2024*
Support innovative course development within the Faculty of Arts and Sciences in Harvard. Design a variety of digital tools, course materials, workshops, and assignments for undergraduate courses and departments. Type of media use and taught: text, video, illustrations, animations, websites.
Class I work with: Prediction X podcasts series (GENED 1112), Astronomy 1, GENED 1070, Departmental workshops for graduate and undergraduate students, OEB 50 (Genetics and Genomics), J-term Course Development.

Awards and Honors

- Derek Bok Center Teaching Certificate, Harvard University *exp. 2025*
- Derek Bok Center Certificate of Distinction in Teaching, Harvard University *2021*
– Astronomy 1 (The Big Questions of Astronomy)

Publications

Explore my full list of publications on NASA ADS.

- 4. Pesciotta C., **Simon A.**, Rajappan M., Öberg K. I., Entrapment in CO₂ and H₂O Ices: Impact of Ice Matrix Thickness, *The Astrophysical Journal* 2024
- 3. Zhou Q., **Simon A.**, Öberg K. I., Rajappan M., Competitive Entrapment of Hypervolatiles in Interstellar and Cometary Water Ice Analogs, *The Astrophysical Journal* 2024
- 2. **Simon A.**, Rajappan M., Öberg K. I., Entrapment of Hypervolatiles in Interstellar and Cometary H₂O and CO₂ Ice Analogs, *The Astrophysical Journal* 2023
- 1. **Simon A.**, Öberg K. I., Rajappan M., Maksiutenko P., Entrapment of CO in CO₂ Ice, *The Astrophysical Journal* 2019

Teaching Appointments

- Teaching Fellow: GENED 1070 *Spring 2022*
Introductory astrophysics, geology, chemistry and biology class discussing the origins of life.
Course Head: Prof. Dimitar Sasselov
- Teaching Fellow: Astronomy 1 *Fall 2021*
Introductory class discussing the big questions in astronomy.
Course Head: Prof. David Charbonneau

Observing Experiences

- The Clay Telescope (0.4 m) Harvard AstroLab, Massachusetts (26 nights)
- The SMA (6 m, array of 8) Mauna Kea Observatory, Hawaii (7 nights)

Selected Science Talks & Poster

Invited Talks

Technion international student conference *Aug. 2023*
for advanced chemical engineering fields (*Haifa - Israel*)

Seminar Talks

CfA ITC Luncheon Series (*Cambridge, MA*) *Feb. 2024*

CfA ITC Luncheon Series (*Cambridge, MA*) *April 2023*

Harvard Astronomy Department Research Forum (*Cambridge, MA*) *Nov. 2022*

Conference Talks

Fractionation of isotopes in space II: *Nov. 2024*
from the Solar System to galaxies (*Florence - Italy*)

Northeast Star and Planet Formation Meeting (*MIT Haystack Observatory, MA*) *July 2024*

ICE Workshop (*Kauai, HI*) *Feb. 2024*

Origins of Solar Systems Gordon Research Seminar (*Mount Holyoke College, MA*) *June 2023*

From Clouds to Planets II: The Astrochemical Link (<i>Berlin - Germany</i>)	<i>Oct. 2022</i>
Astrochemical Frontiers 2021 (<i>webinar</i>)	<i>July 2021</i>
Posters	
Harvard-Heidelberg Star Formation Workshop (<i>Cambridge, MA</i>)	<i>Nov. 2023</i>
2023 Kavli - IAU Astrochemistry Symposium (<i>Traverse city, MI</i>)	<i>July 2023</i>
Astrochemistry VIII - From the First Galaxies to the Formation of Habitable Worlds	
Northeast Star and Planet Formation Meeting (<i>Cambridge, MA</i>)	<i>June 2023</i>
Origins of Solar Systems Gordon Research Conference (<i>Mount Holyoke College, MA</i>)	<i>June 2023</i>
Protostars and Planets VII (<i>Kyoto - Japan</i>)	<i>April 2023</i>

Advising & Mentorship

CREATE STEM Mentor Program, 1 student	<i>summer 2024</i>
Graduate Student Mentorship Program, 2 students	<i>2022-2024</i>
Amelie Sharples , Columbia University – undergraduate Closely Mentored for an astrochemical laboratory project, paper in writing	<i>summer 2023</i>
Anna Fitzsimmons , Harvard College Co-Mentor for an astrochemical laboratory project, paper submitted	<i>summer 2023</i>
Qijia Zhou , Harvard College 1:1 Mentorship for an astrochemical laboratory project, paper published	<i>2022-2024</i>
Cara Pesciotta , Northeastern University – undergraduate 1:1 Mentorship for an astrochemical laboratory project, paper published	<i>2021-2023</i>
Alexandra McKinnon , Harvard University – graduate Co-Mentor for an astrochemical laboratory project, paper in writing	<i>2023-</i>

Leadership & Service

Department Leadership & Service

Cfa Student Faculty Forum (StuFF), Co-organizer Co-organizer of a weekly presentation and discussion of a faculty member or graduate student	<i>2023-2025</i>
Graduate Student Mentorship Program, Recurring Peer Mentor Served as peer mentor to first-year graduate student	<i>2022-2024</i>

Institutional Service

Harvard Ice Skating Club, Board member/Contributor	<i>2023-2024</i>
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Department Outreach

ComSciCon 2022 Flagship Workshop, Co-Organizer (<i>MIT, MA</i>)	<i>Aug. 2022</i>
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Selected Media Features

Article – The Derek Bok Center for Teaching and Learning Teacher-Scholar Spotlight, illuminating PhD students' insights on teaching and learning!	<i>June 2024</i>
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Article (*French*) – Vivre à Étréchy
Rencontre avec Alexia Simon – D'Étréchy à Harvard

March 2024

Article (*French*) – Thotis Interview
Le parcours d'Alexia Simon constitue une belle leçon de vie.

April 2020

Professional Societies & Groups

American Astronomical Society (AAS; divisions LAD)

2020 -

Harvard Graduate Women in Science and Engineering (HGWISE)

2024 -

Other Skills & Training

Software Tools & Packages

– SOLIDWORKS, Github, MESA, LaTeX, Blender, GarageBand, Shapr3D

Programming Languages

– Python, MATLAB, Mathematica, SublimeText, html

OS Proficiency

– Linux, Mac OS X, Windows

Languages

– French (Native Proficiency), English (Bilingual Proficiency), Spanish (Limited Working Proficiency)