

# PAUL B RIMMER

Astrochemistry | Planetary Science | Origins of Life

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## EXPERIENCE



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### Assistant Professor of Experimental Astrophysics

2022 – Present

University of Cambridge: Cavendish Astrophysics

- Constructed StarLab, the first stellar simulator that mimics the Near-Ultraviolet (NUV) light of the young sun for the surface of early Earth and other planets.
- Constructing the first prebiotic heterogenous (surface, water, atmosphere) chemical kinetics model to be applied to Earth and other planets.
- Originated the surface hydrothermal vents scenario for origins of life.

### Research Scientist | Simons Senior Fellow

2018 – 2022

University of Cambridge: Department of Earth Sciences, Cavendish Astrophysics, MRC-LMB

- Founded the field of "prebiosignatures", i.e. the idea that one can use spectroscopic observations of exoplanets to understand early Earth
- Developed the first self-consistent full-atmosphere chemical network for Venus
- Chemical kinetics and experimental simulations of atmospheric, volcanic and impact-generated chemistry

### Postdoctoral Research Fellow | Supported by Simons and Kavli

2016 – 2018

University of Cambridge: Cavendish Astrophysics, MRC Laboratory of Molecular Biology

- First defined and delineated the *Abiogenesis Zone*: a planet outside this zone is one on which life cannot originate.
- Identified acetylene as a novel atmospheric tracer for asteroid and cometary impacts on exoplanets.

### Postdoctoral Research Fellow | European Research Council

2012 – 2016

School of Physics and Astronomy, University of St Andrews

- Constructed from scratch the STAND chemical kinetics network for ion-neutral atmospheric chemistry.
- Determined the physical effect of cosmic ray ionization on the upper atmospheres of planets

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## EDUCATION



**Ph.D.**, Physics, The Ohio State University, 2012. Dissertation: "The Chemical Impact of Physical Conditions in the Interstellar Medium" (Advisers: Eric Herbst and Richard Freeman)

**B.S.**, Physics, *Cum Laude*, University of Colorado Health Sciences Center, 2005.

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## GRANTS, MISSIONS, AND AWARDS



- **PI** (2025) on Proposal for LCLU Joint Collaboration Programme, "Exploring Surface Hydrothermal Vents as the Cradle of Life: Bridging Model, Experiment and Environment" (**Co-PI** Oliver Shorttle) ~ £276,000
- **PI** (2024) on Royal Society Proposal on "The Prebiotic Promise of Shallow Hydrothermal Vents: Constraining the Solubility, Henry's Law Constant, and Stability of Cyanoacetylene." ~£67,822
- **PI** (2023) on Proposal for LCLU Joint Collaboration Programme, "Chemistry on the Edge: Exploring the Boundaries of the Cyanosulfidic Reaction Network." ~£110,000
- **PI** (2022) on Proposal for IPLU to work on "Quantifying Aliveness." ~£25,000
- **Stanley L. Miller Early Career Award** (2021)
- **Venus Life Finder Mission**, Extended Science and Engineering Team, 2021 - Present
- **Senior Postdoctoral Researcher**, Trinity College Cambridge, 2019 - Present
- **CoI** (2019) on Research Incentive Grant for investigating "Terrestrial hydrothermal environments as a window to prebiotic worlds" (**PI** Claire Cousins) £14,500
- **Simons Senior Fellowship** (2018) to work on "Laboratory Simulations for Prebiotic Chemistry on the Surface of Early Earth and Other Planets", 3 years support. ~£350,000
- **CoI** (2018) on "Stellar Simulator Simons Grant" to support the construction of the StarLab simulator (**PI's** Didier Queloz and John D Sutherland). ~£750,000
- **PI** (2018) on Proposal for Lorentz Center Workshop on "The Roadmap to Universal Life." (other **PI's**: Claire Cousins, Karin Öberg, Claudia Bonfio, Inge Loes ten Kate & Mihkel Kama) ~£17000
- **CoI** (2017) on ReCoVER grant to provide funds in support for the day conference "Climate Science, Atmospheres and Life: from the Earth and Beyond" (**PI** Alex Archibald) ~£3000
- Drafted (2015) the Proposal for Simons and Kavli supported Fellowship for 2 years research work (**PI's**: Didier Queloz & John D. Sutherland)
- Royal Astronomical Society Grant (2014) for the conference "Electrification in Dusty Atmospheres" £2000
- David DeMartini Scholarship (2011) for outstanding graduate research at Ohio State University \$1000

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## TEACHING

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- **Physics:** Part 1A Practicals, Part 1B Practicals, Part 1B Thermodynamics Lectures, Part II Examiner, Chemistry Coordinator and Lecturer for the Planetary Science and Life in the Universe MPhil.
- Instructor (with Annelies Mortier), Exoplanets: Detection and Characterisation, 2015, at University of St Andrews Chemical Kinetics for Astronomers, 2015, at University of St Andrews
- **Advisor:** Guy Brett-Robertson (2014 MSc, with Kenneth Wood), Matthew Swayne (2014 Summer Student), Aleksandra Ardaseva (2015 BSc, with Christiane Helling), Harry Holt (2018 Part III Student, with Didier Queloz and Samantha Thompson), Alec Granville-Willett (2018 Part III Student, with Alex Archibald and Paul Griffiths), Domas Kalvaitis (2019 Part III Student), Tereza Constantinou (2020 Part III Student, with Oliver Shorttle), Tom Elgar (2020 Part III Student, with Alex Archibald), Sofia Kalamatianou (2022 MPhil Student), Alastair Claringbold (2022 Part III Student), Maja Radecka (2023 Part III student), Sean Jordan (PhD student graduated 2024).

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## SOCIETY MEMBERSHIP AND SERVICE

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Member of Royal Astronomical Society, American Astronomical Society, American Chemical Society

Referee for PNAS, MNRAS, ApJL, ApJ, Life, Astrobiology, Nature Astronomy

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## REFERENCES

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*Commonwealth Professor*

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### **Dr John D Sutherland, FRS**

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### **Prof Dimitar Sasselov**

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### **Prof Sara Seager**

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2. Gerin, M., de Luca, M., Goicoechea, J. R., Herbst, E., Falgarone, E., Godard, B., ... [**Rimmer, P. B.**]... & Ward, J. S. (2010). Interstellar CH absorption in the diffuse interstellar medium along the sight-lines to G10. 6-0.4 (W31C), W49N, and W51. *Astronomy and Astrophysics*, 521, L16.
3. Neufeld, D. A., Goicoechea, J. R., Sonnentrucker, P., Black, J. H., Pearson, J., Yu, S., ... [**Rimmer, P. B.**] ... & Shipman, R. (2010). Herschel/HIFI observations of interstellar OH<sup>+</sup> and H<sub>2</sub>O<sup>+</sup> towards W49N: a probe of diffuse clouds with a small molecular fraction. *Astronomy and Astrophysics*, 521, L10.
4. Gupta, H., **Rimmer, P. B.**, Pearson, J. C., Yu, S., Herbst, E., Harada, N., ... & Nordh, L. H. (2010). Detection of OH<sup>+</sup> and H<sub>2</sub>O<sup>+</sup> towards Orion KL. *Astronomy and Astrophysics*, 521, L47.
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8. **Rimmer, P. B.**, & Helling, Ch. (2013). Ionization in Atmospheres of Brown Dwarfs and Extrasolar Planets. IV. The Effect of Cosmic Rays. *The Astrophysical Journal*, 774(2), 108.
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44. **Rimmer, P.B.**, Jordan, S., Constantinou, T., et al. (2021) Hydroxide salts in the clouds of Venus: Their effect on the sulfur cycle and cloud droplet pH. *Planetary Science Journal*. 2(4), p.133
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74. Mrázíková, K., Knížek, A., Saeidfirozeh, H., ... **Rimmer, P.B.**, Martin Ferus. (2024) A Novel Abiotic Pathway for Phosphine Synthesis over Acidic Dust in Venus' Atmosphere. *Astrobiology*, 24, 407.
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81. Jordan, S., Shorttle, O., **Rimmer, P.B.** (2025) Tracing the Inner Edge of the Habitable Zone with Sulfur Chemistry. *Science Advances*, 11, eadp8105.
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91. Radecka, M.W. & **Rimmer, P.B.**, 2025. Nitrogen chemistry of hycean worlds on the example of K2-18b. MNRAS, 543, 789.
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93. Constantinou, T., Shorttle, O., **Rimmer, P.B.**, 2025. Powerful lightning on Venus constrained by atmospheric NO. PSJ, 6, 246.
94. Knizek, A., **Rimmer, P.B.**, Ferus, M. 2026. A Full-Atmosphere Model of Jupiter. Icarus, 116806.
95. Ghosh, P., Mishra, S., Dey, S., ..., **Rimmer, P.B.** and Majumdar, L., 2026. A Fast, Parallelized, GPU-accelerated Photochemical Model, XODIAC, with Built-in Equilibrium Chemistry and Multiple Chemical Networks for Exoplanetary Atmospheres. ApJ, 998, 221.
96. Braam, M., ..., **Rimmer, P.B.** and White, S.B., 2026, Hydrocarbon complexity and photochemical shielding of prebiotic feedstock molecules in exoplanet atmospheres. Icarus, 117032.
97. White, S.B. & **Rimmer, P.B.** SOUP: A New Tool for Evaluating Prebiotic Plausibility. *Submitted to Nature Communications*
98. Scherf, M., Constantinou, T., **Rimmer, P.B.**, et al., The rainout of formaldehyde favors a formose-based origin of life in shallow ponds. *Submitted to Nature Communications.*
99. Murali, S.S. & **Rimmer, P.B.**, New Hydrolysis Rate Constants for Cyanide Show that Prebiotic Chemistry is Most Plausible in Cool Neutral Waters. *Submitted to Nature Communications Chemistry Special Collection on Prebiotic Chemistry.*
100. Rossmanith, L., Platymesi, S.K., Thompson, S.J., **Rimmer, P.B.**, *in prep.* Shadow of a Shadow: Ferrocyanide and Nitroprusside as a Sunscreen for Photosensitive Prebiotic Molecules. *Submitted to Life Special Issue: Prebiotic Chemistry: The Molecular Origins of Life.*

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## TALKS, SYMPOSIA AND POSTERS



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### 56 TALKS (28 INVITED), 12 POSTERS, 21 SEMINARS

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1. *Optical Jets in the Radio Galaxy 4C30.31* (2004), **Poster** presented at the AAS Meeting in Denver.
2. *H3+ Abundances Modeled with a Variable Cosmic Ray Ionization Rate* (2008), **Talk** at the OSU International Symposium on Molecular Spectroscopy in Columbus, Ohio.
3. *A Variable Zeta and its Impact on the ISM* (2008), **Poster** at the Dalgarno Celebratory Symposium in Cambridge, Massachusetts.
4. *Observing a Column-Dependent Zeta in the Horsehead PDR* (2010), **Talk** at the OSU International Symposium for Molecular Spectroscopy in Columbus, Ohio.
5. *A Waterfall in Orion? Exploring the Violent KL Region* (2010), **Talk** at the Midwest Astrochemistry Meeting in Urbana, Illinois.
6. *The Effect of Various Cosmic Ray Flux-Spectra on PDR Chemistry* (2011), **Invited Talk** at the Lorentz Center Workshop on "Cosmic Ray Interactions: Bridging High and Low Energy Astrophysics" in Leiden.
7. *Is Water Ice a Precursor to OH+ and H2O+ in Orion KL?* (2011), **Talk** at the OSU International Symposium for Molecular Spectroscopy in Columbus Ohio.
8. *Propagation of Low-Energy Cosmic Rays in Molecular Clouds: Calculations in Two Dimensions*, **Talk** at the "Cosmic Rays and the InterStellar Medium" conference in Montpellier.
9. *Three Explanations for Intermediate Molecules in the Orion KL Region* (2011), **Poster** at IAUS 280: The Molecular Universe in Toledo.
10. *Chemistry and star formation in Orion* (2012), **Talk** at the European Week of Astronomy and Space Science meeting in Rome.
11. *Cosmic Ray Impact on the Ion Fraction in Hot Jupiter and Brown Dwarf Atmospheres* (2012), **Poster** at the "Characterizing & Modeling Extrasolar Planetary Atmospheres: Theory & Observation" meeting in Heidelberg.
12. *Taking Charge: Sources of Ionization in Brown Dwarf Atmospheres* (2012), **Talk** at the Scottish Universities Physics Alliance Cormack Meeting in Edinburgh.
13. (2013), **a Talk and Poster** at the Royal Astronomical Society meeting on "The Planetary Systems of Evolved Stars" in London
14. (2013), **a Poster** at the Royal Astronomical Society meeting on "Physics and Chemistry of Clouds in Brown Dwarfs and Exoplanets" in London
15. *Cosmic Ray Chemistry and its Effect on Complex Hydrocarbons in the Atmospheres of Exoplanets* (2013), **Talk** at the Astrobiology Conference "Molecules and Life in Extremes" conference in Edinburgh.

16. *Astrochemistry applied to Planets: Cosmic-Ray Ionization and Hazes on Hot Jupiters* (2013), **Talk** at the "Stars to Life" conference in Gainesville, Florida.
17. *Cosmic Rays, UV Photons and Haze Formation in the Upper Atmospheres of Hot Jupiters* (2013), **Poster** at IAUS 299: "Exploring the Formation and Evolution of Planetary Systems" in Victoria, British Columbia.
18. *Cosmic Ray Ionization and Hazes on Hot Jupiters* (2013), **Talk** at the OSU International Symposium on Molecular Spectroscopy in Columbus, Ohio.
19. *The Effects of Extensive Air Showers in a Model Brown Dwarf Atmosphere* (2013), **Talk** at the National Astronomy Meeting in St Andrews.
20. *Non-Equilibrium Ion-Neutral Chemistry between Brown Dwarfs and Exoplanets* (2013), **Talk** at "Exoplanets and Brown Dwarfs: Mind the Gap" conference in Hatfield near London.
21. *Cosmic Ray Ionization and Dust Charging at the Cloud Top of a Giant Gas Planet* (2013), **Talk** at the European Planetary Science Council meeting, London.
22. **Symposium** at Leeds in 2013 on Cosmic Ray Chemistry in Exoplanet Atmospheres, invited by Paola Caselli
23. *Cosmic Ray Propagation within the Astrospheres of Solar Twins* (2013), **Talk** at "Wind Bubbles, Astrospheres and the Heliosphere: Environments and Cosmic Rays", Bochum
24. *The Influence of Cool Stellar Winds on Galactic Cosmic Rays* (2014), **Talk** at the Third Bcool Meeting, St Andrews.
25. *Cosmic Ray Transport in the Astrospheres of Solar Twins* (2014), **Talk** at CRISM-2014: Cosmic Rays & their Interstellar Medium Environment, Montpellier. Invited by Alexandre Marcowith.
26. *High Energy Cosmic Rays and Short-Lived Plasmas in Planetary Atmospheres* (2014), **Talk** at Electrification in Dusty Atmospheres Inside and Outside the Solar System, Pitlochry.
27. *Cosmic Ray Transport within 2 AU of the Sun and two Solar Twins* (2015), **Talk** at the Fourth Bcool Meeting, Geneva.
28. **Symposium** at Glasgow in 2015 on Lightning Chemistry in Exoplanet Atmospheres, invited by Declan Diver.
29. **Talk** (2015) at the First Scottish Exoplanet / Brown Dwarf Meeting, St Andrews.
30. *Ion-Neutral Exoplanet Chemistry at High Temperatures and Pressures* (2015), **Talk** at the 11<sup>th</sup> Rencontres du Vietnam "Planetary Systems: A Synergistic View."
31. *Tracers of Interstellar Chemistry in Exoplanet Atmospheres* (2015), **Poster** at the International Astronomical Union XXIX General Assembly, Hawaii
32. **Symposium** at the Cavendish Astrophysics Group, Cambridge, in 2015, on Lightning Chemistry in Exoplanet Atmospheres, invited by Brice-Olivier Demory.

33. *Auroral Chemistry in Exoplanet Atmospheres* (2015), **Poster** at Extreme Solar Systems III, Hawaii
34. **Lab Talk** at the Medical Research Council Laboratory of Molecular Biology, Cambridge, in 2015, on Synthetic Models of Prebiotic Synthesis Experiments, invited by John Sutherland.
35. **Invited Talk** at the 41<sup>st</sup> COSPAR Scientific Assembly, Istanbul, Turkey, 30 July – 7 August 2016, on A Chemical Kinetics Network for Lightning and Life in Planetary Atmospheres *Conference was Cancelled*
36. **Talk** (2017) at the Cambridge Exoplanet Day Meeting
37. **Talk** at the UK Exoplanet Community Meeting on March 2017 in St Andrews, titled "Prebiotic Chemistry on Other Worlds"
38. **Discussion Session** at the UK Exoplanet Community Meeting on March 2017 in St Andrews, titled "Laboratory Exoplanet Science"
39. **Talk** at the Simons Foundation meeting on the Origin of Life on May 2017 in New York, New York.
40. **Invited Talk** with Jianfeng Xu on May 2017 in Cambridge, UK, for the conference "Climate Science, Atmospheres and Life: From the Earth and Beyond".
41. **Seminar** on July 2017 in Oxford University about "Looking on the Bright Side: The Impact of Stellar Activity on Prebiotic Chemistry".
42. **Talk** at the Astrobiology Society of Britain Conference ASB7 on September 2017 in Milton-Keynes, titled "Prebiotic Chemistry on Exoplanets"
43. **Poster** at the Habitable Worlds System Science Workshop on November 2017 in Laramie WY, USA, titled "Prebiotic Chemistry on Exoplanets Within the Liquid Water Habitable Zone"
44. **Talk and Poster** at the 51<sup>st</sup> ESLAB Symposium "Extreme Habitable Worlds" on December 2017 in Noordwijk, Netherlands, called "Universal Life".
45. **Seminars** on January 2018 at Harvard University and MIT.
46. **Poster** at the UK Exoplanet Meeting on March 2018 in Oxford, United Kingdom, called "Simulating the Starlight on Rocky Exoplanets".
47. **Organizer and Chair of Conference Session** at the UK Exoplanet Meeting on March 2018 in Oxford, United Kingdom, called "Origins"
48. **Talk** at Exoplanets II on July 2018 in Cambridge, United Kingdom, called "Abiogenesis Zones around Active M-Dwarfs"
49. **Talk** at the 42<sup>nd</sup> COSPAR Assembly on July 2018 in Pasadena, California, USA, called "Ultraviolet Chemistry in Warm Little Ponds on Rocky Planets around Cool Stars"
50. **Talk** at the 42<sup>nd</sup> COSPAR Assembly on July 2018 in Pasadena, California, USA, called "Lightning and Cyanide Chemistry on Exoplanets"
51. **Seminar** on August 2018 at NASA Goddard, USA, called "How Stellar Activity can be Good for Life"

52. **Seminar** on October 2018 at Cambridge, UK, called "Geochemical Constraints for Prebiotic Chemistry"
53. **Seminar** on November 2018 at Imperial College, London, UK, called "Abiogenesis Zones around M-Dwarfs"
54. **Seminar** on November 2018 at Atmospheric, Oceanic and Planetary Physics, University of Oxford, Oxford, UK, called "Prebiotic Chemistry on the Early Earth and Other Planets"
55. **Invited Talk** at WG4: Digital Exoplanets on January 2019 in Prague, Czech Republic, Title: A Lagrangian Code for Atmospheric Chemical Kinetics
56. **Invited Talk** at ExoComets: Understanding the Composition of Planetary Building Blocks on May 2019 in the Lorentz Center, University of Leiden, Netherlands, Title: Impact-Induced Chemistry on Exoplanets
57. **Invited Talk** at Astrobiology Science Conference on June 2019 in Bellevue, Washington, USA, Title: Hydrogen Cyanide Production by High-Energy Chemistry, as a Function of Atmospheric Surface Pressure and C/O Ratio
58. **Invited** to a "Biosignatures" Panel on "The Future of Exoplanet Research" Symposium at the TESS Science Conference I at MIT, Boston, Massachusetts, USA.
59. **Seminar** on September 2019 at University of St Andrews Department of Physics and Astronomy, St Andrews, UK, called "Impacts and Habitability on Exoplanets"
60. **Seminar** on November 2019 at University of California Las Angeles, Las Angeles, California, USA, called "Impacts and Habitability on Exoplanets"
61. **Two Seminars** on February 2020 at Trinity College Dublin, Dublin, Ireland, on "Stellar Energetic Particles, Atmospheric Redox and False Biosignatures" and "Simulating Prebiotic Chemistry on Other Worlds"
62. **Invited Talk** at A Virtual Cambridge - ETH Workshop on the "Origin and Prevalence of Life", Title: "Connecting astrophysics with molecular biology"
63. **Invited Talk** at the Simons Collaboration on the Origins of Life (SCOL) Exoplanet e-Meeting in June 2020, Title: "Origins of Life on Earth-Like Exoplanets"
64. **Seminar** at the University of Cambridge Department of Earth Sciences in September 2020, Title: "Phosphine chemistry in the clouds of Venus"
65. **Invited Talk** for the John Ray Society in November 2020, Title: "Do-Nothing Prebiotic Chemistry"
66. **Keynote Talk** at the CHAMELEON Kick-Off Virtual Meeting in November 2020, Title: "The discovery of phosphine on Venus"
67. **Invited Talk** for the Venus Life Finder Mission Team in February 2021, Title: "Three Different Ways to Explain the Sulfur Depletion in the Clouds of Venus"

68. **Invited Talk** for the Molecular Origins of Life Conference in Munich in August 2021, Title: "The Effect of Broadband Ultraviolet Light on Prebiotic and Abiotic Chemistry"
69. **Invited** to participate in the MIAPP Workshop on The Physics and Emergence of Life in August-September 2021.
70. **Invited** to participate in a Cambridge Symposium on "Nature's Goals: Hylomorphism, Teleology and Design" in March 2022.
71. **Invited Talk** for the Conference Towards Molecular Complexity: At the crossroads between astrophysics and biochemistry at Heidelberg in May 2022.
72. **Poster** at AbSciCon, Atlanta GA, USA., May 2022.
73. **Invited Talk** at JPL Seminar, Los Angeles, CA, USA., May 2022.
74. **Organized Breakout Session** at EGU General Assembly on "Life as a Planetary Phenomenon", May 2022.
75. **Invited Talk** at Lorentz Center Workshop on "Tracing Sulfur From Molecular Clouds To The Origin Of Life", Leiden, Netherlands. September 2022.
76. **Invited Talk** at the Life in the Universe Workshop (Physics of Living Systems) in Sofia, Bulgaria. October 2022.
77. **Invited Talk** at the Royal Astronomical Society Meeting on "Abiotic Baselines in Astrobiology". January 2023.
78. **Invited Talk** at Heraeus Seminar "From the Heliosphere to Astrospheres - Lessons for Exoplanets and their Habitability" in Bad Honnef, Germany. January 2023.
79. **Invited to Panel** at the Venus Surface and Atmosphere Conference. Houston, TX, USA. Attended remotely. February 2023.
80. **Seminar** at the Chemistry Department, University of Cambridge, on "Heterogenous Chemistry and The Possibility for Life in the Clouds of Venus". February 2023.
81. **Seminar** at IWF, Graz, Austria on "Heterogenous Chemistry in the Clouds of Venus", Attended remotely. March 2023.
82. **Invited Talk** at Molecular Origins of Life Conference, Munich June 2023.
83. **Invited Talk** at ISSOL Origins Conference, Quito July-August 2023.
84. **Invited Talk** at LIFE RCN Workshop on Nitrogen Cycling Across Planetary Scales, October 2023.
85. **Invited Talk** at the Inaugural Workshop on Nuclear Astrochemistry, February-March 2024.
86. **Contributed Talk** at the Impact Workshop, Rochester NY, April 2024.
87. **Seminar** at Boston University on 18 April 2024.
88. **Invited Lecture** at the SPP 1992 Exoplanet Diversity Spring School, April-May 2024.

89. **Seminar** at Jack Szostak's Lab, University of Chicago, August 2024.
90. **Contributed Talk** at the Goldschmidt Conference, Chicago, IL, August 2024.
91. **Poster** at the Origins Federation Conference, University of Cambridge, Cambridge, UK, September 2024.
92. **Invited Talk** at the VeReDo Kickoff Meeting, Graz, Austria, November 2024
93. **Organizer** of "A Symposium to Honor Eric Herbst's Contributions to Our Understanding of the Molecular Universe", ACS Spring Meeting, San Diego, CA, March 2025.
94. **Poster** on "Storage and Release of Cyanoacetylene Under Prebiotic Conditions", ACS Spring Meeting, San Diego, CA, March 2025.
95. **Panel Discussion Leader** of the Panel "How to Detect Life as we do not Know It", Breakthrough Discuss Panel 2025, Oxford, UK, April 2025.
96. **Organizer** of the workshop "Smashing It: how impacts forge formation, dynamics, and climates of (exo)planets", Leeds, UK, June 2025.
97. **Seminar** for Donna Rodgers-Lee's group at DIAS, Dublin, Ireland, July 2025.
98. **Invited** to the workshop "Chemical Origins of Life as We Don't Know It" (organized by Rick Remsing and Martin Rahm), Telluride, Colorado, USA, October 2025.
99. **Seminar** for the Royal Observatory Edinburgh, UK, December 2025.
100. **ETH Visitor**, Zurich, Switzerland, March 2026.
101. **Lecturer**, Spring school "Tracking the evolution of planetary systems and planets", Liblice Castle, Czech Republic, April 2026.
102. **Poster** at AbSciCon, Wisconsin, May 2026.
103. **Invited Talk**, Molecular Origins of Life, Munich, Germany, June 2026.
104. **Lecturer**, Exoplanets by the Lake IV: Geoastrometry and Origins of Life, July 2026.