

2025
1-5 JULY

BIENNIAL EUROPEAN ASTROBIOLOGY CONFERENCE HARPA
CONFERENCE & CONCERT HALL, REYKJAVIK, ICELAND

BEACON



EAI
EUROPEAN
ASTROBIOLOGY
INSTITUTE





EAI

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The European Astrobiology Institute (EAI) is a consortium of European research and higher education institutions and organisations as well as other stakeholders aiming to carry out research, training, outreach and dissemination activities in astrobiology in a comprehensive and coordinated manner and thereby securing a leading role for the European Research Area in the field.

Key Research Areas of EAI:

- Formation and Evolution of Planetary Systems and Detection of Habitable Worlds
- Planetary Environments and Habitability
- Evolution and Traces of Early life and life under extreme conditions
- The pathway to complexity: From simple molecules to first life
- Biosignatures and the Detection of Life beyond Earth
- Historical, philosophical, societal and ethical issues in astrobiology

The EAI has 26 participating institutions from 13 countries. EAI engages in a variety of outreach activities, including streamed seminars, conferences and summer schools.

To find out more about EAI, visit our website!



About BEACON

The second Biennial European Astrobiology Conference (BEACON) will take place at the Harpa Conference Centre in Reykjavik, Iceland from 1-5 July 2025, bringing together the worldwide astrobiology community.

BEACON Conference Topics are:

- Evolution and Traces of Early Life and Life Under Extreme Conditions
- Biosignatures and the Detection of Life Beyond Earth
- Historical, Philosophical, Societal and Ethical Issues in Astrobiology
- Tracing Life and Identifying Habitable Environments
- Impacts and their Role in the Evolution of Planets, Moons and Life
- Protoplanetary Disks and their Physical and Chemical Processes
- Formation and Evolution of Planetary Systems and Detection of Habitable Worlds
- The Pathway to Complexity: From Simple Molecules to First Life
- Planetary Environments and Habitability

Keynote Speakers



Steven Dick
NASA, US



Frédéric Foucher
CNRS, FR



Kevin Heng
LMU Munich, DE



Nozair Khawaja
FUB & IRS-Uni
Stuttgart, DE



Melissa McClure
Leiden University, NL



**Barbara
Sherwood-Lollar**
University of
Toronto, CA



Sandra Siljeström
RISE, SE



**Anne Grete Straume-
Lindner**
ESA

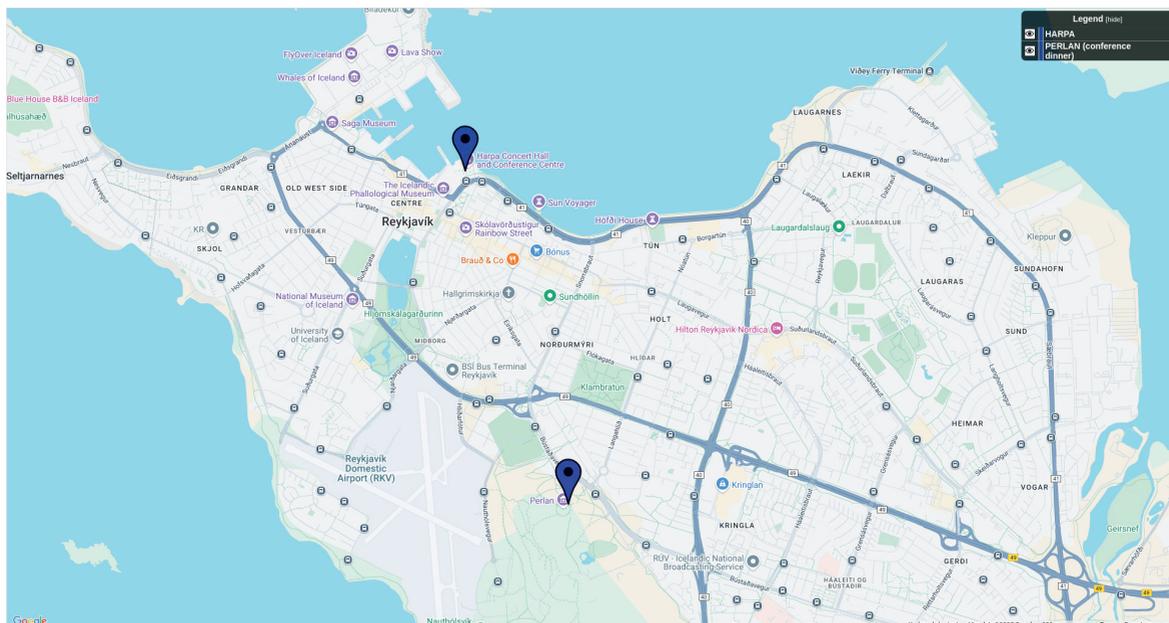


Giovanna Tinetti
UCL London, UK



2nd floor

- For the Opening Ceremony, please go to Nordurljós
- For the Plenary Sessions, please go to Silfurberg
- Toilet facilities are available on every floor



- Our Conference Dinner will take place at Perlan ([Varmahlíð 1, 105 Reykjavik, Iceland](#)), not within Harpa.

PRACTICAL INFORMATION

Alcohol

The nearest alcohol shop (Vínbúðin) is at Austurstræti 10a, open Mon–Sat 11:00–18:00.

ATMs & Banks

Banks: Mon–Fri, 09:15–16:00. Closest ATM & bank: Landsbankinn, Austurstræti 10. Cards are widely accepted.

Clothing for Excursions

Bring:

- Sturdy shoes (ideally ankle-high)
- Backpack & water (1.5L)
- Sunscreen
- Trousers (no shorts – lava is sharp!)

No dress code at BEACON, but smart attire is welcome for the conference dinner.

Laundry

- City Youth Hostel (Sundlaugavegur 34): 2 washers & dryers
- Laundromat Café (Austurstræti 9): Café with 3 machines
-

Medical Help

- Health centres: Weekdays 09:00–18:00
- After hours: Læknavaktin, Smáratorg, Kópavogur
- 24h pharmacy: Lyfja, Lágmúli 7, tel. +354 523 2300
- Emergency: Dial 112

Money

ATMs are everywhere. Closest to Harpa: Austurstræti 11. Iceland uses ISK. Credit/debit cards accepted everywhere.

Opening Hours

Shops vary but stay open late in summer. Bookshops often open till 22:00. Banks: Mon–Fri, 09:15–16:00.

Pharmacies

Closest: Lyfja, Hafnarstræti 19.

24h: Lyfja, Lágmúli 7.

Note: "Apótek" at Austurstræti is a restaurant, not a pharmacy.

Police

Police HQ: Hverfisgata 113. Non-urgent: +354 444 1000. Emergency: 112

Post Office

Closest: Síðumúla 3–5. Open Mon–Thu 09:30–17:00, Fri 09:30–16:00.

Poster Sessions

Evenings of Tues 1 July & Fri 4 July.

- DIN A0 (portrait), max: 95cm × 180cm
- Print via www.syning.is by 25 June
- Collect at Söltun 20 (opposite Grand Hotel)

Shopping

Best areas: Laugavegur, Skólavörðustígur

Avoid tourist shops on Austurstræti (with some exceptions).

Good souvenirs include: wool jumpers, local ceramics, fish leather goods, books

- VAT refund available for non-residents

Groceries:

- Krónan, Grandi (Fiskislóð 15–21) – organic/vegan options, open daily 09:00–21:00
- Krónan, Hallveigarstígur 1 – closer to Harpa
- Late-night shops (costlier):
 - 10/11, Austurstræti 17
 - Krambúðin, Skólavörðustígur 42

Sightseeing

- Settlement Exhibition (Aðalstræti 16): Free, daily 09:00–17:00
- National Museum: 10:00–17:00, free on Wednesdays
- Hallgrímskirkja Tower: Open daily 09:00–17:00
- Ásmundur Sveinsson Museum + art galleries nearby

Telephone

Iceland's code: +354. No area codes. Phonebooks are by first name.

Tipping

Not expected. Service is included in prices.

Tourist Info

Reykjavík Tourist Office, Laugavegur 5

Open daily 08:30–21:00

Weather

Check forecasts at www.vedur.is

RECOMMENDED RESTAURANTS

Breakfast

Grái Kötturinn (10 min)

Legendary pancakes, homemade bread, tuna salad & hummus. Signature dish: The Truck (pancakes, eggs, bacon, potatoes).

🕒 Daily 08:00–14:30 | 📍 Hverfisgata 16a

Hama (on campus)

Student café with sandwiches, 2 daily lunch courses.

🕒 Mon–Fri 08:00–18:00 | 📍 Háskólatorg building

Kaffi Ólé (10 min)

Classic breakfast & croissants. Service mixed.

🕒 Daily 08:00–20:00 | 📍 Radisson Hotel, Hafnarstræti 11

Sandholt (15 min)

Historic bakery with modern flair. Excellent pastries.

🕒 Daily 07:30–18:00 | 📍 Laugavegur 36 | 🌐 sandholt.is

Food Court

Hafnartorg Gallery (5 min)

Trendy food hall with French, Italian, Japanese, Mexican & cafés.

🕒 Most open 11:30–23:30 | 🌐 hafnartorggallery.is

Cafés

Café Babalú (15–20 min)

Quirky café with crepes, cakes & balcony seating. Famous for cheesecake.

🕒 Daily 08:30–19:00 | 📍 Skólavörðustígur 22 | 🌐 babalu.is

Laundromat Café (10 min)

Eat, drink, and do laundry.

🕒 Mon–Wed 09:00–21:00, Thu–Fri 09:00–22:00, Sat 10:00–22:00 | 📍 Austurstræti 9 | 🌐 thelaundromatcafe.is

Prikið (10 min)

Iceland's first all-day breakfast bar (since 1951).

🕒 Food until 18:00 | 📍 Bankastræti 12 | 🌐 prikid.is

Fast Food

Bæjarins Beztu Pylsur (10 min)

Iconic hot dog stand. No frills, huge following.

📍 Tryggvagata near Lækjartorg

Tommi's Burger Joint (10 min)

Retro-style burger joint with cult status.

🕒 Daily 11:00–21:00 | 📍 Geirsgata 1 | 🌐 tommis.is

Hressó (10 min)

Lively pub with food & drinks.

🕒 Daily 10:30–22:00 | 📍 Austurstræti 20

Ramen Momo (10 min)

Popular spot for handmade ramen.

🕒 Mon–Fri 11:30–21:00, Sat–Sun 12:00–21:30 | 📍 Tryggvagata 16

Icelandic Cuisine

Fish Company (10 min)

Trendy seafood spot with prix fixe menus.

🕒 Mon–Fri 11:30–14:30, 17:00–22:30 | Sat 17:00–23:30 | Sun 17:00–22:30

📍 Vesturgata 2a | 🌐 fiskfelagid.is

Sægreifinn (10 min)

Harbourside classic for traditional seafood.

🕒 Daily 12:00–16:00 & 18:00–22:00 | 📍

Geirsgata 4a

Sæta Svínið Gastropub (10 min)

Fun gastropub with live events.

🕒 Daily 11:30–23:00 | 📍 Hafnarstræti 1–3 |

🌐 saetasvinid.is

Torfan (15 min)

Upscale Icelandic dining in historic house. Affordable lunch.

🕒 Tue–Sun 11:30–22:00 | Mon closed | 📍

Amtmannsstígur 1 | 🌐 torfan.is

Vegan / Vegetarian

Chickpea (15 min)

Family-run vegetarian falafel joint.

🕒 Mon–Sat 10:00–20:00 | 📍

Hallveigarstígur 1 | 🌐 chickpea.is

Heart Garden (Garðurinn) (15 min)

Small vegetarian café with organic groceries.

🕒 Tue, Thu, Fri 11:00–20:30 | Wed 11:00–

17:00 | Closed Sat–Mon

📍 Klapparstígur 37 | 🌐 heart-garden.is

Vegan World Peace (10 min)

Popular vegan spot near city centre.

🕒 Mon–Sat 11:00–01:00, Sun 16:00–21:00 |

📍 Aðalstræti 2 | 🌐 veganworldpeace-iceland.com

International

Grandi (25 min)

Mixed cuisine established in renovated sheds. New.

📍 Grandagarður 1 | 🌐 visitreykjavik.is

Hnoss (at Harpa)

Harpa's in-house bistro with bar food. Upscale ambiance.

🕒 Daily 11:00–18:00 | 🌐 harpa.is/hnoss

Kol (20 min)

Upscale grill & wagyu specialist.

🕒 Mon–Fri 12:00–14:00, 17:30–22:00 | Sat 12:00–14:30, 17:30–23:00

📍 Skólavörðustígur 40 | 🌐 kolrestaurant.is

Le Kock (10 min)

Trendy comfort food: burgers, bagels, donuts, all baked fresh daily.

🕒 Daily 11:30–23:00 | 📍 Tryggvagata 14 |

🌐 lekock.is

Skreið (15 min)

Stylish tapas bar & deli. Great atmosphere, but adds up.

🕒 Tue–Wed 11:30–23:30, Thu–Sat until 00:00 | 📍 Skólavörðustígur | 🌐 skreid.is



**MONDAY
30TH JUNE**

Nordurljos Hall, Harpa

BEACON 2025 PROGRAMME

	Nordurljos Hall, Harpa
20:00 - 20:20	Welcome addresses by
	Wolf Geppert, EAI Chair
	Sigurður M. Garðarsson, Dean of the the School of Engineering and Natural Sciences, University of Iceland
	Ágúst Hjörtur Ingþórsson, Icelandic Centre of Research (Rannis)
20:20 - 21:00	Welcome talk: Giovanna Tinetti, University College London: The ARIEL Mission: Analysing exoplanet atmospheres
21:00 - 21:35	Dark biosphere: Award winning planetarium movie (cinema version)
21:35	Multimedia music and dance show



**TUESDAY 1ST
JULY**

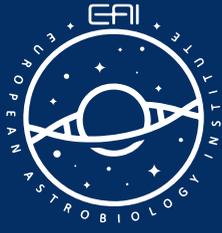
Silfurberg Hall, Harpa

BEACON

2025 PROGRAMME

Session 1: Plenary session Chair Wolf Geppert						
09:00 - 09:15	Wolf Geppert	Stockholm University, SE	Opening			
09:15 - 09:45	Melissa McClure	Leiden University, NL	Searching for the icy building blocks of life with the James Webb Space Telescope			
09:45 - 10:15	Giovanna Tinetti	University College London, UK	TBD			
10:15 - 10:45	Coffee break					
10:45 - 11:15	Kevin Heng	LMU Munich, DE	The Geoastrometry of Small Exoplanets			
11:15 - 11:45	Steven Dick	NASA; USA	Transforming our Worldviews in a Biological (or Postbiological) Universe			
11:45 - 13:00	Lunch break					
Silfurberg Room 1				Silfurberg Room 2		
Session 2a: Formation of Complex molecules in the interstellar medium Chair: Wolf Geppert				Session 2b: Formation, detection, characterisation and modelling of planets Chair: Ewa Szuszkiewicz		
13:00 - 13:15	Annemieke Petrigani	University of Amsterdam, NL	From astrochemistry to prebiotic environments: on extraterrestrial organics and their possible impact on rocky environments	Jenny Frediani	Stockholm University, SE	The XUE program: the JWST/MIRI view on planet-forming disks
13:15 - 13:30	Laura Slumstrup	Aarhus University, NL	The role of Interstellar Dust in the formation of Complex Organic Molecules	Christopher Boettner	University of Groningen, NL	Planet Demographics Across the Galaxy: From Simulations to PLATO
13:30 - 13:45	Lawry Honold	Aix-Marseille University, FR	Characterization of Soluble Organic Matter from VUV-Processed Interstellar Ice Analogs Using ESI and APPI FT-ICR MS	Lena Noack	Freie Universität Berlin, DE	Predicted atmospheric evolutionary pathways for the TRAPPIST-1 planets
13:45 - 14:00	Rafael Martin-Domenech	CAB, ES	Formation of OCS in interstellar ice mantles	Ruohan Liu	University College London, UK	Exploring the Atmosphere of K2-18b, a habitable-zone sub-Neptune
14:00 - 14:15	Miguel Sanz-Novo	CAB, ES	On the abiotic origin of dimethyl sulfide: Discovery of interstellar DMS at last	Engin Keles	Freie Universität Berlin, DE	Towards the ELT: Attempting to detect rocky world atmospheres from the ground
14:15 - 14:30	Isabelle Fourné	Sorbonne University, FR	Unraveling the chemistry of sulfur-containing molecules in the interstellar medium: the gas-phase formation of H ₂ C ₃ S	Marrick Braam	University of Bern, CH	Large Interferometer for Exoplanets (LIFE): characterizing the mid-infrared thermal emission of terrestrial exoplanets
14:30 - 14:45	Rosa Arenales	LMU Munich, DE	Detectability Study on Polycyclic Aromatic Hydrocarbons in Exoplanet Atmospheres.			
14:45 - 15:00	Break					

	Session 3a: Complex molecules in planet atmospheres Chair: John Brucato			Session 2b (cont.): Formation, detection, characterisation and modelling of planets		
15:00 - 15:15	Gustavo Pinho Maia	University of Lisbon, PT	Effect of mechanochemical events into extraterrestrial organic matter and its implications for exogenous delivery	Gang Zhao	Chinese Academy of Sciences, CN	The Tianlin Mission: A 6 m UV/Opt/IR Space Telescope to Explore Habitable Worlds and the Universe
	Andrew Alberini	INAF, IT	Are sulfates a safe harbor for organics on mars? investigating the spectroscopic behavior of hydrated sulfates and their organics photoprotective role under martian-like UV irradiation.	José Caballero	CAB. ES	What's next? Habitable Worlds Observatory Large Interferometer For Exoplanets and beyond
15:15 - 15:30	Meng Tian	LMU Munich, DE	A Unified Modeling Framework for the Outgassing Chemistry of Super Earths and sub-Neptunes	Jools Clarke	University College London, UK	Understanding Predictions made by Machine Learning for Spectroscopic Atmospheric Characterisation: A Review
15:30 - 15:45				Session 3b: Investigations into geological and geochemical processes on Mars Chair: Barbara de Toffoli		
15:45 - 16:00	Dwaipayan Dubey	LMU Munich, DE	Bridging Chemistry and Technology: The Dual Role of PAHs in Exoplanetary Atmospheres	Maxime Pineau	LGL-TPE, Villeurbanne, FR	Extrusion of buried alteration minerals through Early-Amazonian sedimentary volcanism in the Northern Plains of Mars
16:00 - 16:15	Oriane Sohier	LATMOS, FR	Chemistry in the atmospheres of temperate exoplanets: On the need for synergy between experiments, modelling and observations to characterize their habitability	Beatrice Baschetti	University of Padua, IT	Cyclically alternating clay and sulfate beds in the Equatorial Layered Deposits of Meridiani Planum, Mars: origin, development, and climatic implications.
16:15 - 16:30	Thomas Drant	LMU Munich, DE	Optical properties of organic atmospheric hazes for early-Earth, Titan, Pluto and exoplanet applications	Anastasiia Ovchinnikova	Freie Universität Berlin, DE	Interconnection of the Northern and Western Deltas in Jezero Crater, Mars, and its Potential Astrobiological Implications
16:30-17:00	Coffee break					
	Session 4a: Evolution of organic matter in space Chair: Thomas Henning			Session 3b (cont.): Investigations into geological and geochemical processes on Mars		
17:00 - 17:15	Donia Baklouti	University Paris-Saclay, FR	Hydrated Ammonium-Magnesium-Phosphorus-rich (HAMP) grains discovered in Ryugu samples: chemical and astrophysical implications	Jiannan Zhao	China University of Geosciences, CN	Geological diversity of paleolakes in the NW Arabia Terra, Mars: implications for the landing site selection of China's Tianwen-3 sample return mission
17:15 - 17:30	Filip Matuszewski	Université Grenoble-Alpes, FR	Oxygen ion irradiation of Titan aerosol analogs	Federico Mansilla	CAB, ES	Evidence for a hydrothermal system on Cerberus Fossae, Mars
17:30 - 17:45	Nicolas Solem	University Paris-Saclay, FR	CN- and C3N- reactivity with formic and acetic acid, acetaldehyde and methanol	Lucien Demaret	Université de Liège, BE	Characterisation of Al and Fe/Mg-rich clays by micro-Raman spectroscopy in preparation for Mars exploration missions
17:45 - 18:00	Ricardo Carrasco Herrera	University Aix-Marseille	Irradiation of CH3OH with 10 keV electrons: Implications for Europa's surface organics	Guillaume LeSeigneur	MPI for Solar System Research, DE	Optimisation of future in situ Martian soil analyses with MOMA GC-MS
18:00 - 18:15	Cornelia Meinert	CNRS, FR	Abiotic Pathways to Biological Sugars: From Interstellar Ices to the Early Earth	Courteney Monchinski	ELSI, JP	Effects of water vapor on the evolution of an impact-generated disk around Mars
18:15 - 18:30	Juliette Pastore	University Paris-Est Creteil	Amino acids photostability in extraterrestrial conditions: VUV and mid-UV absorption cross-section of solid films	Adomas Valantinas	Brown University, US	Potential for Ancient Habitability and Deep Crustal Materials Preserved in the Rim of Jezero Crater
18:30 - 18:45	Hervé Cottin	Université Paris-Est Creteil, FR	IR-COASTER: an astrobiology and astrochemistry experiment in progress outside the International Space Station.	Benton Clark	Space Science Institute, Boulder, US	MARS SERPENTINE SAMPLE IS COMPOSITIONAL ANALOG TO THE LOST CITY HYDROTHERMAL VENTS
20:15 - 22:15	Poster session					



WEDNESDAY

2ND JULY

Silfurberg Hall, Harpa

BEACON

2025 PROGRAMME

Silfurberg Room 1				Silfurberg Room 2		
Session 5a: Formation of the basic molecular building blocks of life Chair: Dieter Braun				Session 4b: New findings on icy bodies Chair: Guiseppe Murante		
09:00 - 09:15	Skyla White	University of Cambridge, UK	Chemical Kinetics as a Window into Prebiotic Plausibility	Matteo Teodori	INAF, IT	A Smoothed Particle Hydrodynamics model for volatiles emission: simulations of Enceladus' plumes
09:15 - 09:30	Manon Laura Schlikker	Heinrich Heine University, DE	Conversion of pyridoxal to pyridoxamine with NH3 and H2 on nickel generates a protometabolic nitrogen shuttle under serpentinizing conditions	Frank Postberg	Freie Universität Berlin, DE	Salt diversity observed in Enceladus' ice grains suggest a complex plume formation process from its subsurface ocean
09:30 - 09:45	Hunarpreet Kaur	HFML-FELIX, Nijmegen, NL	Gas-Phase Glycolaldehyde Synthesis via a Cationic 'Formose' Reaction: Insights from Cryogenic Action Spectroscopy	Francesco Biagiotti	University of Rome La Sapienza, IT	Machine Learning Clustering Techniques applied to Juno/JIRAM Ganymede data
09:45 - 10:00	Maria Jesus Herrero	Rensselaer Polytechnic Institute, Troy,	Chemical transformations of soluble organic compounds delivered through impact events on the early Earth	Laëtitia Lebec	Charles University Prague, CZ	Exchanges of mass in icy moons' hydrospheres
10:00 - 10:15	Alfred Hopkinson	Aarhus University, DK	Prebiotic molecule formation via the energetic processing of glycine	Rachel Harris	NASA, US	Overview and Status of NASA-DARES: The NASA Decadal Astrobiology Research and Exploration Strategy
10:15 - 10:30	Tomasz Zajkowski	AGH University of Krakow	Investigating the Role of Amyloids in the Origin of Life	Elizabeth Turtle	Johns Hopkins University	Dragonfly: In Situ Exploration of Titan's Prebiotic Chemistry and Habitability
10:30 - 11:00	Coffee break					
Session 5a (cont.): Formation of the basic molecular building blocks of life				Session 5b : Habitability of rocky planets Chair: Ana Catalina Plesa		
11:00 - 11:15	Carolina Garcia Garcia	Heinrich Heine University Düsseldorf, DE	Ferredoxin reduction by hydrogen with iron functions as an evolutionary precursor of flavin-based electron bifurcation	Silvia Bertoli	Osservatorio Astronomica di Padova, IT	Martian and Terrestrial Rock Glaciers: Paleoclimatic Insights, Permafrost Dynamics, and Implications for Astrobiology
11:15 - 11:30	Jingbo Nan	Chinese Academy of Sciences, CN	The role of iron sulfide in promoting gaseous CO2 reduction: implications for prebiotic carbon fixation in terrestrial hot springs	Asena Kuzucan	University of Geneva, CH	Reconstructing Early Mars: Exploring Habitability Through Climate Simulations and Laboratory Experiments
11:30 - 11:45	Klaus Paschek	MPI for Astronomy, DE	Deep Mantle-Atmosphere Coupling and Carbonaceous Bombardment: Options for Biomolecule Formation on an Oxidized Early Earth	Ana Catalina Plesa	German Aerospace Centre, DE	Past and Present-Day Habitable Environments in the Martian Subsurface: The Quest for Liquid Water
11:45 - 12:00	Fatma Ercicek	University of Bordeaux, FR	A Novel Microfluidic Platform for investigating Mineral Catalyzed Prebiotic Chemistry at hydrothermal conditions	Carianna Herrera	German Aerospace Centre, DE	Magmatic history of Venus and implications for habitability
12:00 - 12:15	Jitse Alsemgeest	University of Twente, NL	A novel and flexible methodology for constraining water chemistry in fossil hydrothermal systems	Laura Murzakhmetov	ETH Zurich, CH	The effects of surface temperature on the tectonic regime and interior dynamics of Venus and exoVenuses
12:15 - 12:30	Gregoire Boe	University of Bordeaux, FR	Towards hydrothermal vents complexity: A transparent high-pressure flow reactor for mineral growth, aging, and prebiotic chemistry	Michele Maris	INAF, IT	Linking the prediction of biosignatures observability with climate models: the case of refraction and photosynthetic habitability for M stars planets
12:30 - 12:45	Rita Severino	CAB, ES	Reconstruction of Precambrian chaperonins sheds light on their evolution and early life on Earth, and Mars?	Emmanuelle Javaux	University of Liège, BE	Cellular paleobiology sheds light on the early biospheric and planetary evolution
12:45 - 14:00	Lunch break					

Session 6a: Plenary session Chair: Muriel Gargaud			
14:00 - 14:30	Nozair Khawaja	University of Stuttgart, DE	Exploring the Habitability of Ocean Worlds
14:30 - 15:00	Barbara Sherwood Lollar	University of Toronto, CA	The Expanse of Habitability: Exploring our world and beyond
15:00 - 15:30	Frederic Foucher	CNRS, FR	Detection of Biosignatures on Mars Using Raman Spectroscopy
15:30 - 16:00	Sandra Siljeström	RISE; SE	The astrobiological potential of the samples collected by Perseverance rover at Jezero Crater
16:00 - 16:30	Coffee break		
Session 6b: Plenary ESA session Chair: Theresa Lüttinger, Wolf Geppert			
	Silfurberg Hall		
16:30 - 17:00	Theresa Lüttinger	ESA-ESTEC, Noordwijk, NL	Intro
17:00 - 17:30	Anne-Grete Straume-Linder	ESA-ESTEC, Noordwijk, NL	Envision: ESA's next Venus orbiter mission in partnership with NASA
17:30 - 17:45	Jorge Vago	ESA-ESTEC, Noordwijk, NL	ExoMars/Rosalind Franklin Mission Update
17:45 - 18:00	Gerhard Kminek	ESA-ESTEC, Noordwijk, NL	Mars Sample Return Campaign Science Objectives and Opportunities
18:00 - 18:15	Maximilian Günther	ESA-ESTEC, Noordwijk, NL	Result from the poster survey and open discussion
18:15	All		Podium Discussion: European Astrobiology
18:45 - 20:00	Dinner break		
Presentation of new astrobiology books			
20:15 - 21:15	Michel Viso	University of Bordeaux, FR	Mars and the Earthlings: Book presentation & round table
21:15 - 21:30	Break		
21:30 - 22:30	Julie Novakova	Charles University Prague; CZ	Science fiction round table
22:30	Amri Wandel	Hebrew University, IL	Book presentation: astrobiology for non-scientists



**FRIDAY
4TH JULY**

Silfurberg Hall, Harpa

BEACON

2025 PROGRAMME

Silfurberg Room 1				Silfurberg Room 2		
Session 7a: Generation of complex molecules and nucleic acids and assembly of first cell compounds and cells Chair: John Brucato				Session 5b (cont.) : Habitability of rocky planets		
09:00 - 09:15	Valentine Megevand	Muséum National d'Histoire Naturelle	Abiotic phosphorylation of organic compounds: experimental investigations under Early Earth conditions	Dániel Apai	University of Arizona, US	A Terminology and Quantitative Framework for Assessing the Habitability of Solar System and Extraterrestrial Worlds
09:15 - 09:30	Valentin Moulay	University of Bordeaux, FR	Prebiotic chemistry in the primitive ocean: abiotic polymerization of amino acids under hydrothermal conditions	Amelia Hankinson-Wake	Mullard Space Science Centre, UK	An Investigation into Post-Main Sequence Habitability, Second Chance Solar Systems, and Titan Under a Red Sun
09:30 - 09:45	Rosa Arenales	LMU Munich, DE	Detectability Study on Polycyclic Aromatic Hydrocarbons in Exoplanet Atmospheres.	Philipp Baumeister	Freie Universität Berlin, DE	The influence of primary atmospheric composition on the long-term habitability of stagnant-lid planets
09:45 - 10:00	Natsumi Noda	ELSI, JP	Exploring Freeze-Thaw Cycles as a Driver of Genetic Complexity: Can Environmental Fluctuations Promote DNA Elongation?	Mathilde Houelle	University of Geneva, CH	Exploring the habitability of Earth-like exoplanets and their observability in reflected light with upcoming high-resolution spectrographs
10:00 - 10:15	Zsófia Meggyesi	LMU Munich, DE	Overcoming the error threshold in prebiotic replication networks	Siddhart Bhatnagar	University of Geneva, CH	Diving into exo-oceans: Implications for the climate and habitability of TRAPPIST-1e
10:15 - 10:30	Dieter Braun	LMU Munich, DE	Linking Geoscience to an RNA-centered Origin of Life	Zachary K. Garvin	Georgetown University, UK	Analysis of Mars analog soils and minerals via a modified benchtop MOMA-like LDI-MS
10:30 - 11:00	Coffee break					
Session 7a: Generation of complex molecules and nucleic acids and assembly of first cell compounds and cells				Session 6b: Early life and miscellaneous subjects Chair: Herve Cottin		
11:00 - 11:15	Jean-Francois Lambert	Université Paris Sorbonne, FR	Accounting for the complexity of mineral surfaces in origins-of-life scenarios	Natalia Mrnjavac	Heinrich-Heine University Düsseldorf, DE	A geochemical LUCA and the emergence of prokaryotic domains
11:15 - 11:30	Julia Petreczky	TU Dortmund, DE	Engineering the sunY Ribozyme for RNA-based Replication Systems in Simulated Prebiotic Conditions	Aure Ines Torres	Laboratoire de Géologie de Lyon, FR	LEOrigin Space Mission – Illuminating Life's Origins
11:30 - 11:45	Moran Frenkel-Pinter	Hebrew University, IL	Evolution of Complex Chemical Mixtures Reveals Combinatorial Compression and Population Synchronicity	Kathleen Bryson	De Montfort University, UK	Convergent Bodies, Byproduct Empathy: The Speculative Evolution of Extraterrestrial Life
11:45 - 12:00	Tatsuya Shinoda	Institute of Science Tokyo, JP	Phospholipid compartments in an icy environment drive the selection of specific phospholipids and simultaneous enrichment of compartmentalized genetic information	Christopher D. P. Duffy	Queen Maery University, UK	Towards a general evolutionary model of biological light-harvesting
12:00 - 12:15	Silke Asche	NASA Goddard Space Flight Centre, US	Experimental considerations for assembly theory estimations in the search for life	Olja Panic	University of Leeds, UK	Disc caught at the transition from protoplanetary to debris stage
12:15 - 12:30	Christian Jenewein	Donostia International Physics Center, ES	On the origins of life: Concomitant formation of protocells and prebiotic compounds in the primordial soup	Martin Carrasco Gomez	University of Texas Medical Center at Houston, US	Can EEG assess stress effects in an extreme environment?
12:30 - 12:45	Carla Alejandre	CAB, ES	Polymerization and replication of primordial RNA explained by clay-water interface dynamics	Aria Vitkova	Jet Propulsion Laboratory, US	Searching for Biosignatures on Icy Worlds and Mars using Extended Longevity Photoactivated Surface Enhanced Raman Spectroscopy
12:45 - 14:00	Lunch break					

Session 8a: Biosignatures for detection of early and extant life on Mars				Session 7b: Signs of early and extant life on Earth Chair: Carlos Briones		
Chair: Jean-Piere Paul de Vera, German Aerospace Centre						
14:00 - 14:15	Pablo Finkel	CAB, ES	Impact of simulated cosmic radiation on lipid biomarkers: Insights for the search for life on Mars	Alexandre Champagne-Ruel	Université de Montréal, CA	From Emergent Complexity to Reliable Life Detection
14:15 - 14:30	Tongtong Huang	Chinese Academy of Sciences, CN	Preservation of organic matter within primary fluid inclusions in late Middle Pleistocene halite from the Mars-analog Qaidam Basin	Hrvoje Višić	University of Tübingen	From the depths of the Earth to beyond: preservation potential of morphological iron biosignatures under diagenetic conditions
14:30 - 14:45	Brandi Carrier	Jet Propulsion Laboratory, US	Achieving the Astrobiology Objectives of Mars Sample Return	Sylvia Olewinski	University of London, UK	Spatial Analysis of Carbonaceous Materials in Proterozoic (~1 Ga) Stromatolites
14:45 - 15:00	Clara Christiann	LATMOS, FR	Biomarkers characterization in Lava Beds National Monument Mars' analogue samples: Implications for exobiology and Mars subsurface Exploration	Sánchez-García	CAB, ES	Uncovering a key period of evolution on Earth: Lipid biomarkers in Ediacaran stromatolites from the Amene-n-Tourhart formation (Moroccan Anti-Atlas)
15:00 - 15:15	Sole Biancalani	University of Trento, IT	Investigating Martian soil on Earth: Spectroscopic characterization of Icelandic reference samples	Julie Hartz	McMaster University, CA	Patterns of Morphological Complexity in Modern Freshwater Microbialites
15:16 - 15:30	Hemani Kalucha	CalTech, US	Biotic and abiotic signatures in sulfate and carbonate rich hypersaline lakes as analogs for Mars	Michael L. Wong	Carnegie Institution for Science, US	A Robust, Agnostic Biosignature Technique Based on Pyrolysis-GC-MS and Machine Learning
15:30 - 15:45	Giovanna Costanzo	National Research Council IT	The alkaline lake Bagno dell'Acqua, Pantelleria island, Italy: a new Mars-like environment as a reactor for prebiotic chemistry			
15:45 - 16:15	Coffee break					
Session 8a: Biosignatures for detection of early and extant life on Mars				Session 8b: Marine, salty and volcanic environments Chair: Oddur Vilhelmsson, Mickael Baque		
16:15 - 16:30	Marco Veneranda	Universidad de Valladolid, ES	Spectroscopic Evaluation of Wind-Driven Saltation's Impact on Organic Biosignature Preservation on Mars	Katharina Runzheimer	German Aerospace Centre, DE	The Life of a Halophile: Hypersaline Environments and their Microbial Residents
16:30 - 16:45	Damien Loizeau	Qualisat, Bièvres, FR	MicrOmega: detection and mapping of minerals and organic molecules on Mars	Pierre Vauclare	University Grenoble Alpes, FR	Study of chromosome organization in D. radiodurans and the halophilic archaea Halococcus under UV-C exposure, providing insights into microbial survival
16:45 - 17:00	Anais Roussel	Georgetown University, US	Laser Desorption Ionization MOMA Analog Instrument: the impact of mineralogy in biosignature detection	Jordan Walker	University of Miami, US	Paired metagenomics and metatranscriptomics reveal the microorganisms driving sulfur cycling in three meromictic, euxinic lakes
17:00 - 17:15	Louisa Preston	University College London, UK	Biosignature Stability under Simulated Martian Conditions: Implications for sample analysis by the Rosalind Franklin Rover	Diana Northup	University of New Mexico, US	Microbial Life Biosignatures in Earth's Extreme Lava Caves: Targets for Identifying Potential Extraterrestrial Life
17:15 - 17:30	Sebastian Gfellner	University of Orléans	From protocol to practice: Towards deciphering the role of biomolecules of chemolithoautotrophic archaea	Oddur Vilhelmsson	University of Akureyri, IS	Lava tubes as subsurface Mars analogues in Iceland
17:30 - 17:45	Niels Ligterink	Jet Propulsion Laboratory, US	The Next-Generation Life Marker Chip: A Photonic Biosensor for Space Exploration	Mickael Baque	German Aerospace Centre, DE	Multi spectral investigation of volcanic deposits in Vulcano, Italy, and the PETRAS campaign/summer school
17:45 - 18:00	Michele Maris	INAF, IT	Presentation of the exhibition: Caves in the sky			
18:00 - 18:15	Camilla Scolini	ERC Executive Agency, EU	ERC funding opportunities for astrobiologists (special presentation)			
Silfurberg Room 1				Silfurberg Room 2		
ABGRADE/ OOLEN talk						
19:15	Mariano Battistuzzi	INAF, IT	The Origin of Life Dilemma: From Ancient Speculations to Modern Scientific Hypothesis			
20:00	Poster session			EAI General Assembly		



SATURDAY
5TH JULY
Silfurberg Hall, Harpa

BEACON

2025 PROGRAMME

Silfurberg Room 1				Silfurberg Room 2		
Session 9a: Public Engagement Chair: Federico di Giacomo				Session 9b: Philosophical, historic and societal issues in astrobiology Chair: Erik Person		
09:00 - 09:15	Javier Bollain	Render Area S. L. ES	Dark Biosphere short film	Kiristina Šekrst	University of Zagreb, HR	Astrobiology and the Transformation of Scientific Epistemology
09:15 - 09:30	Anna Steward	Academy of Fine Arts, Nuremberg, DE	BioQuantum Record: Chiral Handshakes Between Terrestrial Extremophiles and Extra-Terrestrial Counterparts	Koji Tachibana	Chiba University, JP	The moral value of loving nature: why respecting nature or loving lives is not enough for the ethics of Earth and Space
09:30 - 09:45	Julie Novakova	Charles University, CZ	Science fiction anthologies for science outreach: Overview and impact	Emma Puranen	Open University, UK	Evaluating Antarctica as an environmental ethics model for outer space
09:45 - 10:00	Erica Bisesi	INAF, IT	Life in Extreme Environments: A multimedia show combining natural sciences, arts, perception and communication	João Guimaraes	University of Porto, PT	Extraterrestrial Posthumanism: the Search for Life in Astrobiology, Science Fiction and Bio Art
10:00 - 10:30 Coffee break						
Session 10a: Searching for life on icy bodies Chair: Cornelia Meinert				Session 10b: Hot environments Chair: Barbara Cavalazzi		
10:30 - 10:45	Maryse Napoleoni	Freie Universität Berlin, DE	Identifying Amino Acids Isomers in Ice Grains from Enceladus and Europa	Armando Azua-Bustos	CAB, ES	An Atacama subsurface tephra, wind and exaptation, unveil how life colonized Kenorland in the Neoproterozoic
10:45 - 11:00	Marc Neveu	University of Maryland, US	Investigating the fate of biosignatures and habitability tracers with the Simulator of Ocean World Cryovolcanism (SOWCr)	Li Liu	Chinese Academy of Science	Microbial Life in Extreme Environments: Insights from the Qaidam Basin as a Mars Analog
11:00 - 11:15	Jonthan Grone	University of Bern, CH	Circular Polarization Biosignatures of Microbe-Ice Mixtures	Mikael Nordquist	University of Iceland, IS	Unraveling the Rings: Exploring Microbial Diversity in a Thermally Graded Alkaline Hot Spring
11:15 - 11:30	Tom Nordheim	Johns Hopkins University, US	Enceladus' surface radiation environment and implications for biosignature detection by future lander missions	Roberta Iacono	University of Naples, IT	Spatial Metagenomics of Three Geothermal Sites in Pisciarelli Hot Spring Focusing on the Biochemical Resources of the Microbial Consortia
11:30 - 11:45	Peter Higgins	Harvard University, US	Explaining Enceladus' methane: A framework for assessing carbon isotope biosignatures against the abiotic baseline	Enrico Bruschini	INAF, IT	Mineralogical and microbiological characterization of the acidic analog site of Solforata di Pomezia, central Italy.
11:45 - 12:00	Garcia Martinez	King Abdullah University of Science and Technology, SA	Red Sea hydrothermal vents communities as analogues to Icy Moon's putative hydrothermal systems: metabolic insights			
12:00 - 12:15	Ligia Coelho	Cornell University, US	The colors of our changing planet as a tool for life detection in icy moons and exoplanets			

	Session 13a: Life in Space Chair: Julie Novakova			Session 11b: Life under cold and arid conditions Chair: Emmanuelle Javaux		
14:00 - 14:15	Ewa Szuszkiewicz	University of Szczecin, PL	Before going to Mars: Can tardigrades help in protecting other organisms in space?	Jacob Heinz	TU Berlin, DE	Geochemical and Microbiological Analysis of Water and Sediment Samples from Don Juan Pond, Antarctica: An Astrobiological Perspective
14:15 - 14:30	Samir Chitnavis	Queen Mary University, UK	Are Cyanobacteria a Universal Model for Oxygenic Photosynthesis on Exoplanets	Britney Schmidt	Cornell University, US	First results from SSHOWUP: an astrobiological study of Wolstenholme Fjord, Greenland
14:30 - 14:45	Clemens Espe	GSI GmbH, Aachen, DE	HALO - An alternative earth-bound microgravity platform for experiments under weightlessness	Sonia Papadaki	Queen Mary University	Insights into the microbial assemblages in endolith gypsum habitats and comparison with soil crusts in the high Arctic.
14:45 - 15:00	Jean-Pierre de Vera	German Aerospace Centre, DE	News from BioSigN: the state of the art of one of the last astrobiological ESA space experiments on the ISS	Tommaso Zaccaria	German Aerospace Centre, DE	How do icy moon-relevant psychrotolerant microorganisms tolerate desiccation and other extreme conditions?
15:00 - 15:15	Sukrit Ranjan	University of Arizona, US	Model Intercomparisons Refute O ₂ False Positives and Strengthen O ₂ as an Exoplanet Biosignature Gas	Jack Jordan	Queen's University Belfast, UK	Haloarchaeal Adaptations to Martian Soil Analogs: Proteomics and Growth Dynamics of <i>Haloferax mediterranei</i> in Magnesium Perchlorate
15:15 - 15:30	Stella Marie Timofeev	German Aerospace Centre, DE	Microbial Biobleaching of Lunar Regolith Simulant: Exploring Sustainable Resource Utilization for Supporting Habitability on the Moon			
15:30 - 15:45	Jana Bockova	CNRS, FR	On the track of phospholipid membrane homochirality: Insights for the search for extra-terrestrial life			

Notes







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