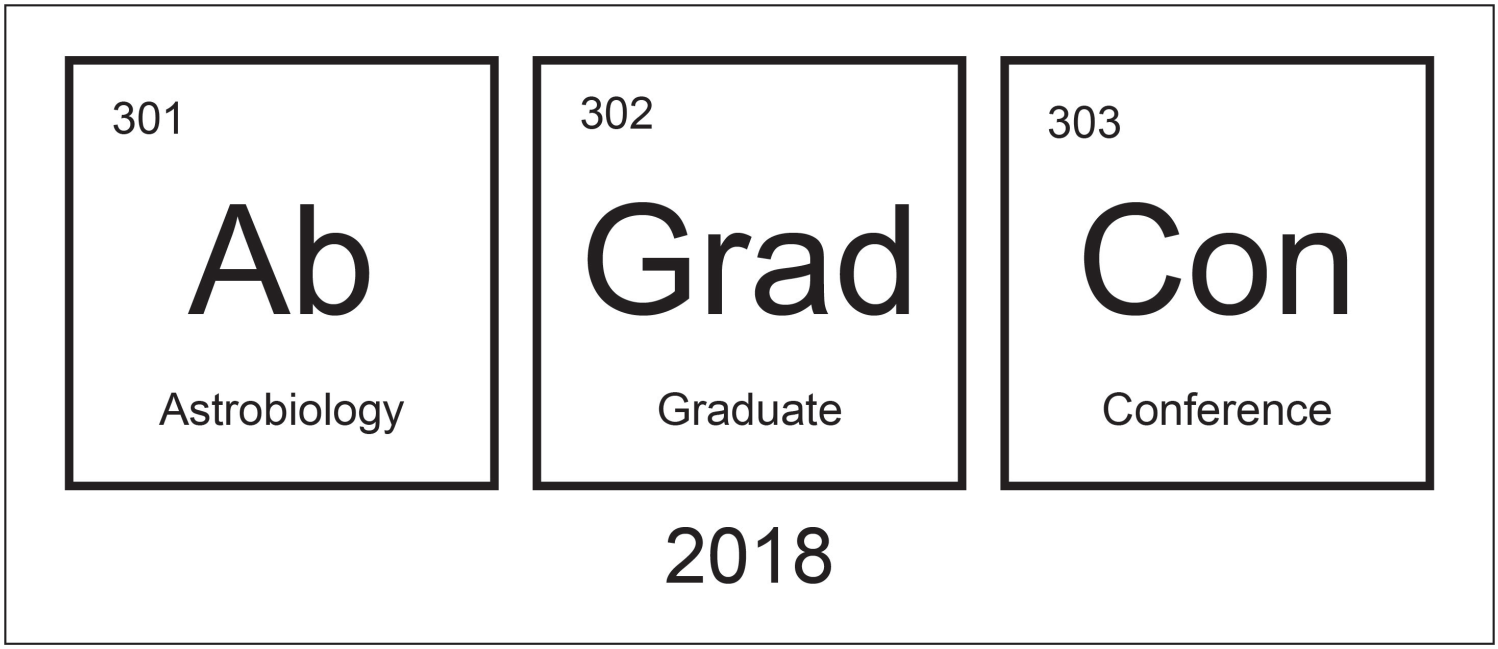
Conference Program



2018 Conference Chair

George K. Tan

2018 Organizing Committee

Aaron Pital
Adriana Lozoya
Becky Rapf
Ben Intoy
Bradley Burcar
Brandon Carroll
Brett McGuire
Chase Chivers
Chloe Stanton
Chris Parsons
David Fiahlo
Dedra Eichstedt
Elizabeth Spiers
Jay Kroll
Jennifer Farrar
Jonny Tan
Julia McGonigle
Justin Lawrence
Kennda Lynch
Kimberly Chen
Marcus Bray
Marshall Seaton
Micha Schaible
Nadia Szeinbaum
Rio Febrian
Santi Mestre Fos
Scot Sutton
Sheri Motamedi
Zach Duca

Proposal Writing Retreat Organizing Committee

Becky Rapf (Chair)
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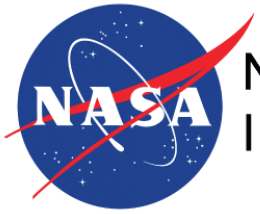

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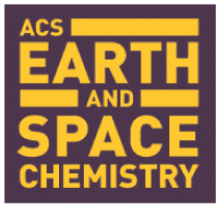
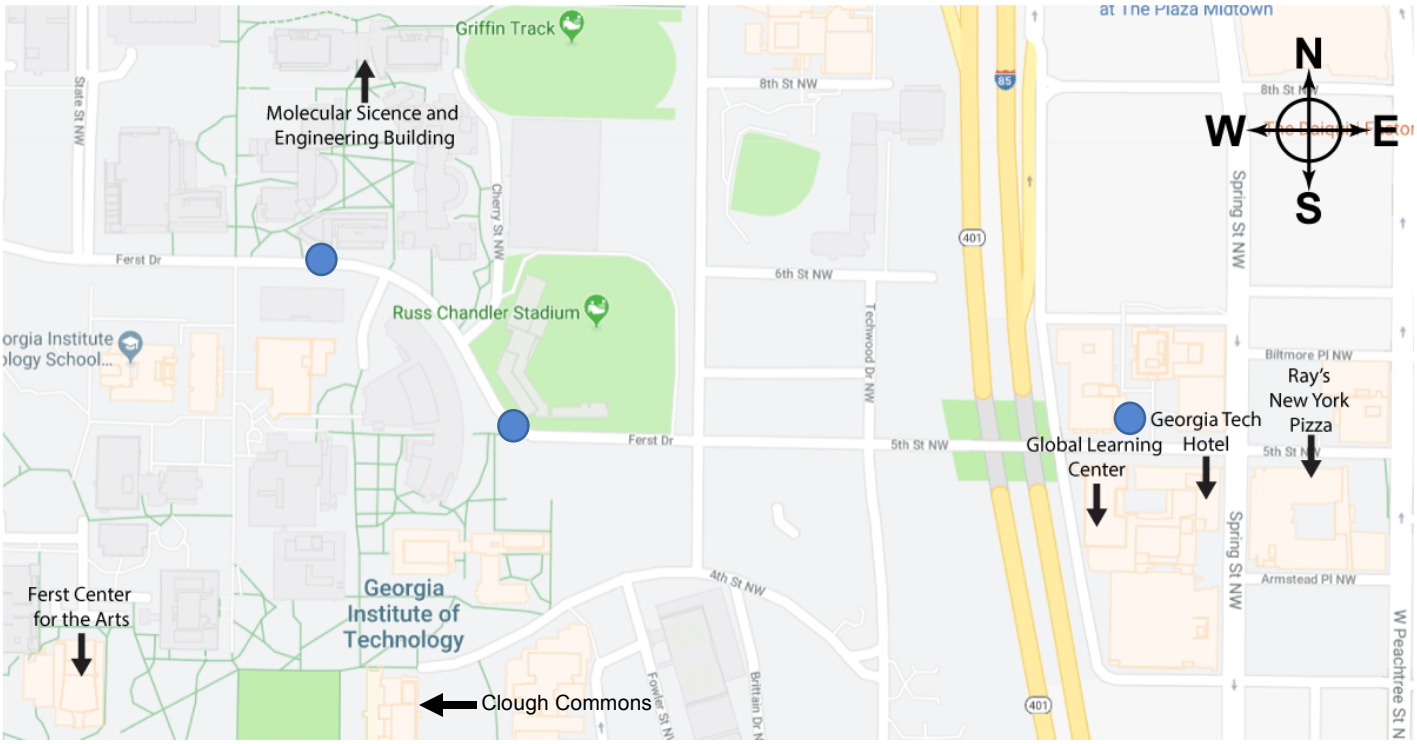


Schedule

	Monday 6/4/18	Tuesday 6/5/18	Wednesday 6/6/18	Thursday 6/7/18	Friday 6/8/18
8:00AM	Arrival	Breakfast 8:00-9:00AM	Breakfast 8:00-9:00AM	Breakfast 8:00-9:00AM	Departure
9:00AM		Talks 1 Warm-up + 3 Talks 9:00AM-10:10AM	Talks 1 Warm-up + 3 Talks 9:00AM-10:10AM	Field Trip 10:00AM-2:00PM	
10:00AM		Coffee Break 10:10AM-10:30AM	Coffee Break 10:10AM-10:30AM		
11:00AM		Talks 4 Talks 10:30AM-11:50AM	Talks 4 Talks 10:30AM-11:50AM		
12:00PM		Lunch 11:50AM-1:00PM	Lunch 11:50AM-1:00PM		
1:00PM		Talks 1 Warm-up + 3 Talks 1:00PM-2:10PM	Talks 1 Warm-up + 3 Talks 1:00PM-2:10PM		
2:00PM		Break 2:10PM-2:30PM	Break 2:10PM-2:30PM	Break 2:00PM-3:00PM	
3:00PM		Career Panel 2:30PM-3:30PM	Talks 3 Talks 2:30PM-3:30PM	Primer 3.0 Info. Session 3:00PM-3:30PM	
4:00PM		Posters 3:30PM-5:30PM	Posters 3:30PM-5:30PM	Early Career Town Hall 3:30-4:00PM	
5:00PM				AGC 2019 Planning 4:00-5:00PM	
6:00PM	Opening Dinner 5:00PM - 7:00PM	Dinner On Your Own 5:30PM - 7:30PM	Outreach Event 5:30PM-10:00PM	Reception 5:00PM-6:00PM	
7:00PM	Welcome PWR Winners Keynote Address 7:00PM-10:00PM	Trivia Night 7:30PM-10:00PM		Closing Banquet 6:00PM-8:00PM	
8:00PM					
9:00PM					
10:00PM					

Map of Conference Locations



Conference Location Information

- Attendees are lodging at the Georgia Tech Hotel
  - Breakfast will be served on the first floor of the Hotel every morning starting at 6:30am
- Oral Sessions and Lunch on Tuesday and Wednesday will take place at the Global Learning Center
  - This building is attached to the Georgia Tech Hotel and is accessible from the lobby of the hotel
- Dinner Monday evening, and the Poster Sessions on Tuesday and Wednesday will be held in the Molecular Science and Engineering Building
  - About a 10-minute walk from the Georgia Tech Hotel. Alternatively, there is a trolley that runs from the hotel and drops off on Ferst Street close to the building (Trolley stops are marked by blue dots)
- Trivia night with be held at Ray's New York Pizza (less than 3 minute walk from Hotel)
- The outreach event will be held at the Ferst Center for the Arts
- Thursday afternoon presentations and Closing reception will be held at the Clough Commons
- Heading due east of the Georgia Tech Hotel puts you in the heart of Midtown, Atlanta
  - This part of the city hosts a wide variety of restaurants, bars, and other nightlife

Invited Speakers and Guests

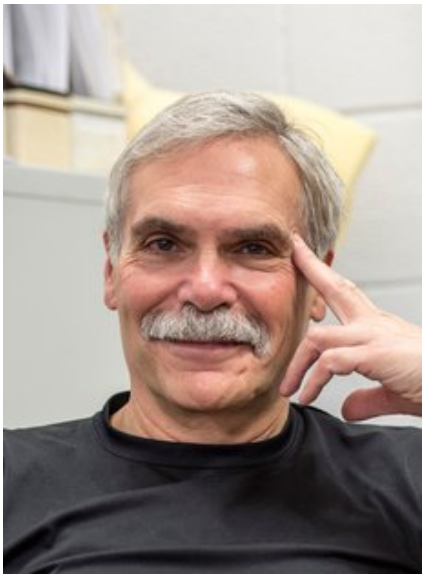
Special Guest: Dr. Lawrence J. DeLucas

Dr. Lawrence J. DeLucas *is a Principal Scientist at the Aerospace Corporation and former member of the NASA space shuttle mission STS-50. Dr. DeLucas holds 5 degrees from the University of Alabama at Birmingham (BSc., Chemistry in 1972, MS., Chemistry in 1974, BSc., Physiological Optics in 1979, Optometry Doctorate in 1981, PhD., Biochemistry in 1982). Upon completion of his degrees, Dr. DeLucas took a faculty position in the School of Optometry. In addition to this appointment, Dr. DeLucas also served as Director for the Center of Structural Biology and the Director of the Comprehensive Cancer Center X-Ray Crystallography Shared Facility and had secondary appointments in the Departments of Physiology & Biophysics and Biochemistry & Molecular Genetics during his tenure at UAB. In 1992, Dr. DeLucas flew as a Payload Specialist aboard the United State Microgravity Laboratory-1 flight, NASA Mission STS-50. From 1994 to 1995, Dr. DeLucas served as the Chief Scientist for the International Space Station at NASA Headquarters in Washington, D.C. Currently, Dr. DeLucas crrently serves as a Principal investigator for the Aerospace Corporation.*

Keynote Speaker: Dr. Shawn McGlynn

Dr. Shawn McGlynn *received his BSc in chemistry from Montana State University in 2005 and a PhD in Biochemistry from the same university in 2010. Dr. McGlynn then when on to work as an Agouron Postdoctoral Scholar in Geobiology at the California in Institute of Technology before accepting an Associate Professor position at the Earth Life Science Institute within the Tokyo Institute of Technology. During his tenure at ELSI, Dr, McGlynn spent time as a Visiting Scholar in Geobiology at the California Institute of Technology. His current research seeks to understand the matter and energy relationship of microbial processes, especially those in early earth hydrothermal vent systems.*

Closing Address: Dr. Frank Rosenzweig



Dr. Frank Rosenzweig *is a Professor of Biology in the College of Sciences at Georgia Institute of Technology. He has previously held tenured faculty positions at the University of Idaho, the University of Florida and the University of Montana, and has been Visiting Professor at Stanford School of Medicine. He earned his Ph.D. in Biology at the University of Pennsylvania, and was an NIH postdoctoral fellow at the University of Michigan.* He *seeks to illuminate the evolution of complex traits that increase biodiversity, control cell lifespan and drive major transitions in the history of life. Rosenzweig is Principal Investigator of the NASA Astrobiology Institute node: "Reliving the Past: Experimental Evolution of Major Transitions".*

Maggie C. Turnbull Astrobiology Early Career Service Award

Dr. Margaret "Maggie" Turnbull *is an astrobiologist whose expertise is in identifying planetary systems that may be capable of supporting life as we know it. As a part of her dissertation, Maggie developed the Catalog of Habitable Stellar Systems (HabCat) with Jill Tarter for use in the search for extraterrestrial intelligence (SETI). She is currently leading science teams nationwide to develop NASA missions to discover planets beyond our solar system. In 2004 Dr. Turnbull organized and convened the inaugural Astrobiology Graduate Student Conference on the campus of the University of Arizona in Tuscon, AZ; AbGradCon is now in its 14th year and serves as a fundamental event for the early career astrobiology community. She continued to serve both science and the public through advocacy on Capitol Hill and serving as an elected official in her local community. On April 24, 2018 Dr. Turnbull announced her candidacy for Governor of Wisconsin.*

About the Award:

The purpose of this award is to honor those that exemplify the spirt of service within the early career astrobiology community. As this is a community award, the community will participate in the selection of the final candidate. Nominations are accepted from members across the entire astrobiology community (self-nomination is not allowed) and then nominated candidates will be selected through a community online voting system. The nominees will be listed along with their nomination write-up on the AbGradCon website and community voting will commence during AbGradCon 2018. The awardee will be announced at the closing dinner of AbGradCon on Thursday June 7th 2018. The awardee will be honored with a plaque and a monetary award of $1000.

Early Career Scientist Panel

Dr. Jennifer Glass *received a BSc in both Oceanography and Earth and Space Sciences form the University of Washington in 2006, and her PhD in Geological Sciences from Arizona State in 2011. Following that, Jen was a NASA post-doctoral fellow at California Institute of Technology. She is currently an Assistant professor in Georgia Tech's school of Earth and Atmospheric Sciences, where her research centers on the microbial interactions with geological and geochemical systems, elucidating what these interactions mean for Earth today, during the time of life's emergence, and for other worlds.*

Dr. Amanda Stockton *received a BSc in both Chemistry and Aerospace Engineering from MIT in 2004, a Masters in Chemistry from Brown in 2006, and her PhD in Chemistry from UC Berkeley in 2010. She held a post-doctoral position at Jet Propulsion Laboratory before accepting an Associate Professorship at Georgia Tech in the School of Chemistry and Biochemistry, with a dual appointment to the School of Bioengineering in 2014. Amanda's research focuses on developing instrumentation and methods for analyzing biosignatures in extreme environments on Earth and across the solar system, leveraging engineering and analytical chemistry to shed light on complex questions.*

Dr. Susanna Widicus Weaver *received her BSc in Chemistry from Illinois Wesleyan, and her PhD in Chemistry from the California Institute of Technology. She was a postdoctoral scholar at University of Illinois Urbana-Champaign in the Departments of Chemistry and Astronomy. Susanna is currently an Associate Professor and Director of Graduate Studies at Emory's Department of Chemistry. Her research combines astronomical observations and model systems to probe how biomolecules form and evolve in interstellar systems.*

Detailed Program

Monday June 4th

12:00PM-6:00PM

- Arrival and registration, Georgia Tech Hotel

5:00PM-7:00PM

- Dinner at Molecular Science and Engineering Building

7:00PM-10:00PM, **Molecular Science and Engineering Room G011**

- Welcome
- Announcement of PWR winners, Winning PWR presentation
- Keynote Talk: Dr. Shawn McGlynn

Tuesday June 5th

8:00AM-9:00AM: Breakfast at the Georgia Tech Hotel

9:00AM-10:10AM: **Oral Session I, Global Learning Center Room 222**

9:00 – 9:10 Warm Up Talk: Mahmuda Afrin Badhan

9:10 – 9:30 Arthur Adams, "*Characterizing Exoplanet Meteorology*"

9:30 – 9:50 Andrew Lincowski, "*Exoplanet Characterization with JWST: Evolved Climates and Observational Discriminants of the TRAPPIST-1 System*"

9:50 – 10:10 Brandon Carroll, "*Tracing the Origins of Nitrogen Bearing Organics Toward Orion KL with ALMA*"

10:10AM-10:30AM: Coffee Break

10:30AM-11:50AM, Oral Session II, Global Learning Center Room 222

10:30 – 10:50 Ngoc Truong, "*Decomposition of Amino Acids in Water with Application to Enceladus and Europa*"

10:50 – 11:10 Zoe Todd, "*Cometary Delivery of Cyanide to the Early Earth for Prebiotic Synthesis*"

11:10 – 11:30 Amber Britt, "*Simulations of Methane on Mars Using Curiosity Data*"

11:30 – 11:50 Justin Lawrence "*RISE UP: Robotic Exploration beneath the Ross and McMurdo Ice Shelves*"

11:50AM-1:00PM: Lunch at Global Learning Center Atrium

1:00PM-2:10PM, Oral Session III, Global Learning Center Room 222

1:00 – 1:10 Warm Up Talk: Zach Duca

1:10 – 1:30 Lara Maldanis, "*Assessing new biogenicity criteria of microfossils with high-resolution imaging techniques*"

1:30 – 1:50 Ebrahim Emami, "*Planetary Image Analysis using Advanced Artificial Intelligence Techniques - An example with crater detection*"

1:50 – 2:10 J. Emilio Enriquez, "*The Breakthrough Listen Search for Intelligent Life: the first SETI results and other future science.*"

2:10PM-2:30PM: Coffee Break

2:30PM-3:30PM Early Career Scientist Panel

- **Dr. Jennifer Glass** (Earth and Atmospheric Sciences, Georgia Tech),
- **Dr. Amanda Stockton** (Chemistry and Biochemistry, Georgia Tech),
- **Dr. Susanna Widicus-Weaver** (Chemistry, Emory University)

3:30PM-5:30PM, Poster Session I

- Molecular Science and Engineering Atrium

5:30PM-7:30PM

- Dinner on your own

7:30PM

- Trivia Night, Ray's New York Pizza
- Board Games in the White Room at the Georgia Tech Hotel
  (Game Room open from 6:30 pm to 12:00 am)

Wednesday June 6th

8:00AM-9:00AM: Breakfast at Georgia Tech Hotel

9:00AM-10:10AM, **Oral Session IV, Global Learning Center Room 222**

9:00 – 9:10 Warm Up Talk: Rebecca Rapf

9:10 – 9:30 Mojhgan Haghnegahdar, "*Insights into Atmospheric Methane Sources and Sinks Using Methane Clumped Isotopes*"

9:30 – 9:50 Jonathan Tan "*The Fate of Lipid Biosignatures in a Mars-Analogue Sulfur Stream*"

9:50-10:10 Amanda Garcia "*A novel apatite-based oxygen paleobarometer across the Neoproterozoic-Cambrian transition*"

10:10AM-10:30AM: Coffee Break

10:30AM-11:50AM Oral Session V, Global Learning Center Room 222

10:30 – 10:50 David Fialho "*Glycosylation of a Model Proto-RNA Nucleobase with Non-Ribose Sugars: Implications for the Origin of RNA*"

10:50 – 11:10 Moran Frenkel-Pinter "*Dynamic Polymerization of Prebiotic Depsipeptides Allows Selection of Stable Structures*"

11:10 – 11:30 Niraja Bapat "*Prebiotic heterogeneity and its effect on nonenzymatic replication*"

11:30 – 11:50 Chloe Stanton "*No Laughing Matter: Nitrous Oxide Production by Chemodenitrification in the Ferruginous Proterozoic Ocean*"

11:50AM-1:00PM: Lunch at Global Learning Center Atrium

- Dr. Lawrence DeLucas career talk

1:00PM-2:10PM Oral Session VI, Global Learning Center Room 222

1:00 – 1:10 Warm Up Talk: Marcus Bray

1:10 – 1:30 Valerio Guido Giaobelli "*Test of genetic code evolution hypotheses: Reverse evolution of specific target proteins by mRNA-display technique*"

1:30 – 1:50 Lara Vimercati "*Microbial activity and adaptation at extreme elevations on Atacama volcanoes: the best Martian analogue on Earth?*"

1:50 – 2:10 Michael Morrison "*Comparison of Bacillus subtilis transcription profiles from separate missions to the ISS reveal common responses."*

2:10PM-2:30PM: Coffee Break

2:30PM-3:30PM, Oral Session VII, Global Learning Center Room 222

2:30 – 2:50 Anna Wang, "*Unusual self-assembly properties of model protocell membranes*"

2:50 – 3:10 Jose Alberto Campillo-Balderas, "*Viruses can be antique, but not primitive*"

3:10 – 3:30 Hikaru Furukawa *"Agency-Steered Ecosystems on Planetary Bodies*"

3:30PM-5:30PM, Poster Session II

- Molecular Science and Engineering Atrium

5:30PM-8:30PM

- Outreach Event at Ferst Center for the Arts
  Food trucks will be available for dinner. Volunteers for the outreach event will receive a voucher for dinner.
- Game Room (White Room at the Georgia Tech Hotel) open until midnight

Thursday June 7th

8:00AM-9:00AM: Breakfast at Georgia Tech Hotel

10:00AM-2:00PM

- Field Trip to Georgia Aquarium
- Boxed Lunch provided

3:00PM-3:30PM, Clough Room 152

- Astrobiology Primer 3.0 Information session

3:30PM-4:00PM Clough Room 152

- Early Career Town Hall with Melissa Kirven-Brooks from NAI

4:00PM-5:00PM

- AbGradCon 2019 Planning Meeting

5:00PM-6:00PM

- Reception at Clough Commons Rooftop Garden

6:00PM-10:00PM

- Dinner, Student Center Ballroom
- Closing Address: Dr. Frank Rosenzweig
- Maggie C. Turnbull Astrobiology Early Career Service Award
- Closing Remarks

Late Night:

- Game Room (White Room at the Georgia Tech Hotel) open until midnight

Poster Session I Tuesday June 5th 3:30-5:30

Name	Affiliation	Poster #	Title
Mahmuda Afrin Badhan	University of Maryland College Park	1	Atmos: A 1-D Coupled Climate-Photochemical Model to Simulate Exoplanet Atmospheres
Seyedsaeid Ahmadvand	University of Nevada, Reno	2	On the Formation of C_2H_5NO Isomers in the Interstellar Medium
Asim Alenaizan	Georgia Institute of Technology	3	Self-Assembly of Nucleobases Analogues: Quantum Mechanical and Molecular Dynamics Study
Adrim Barry Sosa	University of Florida	4	Subsurface Aquifers and Caves Environments as Models for Astrobiology
Manish Baviskar	Lamar University	5	Geochemical and Geophysical Gradients from a Meteoroid Impact Result in a Unique Pattern of Microbial Distribution.
Jennifer Berry	University of Colorado - Boulder	6	The Influence of Positive Ions During Laboratory Simulations of Titan's Haze Formation
Julie Bevilacqua	Georgetown University	7	Cell Survival in the Antarctic Dry Valleys
Marcus Bray	Georgia Institute of Technology	8	Iron: Primordial Cofactor for the Translation System
Flavia Callefo	Institute of Geosciences - University of Campinas	9	Evaluation of Biogenicity in Rocks Related to Brazilian Paleozoic Glacial Events
Kimberly Chen	Georgia Institute of Technology	10	Genetic Basis Underlying *de Novo* Origins of Multicellularity in Response to Predation
Laura Chimiak	California Institute of Technology	11	Using Isotopes to Constrain Amino Acid Synthesis on Meteorite Parent Bodies
Chase Chivers	Georgia Institute of Technology	12	Lumps, Bumps, and Depressions: Europa's Surface Shallow Hydrology
Luoth Chou	University of Illinois at Chicago	13	Linking Legacy Metabolites to Potential Organic Matter Preservation in an Antarctic Cryoencapsulated Hypersaline Brine
Wolfgang Francisco Cottom Salas	Universidad Nacional Autónoma de México	14	Coenzymes, Viruses and the RNA World
Quinn Dickinson	Georgia Institute of Technology	15	Multicellularity in Wild Yeast an Adaptive Trait in Environments with Nutrient Fluctuation
Rio Febrian	Saint Louis University	16	The Effects of Salts on Prebiotic Reactions of Peptides
Narangerel Ganbaatar	Tokyo Institute of Technology, Earth-Life Science Institute (ELSI)	17	Nano-Spectroscopic Approaches to Origins of Life at Mineral-Organic Interfaces
Joshua Hedgepeth	University of Western Ontario	18	Impact Craters on Titan: The Search for Life in Titan's Craters
Ricardo Hernandez-Morales	Universidad Nacional Autónoma de México	19	Alarmones as Vestiges of a Bygone RNA World
Jessica Hobson	University of North Carolina, Chapel Hill	20	Stepping Back in Time: Selecting Escherichia coli with an 'Ancestral' Tryptophanyl-tRNA Synthetase
Ankit Jain	CUNY Advanced Science Research Center	21	Co-factor driven evolution of dynamic peptide libraries
Tony Jia	Tokyo Institute of Technology, Earth-Life Science Institute (ELSI)	22	Self-Assembled Biomaterial Nanostructures as Catalysts and Biomarkers of "Life"

Sebastian Jian Krause	University of California, Los Angeles	23	Potential Direct Feeding of Anaerobic Oxidation of Methane by Methanogenesis in the Sulfate-Reduction Zone of a Coastal Wetland System
Jay A. Kroll	University of Colorado Boulder	24	Sunlight Driven Reactions of SO_2 with Organic Molecules
Amy LeBleu-DeBartola	University of Central Florida	25	An Investigation of Carbonaceous Chondrite Meteorites via Raman Spectroscopy
Joshua Leehan	University of Florida	26	Cultivation of *Bacillus subtilis* in Spaceflight Alters the Mutational Spectrum in the rpoB Gene
Dylan Malenfant	McMaster University	27	Guided Polymerization of Mononucleotides by Lipid Bilayers Studied by Molecular Dynamics Simulations
Julia McGonigle	University of Utah	28	Community Composition and Metabolic Characterization of the Bonneville Salt Flats
Santi Mestre Fos	Georgia Institute of Technology	29	rRNA Expansion Segments of the Homo sapiens Ribosome: Structure and Function
Tareq Omairi	University of Sheffield	30	Investigating the transfer and survivability of bacteria within the stratosphere using imaging and molecular techniques
Jeff Osterhout	University of California, Los Angeles	31	Exploration of Raman and Carbon Isotopic Biosignatures on Early Earth and Mars
Kenneth Seaton	Georgia Institute of Technology	32	Microfluidic Amine and Amino Acid Pre-Concentration for Improved Limits of Detection
Martin Solano	Georgia Institute of Technology	33	Polymerization and Assembly of Plausible Protopeptides
Nicholas Speller	Georgia Institute of Technology	34	Preliminary Work towards the Development of a Miniaturized, Portable Microfluidic Cell Counter for Icefin
Azarin Yazdani	University of Arkansas	35	Adaptive Evolution of Bacteria to High Concentrations of Magnesium Sulfate with Implication to Europa
		36	Withdrew from Conference

Poster Session II Wednesday June 6th 3:30-5:30

Name	Affiliation	Poster #	Title
Rodrigo Abans	Brazilian Synchrotron Light Laboratory (LNLS)	37	Effect of CO_2 Atmosphere in the Microbial Diversity and Carbonate Precipitation of an Hypersaline Mat
Richard Archer	University of Colorado Boulder	38	Constraining Degradation of Biosignatures Within a Fossilized Jurassic Redox Gradient in a Mars Analogue Sediment from Painted Desert, Arizona
Carla Bautista Rodríguez	Institut de biologie intégrative et des systèmes (IBIS), Universite Laval	39	Hybridization as an Adaptive Force in Response to Extreme UV Conditions
Sandra Blair	University of Colorado Boulder	40	The Disentangled Effects of Salt on Prebiotic Lipid Monolayer Stability
Thomas Cantrell	Georgia Institute of Technology	41	*In situ* Culturing with Isolation-Chip Technology in Hydrogeothermal Springs
Alejandro Cisneros	Universidad Nacional	42	The Role of Paralogous Duplications in Early

	Autónoma de México		Protein Evolution
Zachary Duca	Georgia Institute of Technology	43	Quantitative, Compositional Analysis of Trace Amino Acids in Europa Analogues with a Modular μCE-LIF System
Dedra Eichstedt	Georgia Institute of Technology	44	Chiral Analysis of Exogenous Amino Acids using Microcapillary Electrophoresis Mass Spectrometry
Katherine Fullerton	University of Tennessee	45	Biology Meets Subduction: Subduction-Related Geochemistry is a Driver of Microbial Community Dynamics in Costa Rica
Dylan Gagler	Arizona State University	46	Investigating the Network Topology of Geobiochemical Systems
Daniela Kroiss	The Graduate Center of the City University of New York	47	ATP-Hydrolyzing Peptide Coacervates
Adriana Lozoya Colinas	Georgia Institute of Technology	48	Viscosity-Mediated Replication of an RNA Duplex containing a Ribozyme Motif
Aaron McKee	Georgia Institute of Technology	49	A Possible Path to Prebiotic Peptides involving Minerals and Ester-Mediated Amide Bond Formation
Kathleen Miller	University of Florida	50	Carnobacterium Response to Pressure Extremes: Growth, DNA Methylation, and Global Gene Transcription
Ryo Mizuuchi	Portland State University	51	A Major Primitive Evolutionary Transition: Cooperation between Distinct RNA Replicators
Sheri Motamedi	University of Utah	52	Exploration of Novel Subsurface Microbial Communities within Seafloor Mantle Rocks
Israel Muñoz	Universidad Nacional Autónoma de México	53	Early Evolution of Methanogenic Routes
Angeera Naser	NASA Glenn Research Center	54	Ontology, Astrobiology, and the Periodic Table of Life
Chiamaka Obianyor	Georgia Institute of Technology	55	The Use of Environmental Cycles to Lend Insight into Viscosity Mediated Replication
Martina Preiner	Heinrich-Heine-University	56	Awaruite and CO_2 Reduction in Early Biochemical Evolution
Rebecca Rapf	Lawrence Berkeley National Lab	57	Building Complexity via the Aqueous Photochemistry of Simple Lipids
Tyler Roche	Georgia Institute of Technology	58	The Condensation of a Model Proto-RNA Nucleobase with Ribulose: A Prebiotic Pathway to RNA
Juan Rosas Bonilla	Yale University	59	Rapid Crustal Growth and Recycling in the Early Earth: Implications for Hadean and Archean Geodynamics
Alma Carolina Sanchez Rocha	Universidad Nacional Autónoma de México	60	Simple Sequences in Early Evolution of Life
Vismay Shah	McMaster University	61	Spatial Model for an RNA World
Anna Simpson	University of Washington, Seattle	62	Characterization of Shifts in Microbial Community Structure between Snow-Covered and Exposed Sediments
Elizabeth Spiers	Georgia Institute of Technology	63	Time, Heat, and Geochemistry: Foundations for Modeling an Ocean World
Scot Sutton	Georgia Institute of Technology	64	Field Exploration and Life Detection Sampling via Planetary Analogue Research (FELDSPAR): Microbial Trends Observed at an Alluvial Plain

Nadia Szeinbaum	Georgia Institute of Technology	65	Metaproteomics Reveals a Novel Betaproteobacterium with Roles in Metal and Nitrogen Cycling in the Deep Subsurface
George Tan	Georgia Institute of Technology	66	Differences in Bacterial Diversity by Spatial Distance in Homogenous Icelandic Mars Analog Environments
Jennifer Thweatt	Pennsylvania State University	67	Characterization of Light-Harvesting Complexes From a New Purple Sulfur Bacterium Isolated From Yellowstone
Vyacheslav Tretyachenko	Charles University	68	Exploring the Unevolved Protein Space
Alberto Velázquez Salazar	Universidad Nacional Autónoma de México	69	The Importance of the Imidazole Group in the Evolution of Biological Catalysis
Lena Vincent	Wisconsin Institute for Discovery	70	Repurposing Artificial Ecosystem Selection to Study the Chemical Origins of Life
Nicole Wagner	Georgetown University	71	Life and its Preservation through Millennia in Antarctica's Lake Untersee
Ellen De Almeida	Universidade Federal do Rio de Janeiro	72	Atmospheric Parameters and Ages of M Dwarfs in the Solar Neighborhood