



European Astrobiology Network Association

19th EANA Astrobiology Conference

3rd-6th September 2019

Orléans, France

Welcome letter from the President

Dear EANA friends,

This year sees the annual EANA conference in the hometown, Orléans, of its founder-president, the prebiotic chemist André Brack. It also happens to be my adopted home, having taken over André's research group in 2003. It is therefore with great pleasure that I and the local organising team welcome you all to Orléans.

As in previous years, we have had great interest across the wide range of disciplines represented by astrobiology. We are highlighting the ExoMars mission this year because this mission also has its roots in Orléans. In 1997 André Brack was tasked by ESA to chair a working group to discuss the possibility of an astrobiology mission to Mars – and I, among many EANA members, was part of this group. This discussion led to the famous “Red Book” and the Beagle 2 mission, inspiring the ExoMars mission along the way. For this reason, we are very happy to be able to have Jorge Vago, the project scientist of ExoMars to join us. He will be “accompanied” by the ESA model of the ExoMars 2020 rover – so bring your cameras along! Michel Viso, the CNES representative for astrobiology and exoplanets, will give a public talk on the mission.

Once again, we will have a vibrant mix of astrobiologists of all ages from all disciplines. As a “grassroots” association, it is always a great pleasure for me to see and to participate in the dynamic exchanges that the free and easy atmosphere of EANA provides. Many people have said to me that EANA is like a “family” and that is exactly what I feel about it.

This year has seen the inauguration of the European Astrobiology Institute that is aimed at creating a more structured approach to the funding of astrobiological activities, which is entirely complementary to the grassroots, bottom-up character of EANA. We will be having a roundtable discussion about the synergies that can be expected from fruitful collaboration.

This is my last year as president of EANA. I have thoroughly enjoyed the task and welcomed the responsibility. It was a tough job stepping into the shoes of the previous presidents, André Brack and Gerda Horneck, but I have learnt a lot and tried to give back to the community as a whole the benefits that I have been fortunate to have had in my career. Most of all, it is you in the community who have given your science and your passion freely to EANA and I will always remember you with thanks. Although I am stepping down as president, I will continue my collaboration with you all as a regular EANA family member.

Frances Westall

19th EANA Astrobiology Conference – Orléans, France

The European Astrobiology Network Association, EANA, joins together people interested in the origins of life and the search for extraterrestrial life in the Solar System and beyond. This interdisciplinary domain involves scientists from multiple disciplines such as chemistry, physics, biology, geology, astronomy, and human sciences.

Again this year, the annual EANA conference will welcome abstracts from all of these topics, with a **special focus on space missions**.

This event is a perfect opportunity for sharing knowledge and discussing ideas, for networking, and above all to spend an enjoyable week with friends and colleagues.

The conference venue, Hôtel Dupanloup, is a university centre creating a space for exchange between researchers and students. It is situated close to the cathedral, in the historical centre of Orléans.

We look forward to welcoming you to Orléans in September!

For any questions, please do not hesitate to send us a message at:

[eana2019 \(at\) sciencesconf.org](mailto:eana2019@sciencesconf.org).



Local Organising Committee

CNRS-CBM-Orléans

Frances Westall

Frédéric Foucher

Keyron Hickman-Lewis

André Brack

Christine Gabant

Patricia Legland

Justo Torres

CNRS-LPC2E-Orléans

Jean-Pierre Lebreton

Christelle Briois

Barnabé Cherville

Paola Modica

Laura Selliez

Philippe Martin

Dominique Delcourt

CNRS-ISTO-Orléans

Claire Ramboz

Fabrice Gaillard

OSUC-Orléans

Bruno Scaillet

Scientific committee

Daniela Billi
Alexis Brandeker
John Brucato
Barbara Cavalazzi
Elias Chatzitheodoridis
Charles Cockell
Hervé Cottin
Grégoire Danger
Jean-Pierre de Vera
Rosa de la Torre
Russell Deitrick
Kai Finster
Frédéric Foucher
Muriel Gargaud
Beda Hofmann
Nils Holm
Jean-Luc Josset
Harry Lehto
Kirsi Lehto
Jan Jehlička
Kensei Kobayashi
Oleg Kotsyurbenko
Zita Martins
Tetyana Milojevic
Ralf Moeller
Christine Moissl-Eichinger
Lena Noack
Karen Olsson-Francis
Manish Patel
Dirk Schulze-Makuch
Petra Rettberg
Séverine Robert
Alan Schwartz
Ewa Szuszkiewicz
Ruth-Sophie Taubner
Inge Loes ten Kate
Jorge Vago
Frances Westall

Programme

TUESDAY 3rd SEPTEMBER		
8:00am	Registration opens	
9:00am	Frances Westall, Frédéric Foucher	Welcome and Opening Remarks
9:30am	André Brack	<i>Opening Talk</i> : Opening avenues in astrobiology, a testimony
Social Sciences, Philosophy and Education Chair: Muriel Gargaud		
10:00am	Joseph Gale	Will recent advances in AI result in a paradigm shift in Astrobiology and SETI?
10:20am	Jacques Arnould	Is real life somewhere else?
10:40am	Gerhard Haerendel	Extraterrestrial civilizations? Scientific, philosophical and theological consequences
11:10am	Coffee Break	
Astrochemistry and Prebiotic Chemistry (I) Chair: Paola Modica		
11:40am	Kensei Kobayashi	Formation of amino acid precursors in slightly reducing primitive atmospheres by solar energetic particles
12:00pm	Terence Kee	Exploring proto-cytoplasmic media. Self-assembly and molecular diffusion in salt-hydrogel phases
12:20pm	Tony Jia	Membraneless polyester microdroplets as primordial compartments at the Origins of Life
12:40pm	Lunchtime	
Astrochemistry and Prebiotic Chemistry (II) Chair: Anna Neubeck		
2:00pm	Kristin Johnson-Finn	Probing organic transformations on mineral surfaces through electrochemical and hydrothermal experiments
2:20pm	Savino Longo	Anomalous fluctuations and selective extinction in populations of primordial replicators

2:40pm	Andrea Greiner	Prebiotic reaction vessels – RNA formation in nanoconfinements of water
3:00pm	Tommaso Fraccia	Liquid crystal ordering of single and oligo nucleotides: from supramolecular assembly to polymeric nucleic acids
3:20pm	Naila Chaouche	Study of the evolution of nucleobases under Mars-like conditions: impact of UV irradiation and perchlorates on uracil and cytosine
3:40pm	Coffee Break	
Astrophysics and Planetary Habitability		
Chair: Russell Deitrick		
4:10pm	Ewa Szuszkiewicz	Early stages of the evolution of planetary systems
4:30pm	Cedric Gillmann	The evolution of Venus and its late accretion
4:50pm	Lena Noack	Evolution of early Earth's atmosphere depending on interior volatile depletion and outgassing
5:10pm	Fabien Bernadou	Experimental constraints on the timing of degassing of nitrogen in the atmosphere
5:30pm-7:45pm	Poster Session 1 (Group 1): <ul style="list-style-type: none"> • Life Sciences, • Astrochemistry, • Prebiotic Chemistry, • Astrophysics and Exoplanets, • Planetary Geology and Habitability 	
6:30pm-7:30pm	Public lecture (in French) – Michel Viso (CNES)	

WEDNESDAY 4th SEPTEMBER

Space Factor Contest

Chairs: Lena Noack and Marta Cortesão

9:00am	Lora Jovanović	Pluto, a distant cousin of the primitive Earth?
9:15am	Antonín Knížek	Formation of (per)chlorates on Mars
9:30am	Lefteris Profitis	Automatic rock identification in macroscopic scale using image processing techniques: An application for planetary exploration
9:45am	Barnabé Cherville	Optimization of the LAB-CosmOrbitrap experiment negative ion mode
10:00am	Kateřina Němečková	Raman analysis of pigments from Messinian gypsum endoliths
10:15am	Sayak Mukhopadhyay	Understanding natural genetic networks and engineering artificial gene circuits in microgravity
10:30am	Corentin Loron	Diversification of complex life on the early Earth: the Proterozoic of Arctic Canada as a case study
10:45am	Stella Koch	Addressing the fungal contamination – testing antifungal materials and radiation-driven decontamination methods

11:00am **Coffee Break**

Astrophysics and Planetary Habitability

Chair: Beda Hofmann

11:30am	Jacob Heinz	Are perchlorate brines habitable?
11:50pm	Philippe Reekie	Perchlorate glasses on Mars and the search for extraterrestrial life
12:10pm	Dirk Schulze-Makuch	The process of deliquescence might allow methanogenic archaea to metabolize on Mars

12:30pm **Lunchtime**

ExoMars 2020 (I)

Chair: Frances Westall

2:00pm	Jorge L. Vago	ExoMars 2020
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2:30pm	Matt Balme	The ExoFit Rover field trial - simulating ExoMars Rover operations
2:50pm	Lucia Mandon	Investigating the clay-bearing unit of Oxia Planum, the landing site of the ExoMars 2020 mission
3:10pm	Francois Raulin	MOMA: the Mars Organic Molecule Analyzer experiment on ExoMars 2020
3:30pm	Frédéric Foucher	Testing the ExoMars 2020 scientific exploration protocol
3:50pm	Coffee Break	
ExoMars 2020 (I)		
Chair: André Brack		
4:20pm	Jean-Luc Josset	CLUPI: Geology and biosignatures on Mars close up
4:40pm	Andrew Coates	The PanCam instrument for the Rosalind Franklin (ExoMars 2020) rover
Space Missions and Instrumentation (I)		
Chair: Elias Chatzitheodoridis		
5:00pm	Michel Viso	Toward a European Mars sample receiving facility
5:20pm	Petra Rettberg	Scientific challenges to prevent the biological contamination of Outer Solar System bodies - what do we need to know for planetary protection?
5:40pm-7:45pm	Poster Session 2 (Group 2): <ul style="list-style-type: none"> • Space Missions, • Instrumentation and Approaches, • Biosignatures and Biogeosciences, • Social Sciences and Philosophy, • Education, Outreach and Networking, • Space Factor Contest 	

THURSDAY 5th SEPTEMBER

Space Missions and Instrumentation (II)

Chair: Pauli Laine

9:00am	Laura Selliez	High resolution mass spectrometry for future space missions: comparative analysis of Titan's tholins
9:20am	Boris Laurent	UV luminescence characterisation of organics in Mars-analogue substrates
9:40am	Franco Ferrari	Newly developing methodologies to investigate health hazards posed by ionizing radiation to space travel

10:00am EANA and EAI Round Table Discussion
with Wolf Geppert (EAI Chair) and EANA members

11:00am Coffee Break

Life Sciences (I)

Chair: Oleg Kotsyurbenko

11:30am	Hajime Mita	Exposure Experiments in the 2nd Japanese Astrobiology Experiment, Tanpopo2
11:50am	Shin-ichi Yokobori	Survival and DNA damage of Deinococcal species in space: three years of microbe space exposure experiment of Tanpopo Mission at exposure facility of Japanese experiment module of International Space Station
12:10pm	Sara Gómez de Frutos	Improved resistance to UV radiation resistance of Arabidopsis thaliana by expressing genes isolated from hyperhalophilic microorganisms

12:30pm Lunchtime

Life Sciences (I)

Chair: Claudia Pacelli

2:00pm	Jorge Díaz-Rullo	Search for perchlorate resistance genes in microorganisms of a hypersaline lake of Atacama
2:20pm	Macarena Benguigui	Search of mechanisms of adaptation to UV radiation in microorganisms from salterns using a functional metagenomics approach

2:40pm	Rosa de la Torre	Resistance to simulated extraterrestrial conditions (space and Mars) of the first colonizing lichens collected from a Mars analogue volcanic area (Lanzarote)
3:00pm	Yannick Lara	Antarctic cyanobacteria sources of biosignatures
3:20pm	Kai Finster	Effect of saltation and abraded silicates on the survival of bacteria on Mars
3:40pm	Coffee Break	
Biosignatures & Biogeosciences (I)		
Chair: Barbara Cavalazzi		
4:10pm	Karin Moelling	Viroids and viruses during evolution of life on Early Earth as model for Exoplanets?
4:30pm	Adrienne Kish	Reasons to get salty
4:50pm	Laura Sánchez-García	Searching for molecular biomarkers in Atacama microbialites (N Chile). Relevance for astrobiological exploration of rocky planets
5:10pm	Laura García-Descalzo	Bacterial presence in cold perchlorates solutions: Implications for Mars
5:30pm	Space Factor Contest Award Ceremony	
7:30pm-10:00pm	Conference Dinner (Jardin des Plantes)	

FRIDAY 6th SEPTEMBER

Biosignatures & Biogeosciences (I)

Chair: Kai Finster

9:00am	Mickael Baqué	Effect of solar radiation on the distribution of Raman biosignatures in salt nodules from the Atacama Desert
9:20am	Jean-Pierre de Vera	Planetary simulations at DLR Berlin and in space – results and future work
9:40am	Nicasio T. Jiménez-Morillo	Pyrolysis-compound specific isotope analysis (Py-CSIA) of terrestrial analogue samples. Possible applications in astrobiology and geomicrobiology
10:00am	Konstantinos Gkrintzalis	Simple biochemical methods for the detection of life-inhibiting peroxidants and life signatures on Mars-like soils
10:20am	Sean McMahon	The trouble with tubules: iron-mineral chemical gardens mimic numerous purported fossil microbial filaments
10:40am	Keyron Hickman-Lewis	Multi-scalar trace element biosignatures and rare earth element reconstruction of Palaeoarchaeon biomes of microbial life: a fossil-calibrated approach
11:00pm	Coffee Break	
11:30am	Rocco Mancinelli	<i>Concluding Talk:</i> Astrobiology: the future of life and the search for life in the universe
12:00pm	Frances Westall	Concluding Remarks
12:30pm	Lunchtime	

Group 1 – Poster Session 1 (Tuesday 3rd September)

All posters in Group 1 will be displayed from Tuesday morning until Wednesday lunchtime. All Group 1 posters must be removed by the end of Wednesday lunchtime (2pm).

Life Sciences	
Fabiana Canini	Antarctic Dry Valleys melt water systems analogues of Martian gullies: characterization of microbial communities and soil properties
Beatriz Fernandez	Challenging the survival potential of a desiccation-, radiation-tolerant cyanobacterium with perchlorates: Implication for the habitability of Mars
Marta Cortesão	Effect of simulated microgravity on the filamentous fungus <i>Aspergillus niger</i>
Özgen Natalie	Genomic and Transcriptomic Analysis of <i>Deinococcus aerius</i> after exposure on the ISS Exposed Facility
Jana Fahrion	Microbial Monitoring in the EDEN-ISS Greenhouse, a Mobile Test Facility in Antarctica
Claudia Pacelli	Responses of the cryptoendolithic Antarctic black fungus <i>Cryomyces antarcticus</i> in liquid media irradiated with space-relevant Fe ions
Weronika Erdmann	Tardigrades in hypomagnetic conditions – further studies
Claudia Coleine	The reconstruction of 269 new draft bacterial genomes from Antarctic cryptoendolithic communities in the closest Mars terrestrial analogue
Astrochemistry	
Sohan Jheeta	Astrochemistry: synthesis of the basic 'building blocks' of life
Gaia Micca Longo	Is primordial atmosphere a key to organic matter delivery to early Earth?
Nina Kopacz	Mineral-mediated evolution of polycyclic aromatic hydrocarbons
Savino Longo	Theoretical and experimental studies of the kinetics of Ca/Mg-rich carbonates in an astrobiological context
Prebiotic Chemistry	
Kamal Albdeery	Abiogenically relevant self-assembly processes within silica hydrogels
Santos Gálvez Martínez	Amino acids adsorption on pyrite surface by XPS: role of environmental conditions
Paola Modica	Amino acids from photo- and thermo-processing of extraterrestrial ices: a possible source for further prebiotic chemistry
Kuhan Chandru	Combinatorial Prebiotic Chemistry using non-biological compounds
Christian Anders	Ejection of glycine molecules adsorbed on a water ice surface by swift-heavy ion irradiation
Isabelle Fourré	Formation of amines : hydrogenation of nitrile and isonitrile as selective routes in the interstellar medium
Angela Corazzi	Laboratory studies on photo-processing and desorption of prebiotic molecules in space
Miho Sase	Mass spectrometric analysis of proteinoids in spontaneously self-assembled microspheres

Marta Ruiz-Bermejo	Microwave-driven synthesis of cyanide polymers under plausible hydrothermal conditions
Madoka Shiromizu	Nucleotide synthesis experiments by UV irradiation for "TANPOPO3"
Sohan Jheeta	Peptide bonds
Adam Pastorek	The exploration of the effect of gamma radiation on primordial formamide-based solutions
Astrophysics & Exoplanets	
Nikolaos Georgakarakos	Binary stars and habitable planets: can 'hostile' environments be less hostile for potentially habitable worlds?
Leander Schlarman	Habitability of exoplanets in binary and multiple star systems
Russell Deitrick	THOR: A Fast and Flexible 3D GCM for the Study of Exoplanets
Planetary Geology & Habitability	
Irene Bonati	CO ₂ ice condensation is not a detriment to the habitability of warm terrestrial planets
Anna Neubeck	Dunite as a source of H ₂ and Ni for the hydrogenotrophic methanogen <i>Methanoculleus bourgensis</i> MAB1: Insights into methanogenic life at ultramafic hydrothermal settings
Antonio Molina	Genetic hypothesis for the formation of the western Arabia Terra surface: astrobiological implications
Solmaz Adeli	Geomorphological evidence of localized stagnant ice deposits in Terra Cimmeria, Mars
Cristina Robas	Geomorphology in the transition Arabia Terra/Noachis Terra, Mars
Claire Ramboz	Hydrothermally altered basalts at high water-to-rock ratio at Skouriotissa VMS (Cyprus): an analog site to constrain condition formations of Fe-Mg-Al phyllosilicates on Noachian Mars
Felix Arens	Identifying new soil microhabitats in the hyperarid Atacama Desert, Chile
Niloofar Feshangaz	Survival of the halophilic archaeon <i>Halovarius luteus</i> after desiccation, simulated Martian UV radiation and vacuum in comparison to <i>Bacillus atrophaeus</i>

Poster Session 2 – Group 2 (Wednesday 4th September)

All posters in Group 2 will be displayed from Wednesday afternoon coffee break until the end of the conference. All Group 2 posters must be removed by the end of Friday lunchtime (2pm).

Space Missions	
Niels Ligterink	A novel laser desorption mass spectrometry technique for the in-situ detection of biomolecules on space missions
Pauli Laine	Accessing Icy Moon's Ocean with Thermonuclear Reactor
Andrea Meneghin	AstroBio CubeSat: a mini laboratory payload for space environment astrobiology experiments
Alessia Cassaro	Biomarker preservation in Antarctic sandstone after space exposure outside the International Space Station
Yuanyuan He	Impact of Calcium perchlorate on the TMAH thermochemolysis reaction: application to SAM and MOMA
Hector-Andreas Stavrakakis	Moon CubeSat Hazard Assessment (MOOCHA) – An International Earth-Moon Small Satellite Constellation and its Possibilities for Astrobiology
Giovanni Poggiali	OSIRIS-REx sample return space mission exploring primitive carbonaceous asteroid Bennu: Spectroscopy of laboratory analogs to understand data from an astrobiology-relevant target
Filip Košek	Raman spectroscopy as a tool for discrimination of sulfates in exobiology: In-situ and laboratory studies
Kensei Kobayashi	Space exposure of amino acids and their precursors in the Tanpopo Mission: results and future Prospects
Naila Chaouche	The derivatization procedure for the in situ analysis of organic compounds on Mars with the MOMA experiment onboard the Rosalind Franklin rover of the Exomars 2020 space mission
Kamil Muzyka	They work, they replicate, they Live! - how space law should regulate the use of synthetic biological organisms used for space industrial operations
Instrumentation and Approaches	
Christelle Briois	67P/CG dust particles composition as measured by the COSIMA/Rosetta Mass Spectrometer
Siveen Thlajeh	Application of two-step laser mass spectrometry to the characterization of fossil organic matter and prospects for Exobiology
Jan Kotlarz	Microbial component detection in Enceladus snowing phenomenon; proposed missions instrumentation analysis
Bram Mooij	Time-resolved Raman spectroscopy for the detection of biomarkers among layered minerals
Biosignatures and Biogeosciences	
Beda Hofmann	Biogenic or not? Morphometric analysis of filamentous structures
Laura García-Descalzo	Biomarker detection in fossilized anaerobic bacterial strains
Adam Culka	Detection of carotenoids of halophilic organisms in inclusions inside complex laboratory-grown chloride and sulfate crystals using a portable Raman spectrometer

Anushree Srivastava	Mars brine chemistries: habitability, biosignatures, and detection
Alex B. Price	Microbial nitrate-dependent Fe(II) oxidation: mechanisms and astrobiological significance
Denise Koelbl	Resolving the microbe-meteorite interface of the extreme thermoacidophile <i>Metallosphaera sedula</i> at nanometer scale
Ana Miller	Searching for subterranean-adapted microorganisms as part of the ESA CAVES and PANGAEA Astronaut training programs for planetary exploration
Jan Jehlicka	Twenty years of Raman spectroscopy in exobiology research
Social Sciences & Philosophy	
Florence Raulin-Cerceau	Charles Cros and Nikola Tesla, Pioneers of Interplanetary Telegraphy
Education, Outreach & Networking	
Hector-Andreas Stavrakakis	Astrobiology and Society. Public interaction activities in Greece
Deborah Kala Perkins	Sonifying the Universe in Quest for Life 2.0: New Tools for Research and Outreach
Space Factor Contest	
Lora Jovanović	Pluto, a distant cousin of the primitive Earth?
Antonín Knížek	Formation of (per)chlorates on Mars
Lefteris Profitis	Automatic rock identification in macroscopic scale using image processing techniques: An application for planetary exploration
Barnabé Cherville	Optimization of the LAB-CosmOrbitrap experiment negative ion mode
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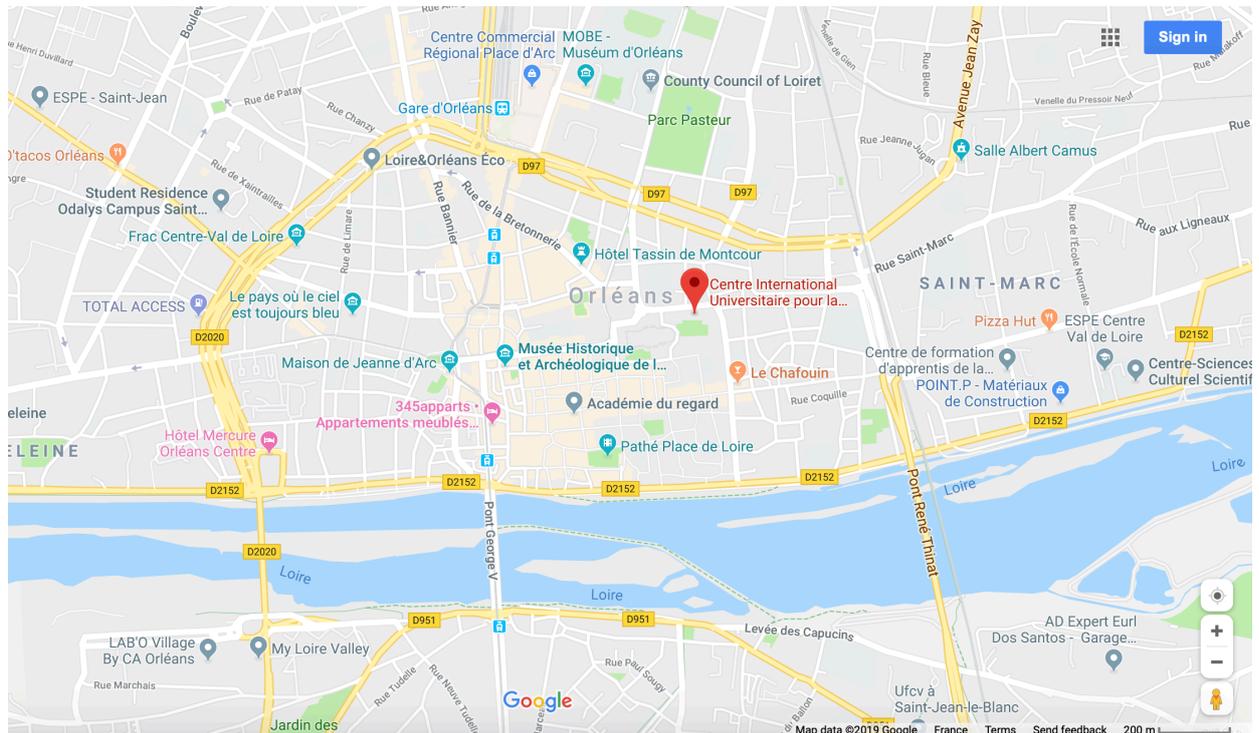
List of participants

Solmaz Adeli
Kamal Albdeery
Christian Anders
Felix Arens
Jacques Arnould
Matthew Balme
Mickael Baqué
Jyothi Basopathi
Macarena Benguigui de la Cámara
Fabien Bernadou
Irene Bonati
André Brack
Christelle Briois
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Frédéric Foucher
Isabelle Fourré
Stefan Fox
Tommaso Fraccia
Joseph Gale
Beatriz Gallego Fernandez
Santos Gálvez Martínez
Laura García-Descalzo
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Cedric Gillmann
Konstantinos Gkrintzalis
Sara Gómez de Frutos
José Eduardo González Pastor
Natalie Grefenstette
Andrea Greiner
Gerhard Haerendel
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Keyron Hickman-Lewis
Beda Hofmann
Jan Jehlicka
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Kristin Johnson-Finn
Jean-Luc Josset
Marie Josset
Lora Jovanović
Terence Kee
Ramon Khanna
Adrienne Kish
Antonín Knížek
Kensei Kobayashi
Stella Koch
Denise Koelbl
Nina Kopacz
Filip Košek
Jan Kotlarz
Oleg Kotsyurbenko
Pauli Laine
Yannick Lara
Boris Laurent
Jean-Pierre Lebreton
Niels Ligterink
Savino Longo
Corentin Loron
Rocco Mancinelli
Lucia Mandon
Philippe Martin
Sean McMahan
Andrea Meneghin
Thorben Mense
Gaia Micca Longo
Ana Miller

Tetyana Milojevic
Hajime Mita
Paola Modica
Karin Moelling
Antonio Molina
Bram Mooij
Sayak Mukhopadhyay
Kamil Muzyka
Philippe Nauny
Katerina Němečková
Anna Neubeck
Lena Noack
Silvano Onofri
Claudia Pacelli
Fabio Pagan
Adam Pastorek
Deborah Kala Perkins
Giovanni Poggiali
Alex Price
Eleftherios Profitis
Claire Ramboz
Francois Raulin
Florence Raulin-Cerceau
Philippe Reekie
Petra Rettberg

Cristina Robas
Marta Ruiz-Bermejo
Laura Sanchez-Garcia
Miho Sase
Leander Schlarman
Dirk Schulze-Makuch
Lorraine Schwander
Laura Selliez
Madoko Shiromizu
Anushree Srivastava
Hector-Andreas Stavrakakis
Henry Strasdeit
Ewa Szuszkiewicz
Ruth-Sophie Taubner
Siveen Thlaijeh
Kiira Tiensuu
Alejandra Traspas Muina
Frank Trixler
Jorge L. Vago
Sander Van den Groenendaal
Michel Viso
Frances Westall
Shin-Ichi Yokobori

Conference Venue



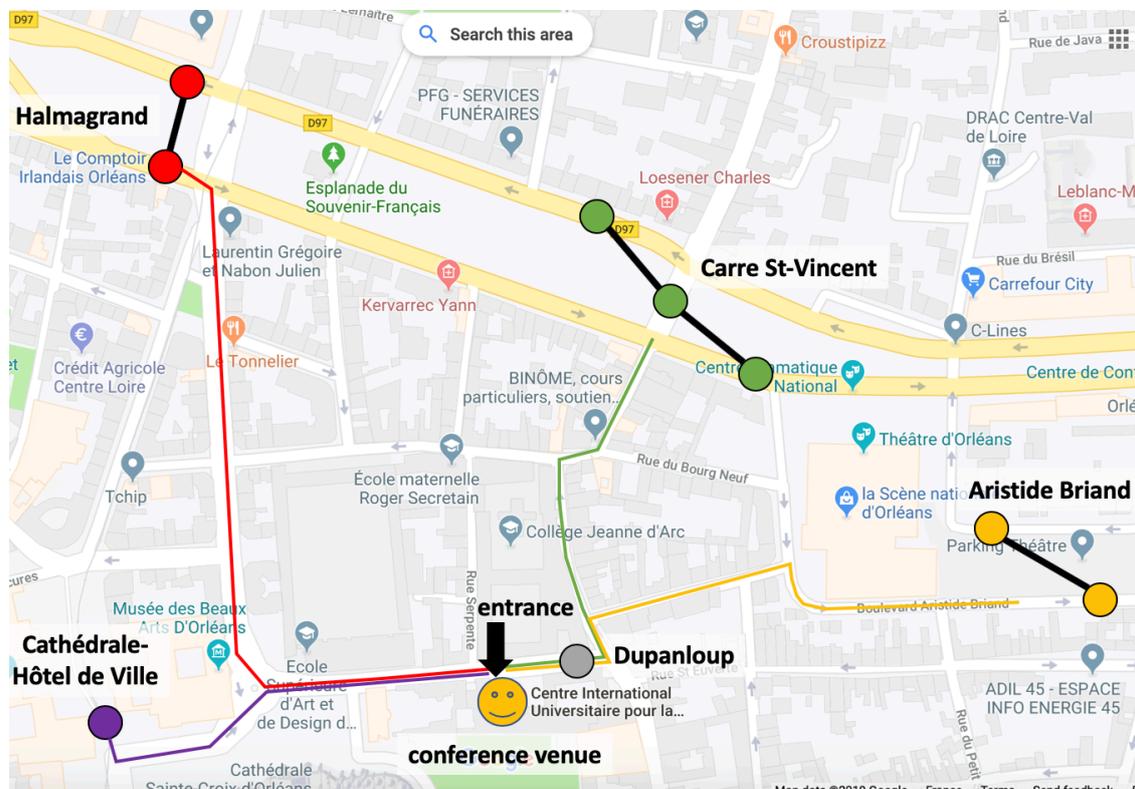
Address: Hôtel Dupanloup (Centre International Universitaire pour la Recherche), rue Dupanloup, 45000 Orléans.



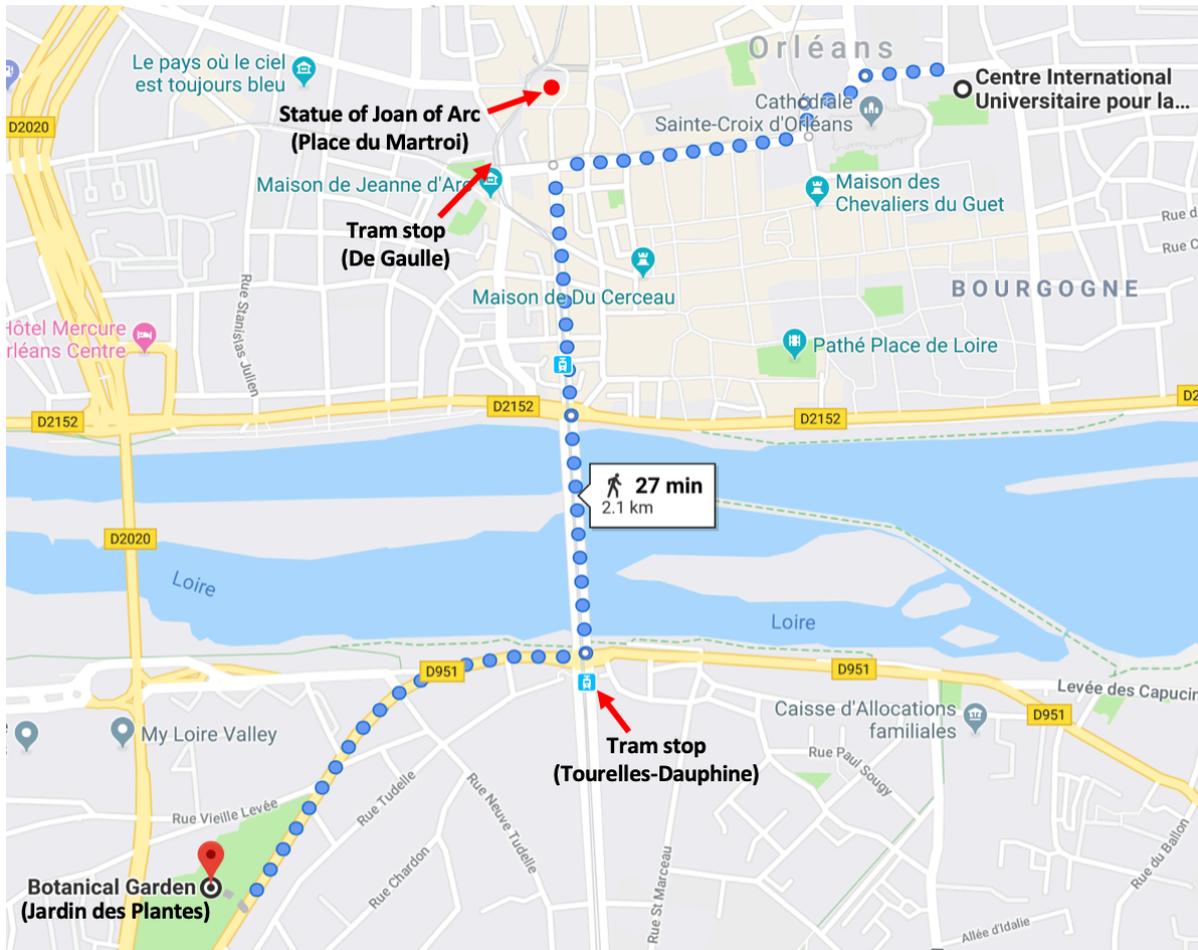
Enter the conference centre through the main gates on rue Dupanloup as shown in the photograph above.

Closest tram stop: Cathédrale-Hôtel de Ville (Tram Line B) (map below).

Closest bus stops: Halmagrand/Carré St-Vincent (lines 2, 3, 4, 5, 6, 7, 9, 25, 70) and Aristide Briand (lines 2, 5, 7, 25, 70). The small “hopper” bus O (one-way circular route through the city centre) also stops directly outside the conference venue at the stop “Dupanloup” (map below).



Conference Dinner Venue

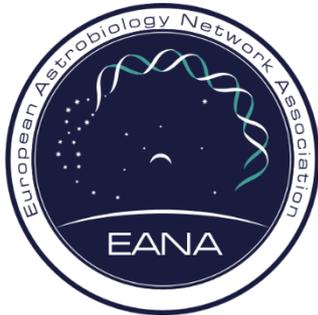


There will be an organised departure to walk to the conference dinner on Thursday, leaving from the statue of Joan of Arc on Place du Martroi (see map) at 6:45pm.

If you choose to make your own way to the Jardin des Plantes, there are three options:

- I) Walk from the conference venue as shown on the map. Walk past the cathedral and take rue Jeanne d'Arc to Place de Gaulle, turn south on Rue Royale and cross the bridge (Pont George V). Then follow the main road (Quai de Prague) until you reach the Place du Jardin des Plantes. Here you will find the entrance to the Jardin des Plantes.
- II) Take public transport from the conference venue. Board Tram B (direction: Georges Pompidou) at the Cathédrale-Hôtel de Ville stop (5 minutes from the conference venue). Disembark Tram B at De Gaulle and change for Tram A (direction Tourelles-Dauphine). Disembark at Tourelles-Dauphine and change for Bus 16 (one bus every 30 minutes) to Jardin des Plantes. Here you will find the entrance to the Jardin des Plantes. Alternatively, you can walk to the Jardin des Plantes from Tourelles-Dauphine (10 minutes).
- III) Take a taxi from the city centre (taxi rank at the central train station).

Sponsors



European Astrobiology Network Association

The European Astrobiology Network was founded in 2001 during the First European Workshop on Astrobiology co-organised with ESA at the ESRIN facility in Frascati, Italy. It is an affiliate partner of the NASA Astrobiology Institute. EANA was created to coordinate the different European centres of astrobiology and related fields. It is involved in various topics such as the Origin of Life, life in extreme environments, and space experimentation. EANA has several objectives, such as: bringing together European researchers, promoting astrobiology to funding agencies, interfacing with research networks, involving young scientists, and promoting public interest in astrobiology.



European Space Agency

The European Space Agency (ESA) is Europe's gateway to space. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world. ESA is an international organisation with 22 Member States. By coordinating the financial and intellectual resources of its members, it can undertake programmes and activities far beyond the scope of any single European country.



Centre National d'Études Spatiales

Founded in 1961, the Centre National d'Études Spatiales (CNES) is the governmental agency responsible for shaping and implementing French space policy in Europe. Its headquarters are located in central Paris and it is under the supervision of the French Ministries of Defence and Research. It operates from the Toulouse Space Centre and Guiana Space Centre, but also has payloads launched from space centres operated by other countries. CNES is member of the Institute of Space, its Applications and Technologies. As of April 2018, CNES has the second largest national budget of all the world's civilian space programs, after NASA.



Laboratoire de Physique et Chimie de l'Environnement et de l'Espace

The laboratory of Physics and Chemistry of the Environment and Space, LPC2E, is a research unit of the Centre National de la Recherche Scientifique (CNRS) and the University of Orléans. It belongs to Institut des Sciences de l'Univers (INSU) of the CNRS, and is a founding member of the Observatoire des Sciences de l'Univers en Région Centre (OSUC). Research activities at LPC2E encompass three distinct domains: space plasma physics, physics and chemistry of the terrestrial atmosphere and of planetary environments, and radioastronomy.



Observatoire des Sciences de l'Univers en région Centre

As a fully-fledged component of the university and recognised by the CNRS, OSUC is part of the national network of observatories. Its activities encompass the fields of earth sciences, environment, ecology, and human and environmental interactions.



Région Centre Val de Loire

The Région Centre-Val de Loire is located in the centre of France. It includes 6 départements: Cher, Eure-et-Loire, Indre, Indre-et-Loire, Loir-et-Cher, and Loiret. The two major cities are Orléans and Tours, with Orléans being the administrative capital. The region is famous for its numerous castles (Chambord, Chenonceau, Cheverny...) and cathedrals (Chartres, Bourges, Orléans and Tours). From the economical point of view, the region is also the first European region in the grain sector. The region is particularly active by science and technology and supports scientific projects in many domains. The region is known for its pharmaceutical and cosmetics companies (the Orléans-Chartres axis is called the Cosmetic Valley) as well for its plastics industry.



Société Française d'Exobiologie

Société Française d'Exobiologie

The French Astrobiology Society aims at federating French research in Astrobiology and strengthening collaboration, thus contributing to national and international initiatives, fostering interest for this discipline among young scientists coming from different fields, and at diffusing information on Astrobiology to the general public.



Loire&Orléans Eco

A territorial, economic accelerator, the public interest group Loire&Orléans Eco came into being in 1995, becoming thus the only French body to associate the totality of territorial communities, the Loiret Department, the CCI, the Udel Medef and Dev'Up (a regional economic agency created following the Notre law). This association of expertise and knowledge can thus accompany, support and connect all businesses in the department, playing upon its attractiveness for setting up new businesses. Just to give some numbers, in 2018 Loire&Orléans Eco examined 293 new installation or extension projects. The fifty projects that were selected mean that 1500 new jobs could be created over the next three years.



Université d'Orléans

The University of Orléans is the second oldest University in France after Paris Sorbonne. It was officially founded by the Pope Clement V in 1306. Nowadays, it teaches to more than 18 500 students in various domains and employed more than 1400 people (2018). It is split in 4 teaching and research units (UFR): literature, languages and human sciences, law, economy and management, sciences, and sciences and techniques of sport and physical activities. It includes 4 technological institutes (IUT) located in Orléans, Bourges, Chartres and Châteauroux-Issoudun), as well as the Ecole polytechnique Polytech'Orléans, and the Ecole Supérieure du Professorat et de l'Education. In association with the Centre National de la Recherche Scientifique (CNRS), it also includes the Observatoire des Sciences de L'univers en Région Centre. Its actual president is Ary Bruand.



Centre National de la Recherche Scientifique

The French National Centre for Scientific Research is among the world's leading research institutions. Its scientists explore the living world, matter, the Universe, and the functioning of human societies in order to meet the major challenges of today and tomorrow. Internationally recognised for the excellence of its scientific research, the CNRS is a reference in the world of research and development, as well as for the general public.



Centre de Biophysique Moléculaire

The Centre for Molecular Biophysics (CBM) is a key participant in the development of biophysics in France and Europe, and the largest research laboratory in the Centre Region of France. The Center was founded in 1967 to set up interdisciplinary collaboration between chemists, biologists and physicists, with a research focus on understanding the specific properties of biomacromolecules. Researchers at the CBM, working at the physics-chemistry-biology interface, seek insight into the structure, dynamics and interactions of biomacromolecules, at different levels: in vitro and in silico, but also in vivo, as it is at this level that the challenge for the coming years lies. This approach entails searching for the causes of macromolecular dysfunctions which trigger the development of certain diseases.

The Sohan Jheeta Travel Award: Sohan Jheeta is a scientist and philanthropist who generously supports travel to the EANA meeting for participants from countries outside Europe.



The Space Exploration Institute, SPACE-X for short, is a non-profit research institute located in Neuchâtel. Expertise of the staff covers several fields of science and engineering, including planetary science, astronomy, geology and system engineering for space science instrument development. SPACE-X goals are to develop space exploration activity, in particular to develop the research link to the planetary exploration by:

- Perform research on the Moon, Mars, Mercury, Europa included studies on the ice deposits and past or present life traces (Exo/ Astrobiology)

- Contribution/Elaboration of science proposals in order to participate to the future missions which explore the solar system
- Develop the Science Instruments link to this research
- Operate the on-board instruments, process, analyse the science data output
- Promote science to the public, at schools, colleges, universities over Neuchatel, Switzerland and around the Earth.