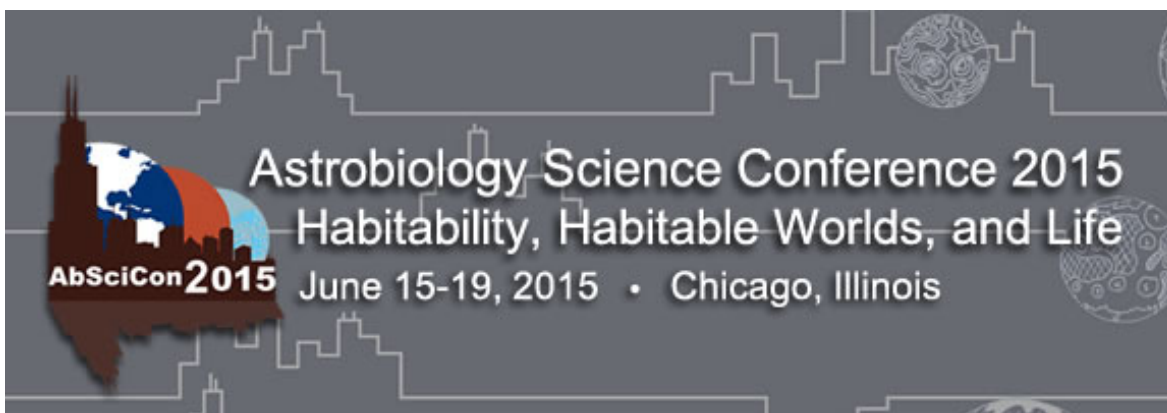


Program



To access the abstracts, use the hand tool of your Acrobat Reader to click on the name of any session.

After the full program listing for that session appears, click on the title of a presentation to view the abstract for that presentation.

Monday Morning, June 15, 7:30 a.m.

Normandie Lounge Registration Opens

Monday Morning, June 15, 8:00 a.m.

Grand Ballroom [The Deep History of a Carbon Atom](#)

Monday Morning, June 15, 9:15 a.m.

Grand Ballroom [Sustained Habitability on a Dynamic Early Earth](#)

Monday Morning, June 15, 10:30 a.m.

Grand Ballroom [The Beginning and End of the RNA World from the Perspective of Ribosome Origins](#)

Salon A1 [Extraterrestrial Materials and the Emergence of Life](#)

Salon A2 [Planetary Protection in the Age of Exploration](#)

Salon A3 [Environmental Change and the Evolution of Planetary Habitability](#)

Salon A5 [Methods for Detection of Habitability, Biosignatures, and Their Variations in Astrobiological Materials I](#)

Monday Afternoon, June 15, 1:45 p.m.

Grand Ballroom [Major Transitions in Evolution: Catalysts and Constraints I: Inference from Natural Systems](#)

Salon A1 [Life in the Clouds: Recent Advances in Upper Atmosphere Exploration](#)

Salon A2 [The Science and Engineering of Planetary Protection: Owning the Issue](#)

Salon A3 [The Diversity of Worlds: Comparative Planetology and Habitability I](#)

Salon A5 [Methods for Detection of Habitability, Biosignatures, and Their Variations in Astrobiological Materials II](#)

Monday Afternoon, June 15, 4:00 p.m.

- Grand Ballroom [Major Transitions in Evolution: Catalysts and Constraints II: Studying De Novo Complexity](#)
- Salon A1 [Beyond the Catastrophe: Impact-Generated Environments and the Search for Life](#)
- Salon A2 [Habitability from Afar: Challenges and Triumphs of Exploring Icy Worlds from Orbital and Flyby Missions](#)
- Salon A3 [The Diversity of Worlds: Comparative Planetology and Habitability II](#)
- Salon A5 [Methods for Detection of Habitability, Biosignatures, and Their Variations in Astrobiological Materials III](#)

Monday Afternoon, June 15, 7:30 p.m.

- Grand Ballroom Special Event: FameLab USA Regional HEAT

Tuesday Morning, June 16, 8:00 a.m.

- Grand Ballroom [Real Life or Fantasy: Biosignatures or Abiosignatures in Astrobiology](#)

Tuesday Morning, June 16, 9:15 a.m.

- Grand Ballroom [The Origin and Subsequent Evolution of Life](#)

Tuesday Morning, June 16, 10:30 a.m.

- Grand Ballroom [Habitability of Extraterrestrial Analog Environments I](#)
- Salon A1 [The Emergence of Life at the Intersection of Prebiotic Chemistry and Early Earth Environments: Putting Scenarios to the Test](#)
- Salon A2 [Determining the Origin and Nature of Prebiotic Species in Comets](#)
- Salon A3 [How Can Modern Microbes Inform our Understanding of Ancient Earth Ecosystems? I](#)
- Salon A5 [Astrobiology Research and Education at Minority-Serving Institutions](#)

Tuesday Afternoon, June 16, 1:45 p.m.

- Salon A1 [Extreme Earth: Omics Research on Microbial Communities, Their Chemistries, and What it Means for Life in the Solar System](#)
- Salon A2 [Definition and Boundaries of Habitable Zones I](#)
- Salon A3 [How Can Modern Microbes Inform our Understanding of Ancient Earth Ecosystems? II](#)
- Salon A5 [Habitability of Extraterrestrial Analog Environments II](#)

Tuesday Afternoon, June 16, 4:00 p.m.

- Salon A1 [Radiation and Habitability: Friends or Foes? I](#)
- Salon A2 [Definition and Boundaries of Habitable Zones II](#)
- Salon A3 [How Can Modern Microbes Inform Our Understanding of Ancient Earth Ecosystems? III](#)
- Salon A5 [Habitability of Extraterrestrial Analog Environments III](#)

Tuesday Afternoon, June 16, 5:00 p.m.

Salon A2 [Chance and Necessity: From Molecules and Viruses to Cells and Populations I](#)

Wednesday Morning, June 17, 8:00 a.m.

Grand Ballroom [Understanding and Recognizing Exoplanet Habitability](#)

Wednesday Morning, June 17, 9:15 a.m.

Grand Ballroom [Improving Astrobiology Education Through Digital Learning Research](#)

Wednesday Morning, June 17, 10:15 a.m.

Grand Ballroom [Honoring Those We Have Lost: Science and Reflections](#)

Wednesday Morning, June 17, 11:30 a.m.

Grand Ballroom [The Habitability of Icy Worlds I](#)

Salon A1 [Finding Habitable Worlds and Life Beyond the Solar System I](#)

Salon A2 [Chance and Necessity: From Molecules and Viruses to Cells and Populations II](#)

Salon A3 [Energy in Extreme Environments](#)

Salon A5 [Getting into Planets: Interior Planetary Processes, Life, and Habitability](#)

Wednesday Afternoon, June 17, 1:45 p.m.

Grand Ballroom [The Habitability of Icy Worlds II](#)

Salon A1 [Finding Habitable Worlds and Life Beyond the Solar System II](#)

Salon A2 [Earth's Early Biosphere: Life on an "Alien" Planet](#)

Salon A3 [Mechanisms for the Prebiotic Emergence of Homochirality I](#)

Salon A5 [Radiation and Habitability: Friends or Foes? II](#)

Wednesday Afternoon, June 17, 4:00 p.m.

Salon A1 [Laws of Life: Exploring Universal Biology Through Computer Simulation](#)

Salon A2 [Titan's Organic Chemistry and Insights into Habitability](#)

Salon A3 [Mechanisms for the Prebiotic Emergence of Homochirality II](#)

Salon A5 [Radiation and Habitability: Friends or Foes? III](#)

Wednesday Evening, June 17, 7:30 p.m.

Salon C Poster Session I

[The Beginning and End of the RNA World from the Perspective of Ribosome Origins](#)

[Major Transitions in Evolution: Catalysts and Constraints in the Origins of Biological Complexity](#)

[Extraterrestrial Materials and the Emergence of Life](#)

Wednesday Poster Session I (continued)

[Life in the Clouds: Recent Advances in Upper Atmosphere Exploration](#)

[Beyond the Catastrophe: Impact-Generated Environments and the Search for Life](#)

[Planetary Protection in the Age of Exploration](#)

[Habitability from Afar: Challenges and Triumphs of Exploring Icy Worlds from Orbital and Flyby Missions](#)

[Methods for Detection of Habitability, Biosignatures, and Their Variations in Astrobiological Materials](#)

[The Diversity of Worlds: Comparative Planetology and Habitability](#)

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Putting Scenarios to the Test](#)

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[Earth's Early Biosphere: Life on an "Alien" Planet](#)

[Titan's Organic Chemistry and Insights into Habitability](#)

Thursday Morning, June 18, 8:00 a.m.

Grand Ballroom [Planets in Perspective: Where's the Energy?](#)

Thursday Morning, June 18, 9:15 a.m.

Grand Ballroom [Seeking Astrobiology Input to Mars 2020 Landing Site Selection](#)

Thursday Morning, June 18, 10:30 a.m.

Grand Ballroom [Martian Habitability as Informed by Past and Ongoing Orbital, Lander, and Rover Missions](#)

Salon A1 [Biosignatures and Technosignatures: The Search for Inhabited Planets I](#)

Salon A2 [The Habitability of Water-Rock-Supported Ecosystems I](#)

Salon A3 [From Prebiotic Chemistry to Functional Biopolymers: Mapping the Origins and Evolution of Possible
Chemistries for Life I](#)

Salon A5 [Mission to Early Earth: Co-Evolving Archean and Proterozoic Oceans, Atmospheres, and Life I](#)

Thursday Afternoon, June 18, 1:45 p.m.

Grand Ballroom	Lightning Talks I
Salon A1	Biosignatures and Technosignatures: The Search for Inhabited Planets II
Salon A2	Past and Extant Life Search Strategies for Habitable Environments on Mars: How Should We Proceed?
Salon A3	From Prebiotic Chemistry to Functional Biopolymers: Mapping the Origins and Evolution of Possible Chemistries for Life II
Salon A5	Mission to Early Earth: Co-Evolving Archean and Proterozoic Oceans, Atmospheres, and Life II

Thursday Afternoon, June 18, 2:45 p.m.

Grand Ballroom	NASA Innovative Advanced Concepts
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Thursday Afternoon, June 18, 4:00 p.m.

Salon A1	Exploring the Effects of Stress on Microbial Mutation Rates and Survival Strategies
Salon A2	The Habitability of Water-Rock-Supported Ecosystems II
Salon A3	Astrobiology and the Next Mars Rover Missions: Site Selection, In Situ Science, and Returned Sample Science
Salon A5	Mission to Early Earth: Co-Evolving Archean and Proterozoic Oceans, Atmospheres, and Life III

Thursday Evening, June 18, 7:30 p.m.

Salon C	Poster Session II
	Getting into Planets: Interior Planetary Processes, Life, and Habitability
	Energy in Extreme Environments
	Mechanisms for the Prebiotic Emergence of Homochirality
	Martian Habitability as Informed by Past and Ongoing Orbital, Lander, and Rover Missions
	Biosignatures and Technosignatures: The Search for Inhabited Planets
	Exploring the Effects of Stress on Microbial Mutation Rates and Survival Strategies
	The Habitability of Water-Rock-Supported Ecosystems
	Past and Extant Life Search Strategies for Habitable Environments on Mars: How Should We Proceed?
	Mission to Early Earth: Co-Evolving Archean and Proterozoic Oceans, Atmospheres, and Life
	From Prebiotic Chemistry to Functional Biopolymers: Mapping the Origins and Evolution of Possible Chemistries for Life
	Astrobiology and the Next Mars Rover Missions: Site Selection, In Situ Science, and Returned Sample Science
	Phototrophic Life and Earth's Redox Evolution
	Challenges for the Next Generation of Biosignature Detection Strategies
	Understanding Your Parents: The Challenges of Host Star Characterization for Exoplanet Science
	Co-Evolution of Compartmentalization, Metabolism, and Informational Polymers

Thursday Poster Session II (continued)

[Interstellar Chemical Evolution: Astrochemistry from Atoms to Amino Acids](#)

[Astrobiology Education and Public Outreach and its Impact: 21st Century Ideas and Experienced Perspectives](#)

[Astrobiology Research and Education at Minority-Serving Institutions](#)

[Astrobiology and Community](#)

[Crossing the Darwinian Threshold](#)

[Gravity and Its Impact on Life](#)

[Habitability of Dwarf Planets: State of the Landscape \(Right\) Before Dawn and New Horizons](#)

[Life in the Anthropocene: The Future of Earth's Biosphere](#)

[What We Know About Water and Life on Earth: Implications for Potential Life Forms Elsewhere in the Solar System and Universe](#)

[New Life in the Laboratory](#)

Friday Morning, June 19, 8:10 a.m.

- Salon A1 [Increasing and Measuring the Impact of Education and Public Outreach](#)
- Salon A2 [Challenges for the Next Generation of Biosignature Detection Strategies I](#)
- Salon A3 [Interstellar Chemical Evolution: Astrochemistry from Atoms to Amino Acids I](#)
- Salon A5 [Co-Evolution of Compartmentalization, Metabolism, and Informational Polymers I](#)

Friday Morning, June 19, 10:30 a.m.

- Salon A1 [Phototrophic Life and Earth's Redox Evolution](#)
- Salon A2 [Challenges for the Next Generation of Biosignature Detection Strategies II](#)
- Salon A3 [Interstellar Chemical Evolution: Astrochemistry from Atoms to Amino Acids II](#)
- Salon A5 [Co-Evolution of Compartmentalization, Metabolism, and Informational Polymers II](#)

Friday Morning, June 19, 11:30 a.m.

- Salon A2 [Understanding Your Parents: The Challenges of Host Star Characterization for Exoplanet Science](#)
- Salon A3 [Lightning Talks II](#)

Print Only

[Print Only: Major Transitions in Evolution: Catalysts and Constraints in the Origins of Biological Complexity](#)

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