SAMUEL P. KOUNAVES
Curriculum Vitae

Tufts University
Department of Chemistry
Medford, MA 02155 USA

Office: 617-627-3124
samuel.kounaves@tufts.edu
http://planetary.chem.tufts.edu

EDUCATION

Post-doctoral Fellow, Harvard University, 1987-88, Advisor: James Young
Post-doctoral Fellow, SUNY at Buffalo, 1985-86, Advisor: Janet G. Osteryoung
D.Sc. (Ph.D.), Université de Genève, 1985 (Chemistry) Advisor: Jacques Buffle
M.S., California State University at San Diego, 1978 (Chemistry) Advisor: Alberto Zirino
B.S., California State University at San Diego, 1975 (Chemistry)

PROFESSIONAL APPOINTMENTS

Current
Professor of Chemistry, Tufts University, Department of Chemistry
Visiting Professor, Imperial College London, Department of Earth Science & Engineering, UK
Affiliate Scientist, NASA Jet Propulsion Laboratory

Previous
Consulting Scientist, Technical University Berlin, Department of Astrophysics (2014-2024); Associate Professor, Department of Chemistry (1994-2012); Faculty Researcher, Center for Field Analytical Studies & Technology (1994-2002); Assistant Professor, Department of Chemistry (1988-1994); Lecturer, SUNY at Buffalo, Department of Chemistry (1985-86); Scientific Associate, European Organization for Nuclear Research (1979-81); Research Chemist, U.S. Naval Ocean Systems Center, San Diego (1975-79)

PROFESSIONAL AFFILIATIONS

American Chemical Society, 1974-
American Association for the Adv. of Science, 1976-
The Geological Society, 2016-
Society for Electroanalytical Chemistry, 1987-
American Geophysical Union, 1998-
Geochemical Society, 2009-
Royal Society of Chemistry, 2014-
Sigma Xi, 1988-

HONORS AND AWARDS

Impact Lecturer, U Notre Dame (2025); ACS-Kavli Award for Innovations in Chemistry (2019); NASA Exceptional Achievement Award for ELSHA Team (2019); Fellow, The Geological Society (2016); Fellow, Royal Society of Chemistry (2015); Fellow, American Association for the Advancement of Science (2013); NASA Achievement Award for Outstanding Performance in the Planning and Execution of the Science for the Phoenix Mars Mission (2009); NASA Achievement Award for Development and Operation of the Phoenix Spacecraft Leading to the First Landing in the Martian Arctic (2009); Swigert Award for Space Exploration as member of the Phoenix Mars Mission Team (2009); Massachusetts Columbus Quincentennial Exploration & Discovery Award for Innovative Achievement (2008); K. D. Wood Colloquium Lecture Award, Aerospace Sciences, University of Colorado (2006); Arno Heyn Memorial Award, American Chemical Society, NE Section of the (2006); Tufts Junior Faculty Fellowship (1990); National Research Council Fellowship (1986)

PROFESSIONAL ACTIVITIES, PANELS, & COMMITTEES

Editorial Board, ScienceOpen, 2013-
Editorial Advisory Board, The Analytical Scientist, 2012-
Tufts Institutional Representative, University Space Research Association (USRA), 2006-
NASA SSW Review Panel Member, 2020
Organizer, AAAS Planetary Science Symposium, Boston MA, February 14-18, 2013
Convener, NASA/LPI, The New Martian Chemistry Workshop, Boston MA, July 27-28, 2009
NASA PIDDP Review Panel Member, 2005-06
NASA Panel on Capability Roadmaps, National Academies/NRC, 2005-06
Board of Directors, Society for Electroanalytical Chemistry, 2001-05
NASA Mars Human Precursor Science Steering Group, 2004-05
School Board Member, Winchester School District, Elected Member 2003-2008
ACS - Northeastern Section, Board of Publications, 2002-05
ACS - Northeastern Section, Web Editor, 2003-2005
Chair, The Electrochemical Society, NE Section, 2002-03
Web Editor, SEAC Communications, The Society for Electroanalytical Chemistry, 1998-
Panel on Impact of Advances in Computing, National Research Council, 1998
Graduate Program Director, Tufts University, 1996-99
Consultant, Orion Research Corporation, 1997-2001
Chair, Advisory Board, Tufts Experimental College, 1991-92
Advisory Board, Tufts Experimental College, 1989-91
Consultant, Osram-Sylvania Corporation, 1996-97
Consultant, Medford Public Schools, City of Medford, MA, 1990
Consultant, Willkie Farr & Gallagher / American Express Corporation, 1989-90
U.S. National Committee Representative, 34th IUPAC General Assembly, 1987

PUBLICATIONS - PEER REVIEWED

117. "Mineral Alteration in Water-Saturated Liquid CO_2 on Early Mars", M. H. Hecht, S. Krevor, A. S. Yen, A. J. Brown, N. Randazzo, M. Mischna, M. Sephton, S. P. Kounaves, A. Steele, J. W. Rice Jr, I. B. Smith, M. Coleman, D. Flannery, and M. Fries, *Nature Geosci.,* **2024**, *17*, 1204-1208, doi:10.1038/s41561-024-01576-1.

116. "Permeation of photochemically-generated gaseous chlorine dioxide on Mars as a significant factor in destroying subsurface organic compounds", J. Newmark, and S. P. Kounaves, *Nature Sci. Rep.*, **2024**, *14*, 7682, doi:10.1038/s41598-024-57968-1.

115. "Inside the Atacama Desert: Uncovering the Living Microbiome of an Extreme Environment", Bartholomäus, A., S. Genderjahn, K. Mangelsdorf, B. Schneider, P. Zamorano, S. P. Kounaves, D. Schulze-Makuch, and D. Wagner, *Appl. Environ. Microbiol.*, **2024**, *90*, e01443-24 doi:10.1128/aem.01443-24.

114. "Microbial Growth in Actual Martian Regolith in the Form of Mars Meteorite EETA79001", N. Naz, B. F. Harandi, J. Newmark, and S. P. Kounaves, *Nature Comm. Earth & Environ*., **2023**, *4*, 381, doi:10.1038/s43247-023-01042-7.

113. "Microbial Growth in Martian Soil Simulants Under Terrestrial Conditions: Guiding the Search for Life on Mars", N. Naz, D. Liu, B. F. Harandi, S. P. Kounaves, *Astrobiology*, **2022**, *22*, 1210-1221 doi:10.1089/ast.2022.0022

112. "Science Objectives for Flagship-Class Mission Concepts for the Search for Evidence of Life at Enceladus", S. M. MacKenzie, M. Neveu, A. F. Davila, J. I. Lunine, M. L. Cable, C. M. Phillips-Lander, J. L. Eigenbrode, J. H. Waite, K. L. Craft, J. D. Hofgartner, C. P. McKay, C. R. Glein, D. Burton, S. P. Kounaves, R. A. Mathies, S. D. Vance, M. J. Malaska, R. Gold, C. R. German, K. M. Soderlund, P. Willis, C. Freissinet, A. S. McEwen, J. R. Brucato, J-P. de Vera, T. M. Hoehler, and J. Heldmann, *Astrobiology* **2022**, *22*, 685-712, doi:10.1089/ast.2020.2425

111. "Degradation of Amino Acids on Mars by UV Irradiation in the Presence of Chloride and Oxychlorine Salts", D. Liu and S. P. Kounaves, *Astrobiology*, **2021**, *21*, 793-801 doi:10.1089/ast.2020.2328.

110. "The Enceladus Orbilander Mission Concept: Balancing Return and Resources in the Search for Life", S. M. MacKenzie, M. Neveu, A. Davila, J. Lunine, K. Craft, M. Cable, C. Phillips, J. D. Hofgartner, J. L. Eigenbrode, J. H. Waite, C. R. Glein, R. Gold, P. J. Greenauer, K. Kirby, C. Bradburne, S. P. Kounaves, M. J. Malaska, F. Postberg, G. W. Patterson, C. Porco1, J. I. Núñez, C. German, J. A. Huber, C. P. McKay, J-P. de Vera, J. R. Brucato, L. J. Spilker, *Planet. Sci. J.* **2021**, *2:7*, doi:10.3847/PSJ/abe4da

109. "Microbial Hotspots in Lithic Microhabitats Inferred from DNA Fractionation and Metagenomics in the Atacama Desert ", D. Schulze-Makuch, D. Lipus, F. L. Arens, M. Baqué, T. L. V. Bornemann, J.-P. deVere, M. Flury, J. Frösler, J. Heinz, Y. Hwang, S. P. Kounaves, K. Mangelsdorf, R. U. Meckenstock, M. Pannekens, A. J. Probst, J. S. Sáenz, J. Schirmack, M. Schloter, P. Schmitt-Kopplin, B. Schneider, J. Uhl, G. Vestergaard, B. Valenzuela, P. Zamorano, and D. Wagner, *Microorganisms*, **2021**, *9(5)*, 1038, doi:10.3390/microorganisms9051038.

108. "Stable Nitrogen and Oxygen Isotope Fractionation During Precipitation of Nitrate Salt from Saturated Solutions", H. Welsh, G-A. Gueorguieva, S.P. Kounaves, and R. Amundson, *Rapid Comm. Mass Spectrom.* **2020**, *34*:e8905, doi:10.1002/rcm.8905.

107. "Methanogenic Archaea Can Produce Methane in Deliquescence-Driven Mars Analog Environments", D. Maus, J. Heinz, J. Schirmack, A. Airo, S.P. Kounaves, D. Wagner, and D. Schulze-Makuch, *Nature Sci. Rep.* **2020**, 10(6), doi:10.1038/s41598-019-56267-4. **[Top 100 Nature Scientific Reports Physics Papers in 2020]**

106. "Solar-System-Wide Significance of Mars Polar Science: White Paper", Smith, I., Calvin, W. M., Smith, D. E., Hansen, C., Diniega, S., McEwen, A., …Kounaves, S. P., et al., *Bull. Amer. Astro. Soc.*, *53*, **2020**, doi:10.3847/25c2cfeb.4db95c67.

105. "The Production of Perchlorate (ClO_4^-) from Chlorite (ClO_2^-) and Chlorate (ClO_3^-) on Earth and Mars", D. Liu and S. P. Kounaves, *ACS Space Earth Chem.* **2019**, *3*, 1678-1684, doi:10.1021/acsearthspacechem.9b00134

104. "Indigenous Organic-Oxidized Fluid Interactions in the Tissint Mars Meteorite", E. A. Jaramillo, S. H. Royle, M. W. Claire, S. P. Kounaves, and M. A. Sephton, *Geophys. Res. Lett.* **2019**, *46*, 3090-3098, doi:10.1029/2018GL081335.

103. "Effects of Oxygen-Containing Salts on the Detection of Organic Biomarkers on Mars and in Terrestrial Analogue Soils", W. Montgomery, E. A. Oberlin, S. H. Royle, S. P. Kounaves, D. Schulze-Makuch, M. A. Sephton, *Astrobiology*, **2019**, *19*, 711-721, doi:10.1089/ast.2018.1888.

102. "Survivability of 1-Chloronapthalene During Simulated Early Diagenesis - Implications for Chlorinated Hydrocarbon Detection on Mars", S. H. Royle, J. Tan, S. P. Kounaves, M. A. Sephton, *J. Geophys. Res.*, **2018**, *123*, 2790-2802, doi:10.1029/2018JE005711.

101. "Perchlorate Driven Combustion of Organic Matter During Py-GC-MS: Implications for Organic Matter Detection on Earth & Mars", S. H. Royle, E. A. Oberlin, J. S. Watson, W. Montgomery, S. P. Kounaves, M.A. Sephton, *J. Geophys. Res.* **2018**, *123*, 1901-1909, doi:10.1029/2018JE005615.

100. "Enhanced Microbial Survivability in Subzero Brines", J Heinz, J. Schirmack, A. Airo, D. Schulze-Makuch, S. P. Kounaves, *Astrobiology*, **2018**, *18*, doi:10.1089/ast.2017.1805.

99. "A Transitory Microbial Habitat in the Hyperarid Atacama Desert, D. Schulze-Makuch, D. Wagner, S. P. Kounaves, K. Mangelsdorfg, K. G. Devine, J-P. de Verai, et al., *PNAS*, **2018**, *115*, 2670-2675, doi:10.1073/pnas.1714341115.

98. "Evaluation of the Tindouf Basin Region in Southern Morocco as an Analogue Site for Soil Geochemistry on Noachian Mars", E. A. Oberlin, M. W. Clair, and S. P. Kounaves, *Astrobiology*, **2018,** *18*, 1318-1328, doi:10.1089/ast.2016.1557.

97. "Effect of Hydration State of Martian Perchlorate Salts on their Decomposition Temperatures During Thermal Extraction", S. H. Royle, W. Montgomery, S. P. Kounaves, and M. A. Sephton, *J. Geophys. Res.,* **2017***, 122*, 2793-2802, doi:10.1002/2017JE005381.

96. "Solid Contact Ion Selective Electrodes for In Situ Measurements at High Pressure" A. W. Weber, G. D. O'Neil, S. P. Kounaves, *Anal. Chem*., **2017**, *89*, 4803-07, doi:10.1021/acs.analchem.7b00366.

95. "Measurements of Oxychlorine species on Mars", B. Sutter, R. C. Quinn, P. D. Archer, D. P. Glavin, T. D. Glotch, S. P. Kounaves, M. M. Osterloo, E. B. Rampe and D. W. Ming, *Int. J. Astrobiol.*, **2017**, *16*,203-217, doi:10.1017/S1473550416000057.

94. "Deliquescence-Induced Wetting and RSL-like Darkening of a Mars Analogue Soil Containing Various Perchlorate and Chloride Salts", J. Heinz, D. Schulze-Makuch, and S. P. Kounaves, *Geophys. Res. Lett.,* **2016**, *43*, 4880-4884, doi:10.1002/2016GL068919.

93. "Evidence for the Distribution of Perchlorates on Mars", B. C. Clark and S. P. Kounaves, *Int. J. Astrobiol.*, **2016**, *15*, 311-318, doi:10.1017/S1473550415000385

92. "The Origins of Perchlorate in the Martian Soil", B. L. Carrier and S. P. Kounaves, *Geophys. Res. Lett.*, **2015**, *42*, 3739-3745, doi:10.1002/2015GL064290.

91. "The Use of Graphene Oxide as a Fixed Charge Carrier in Ion-Selective Electrodes", G. D. O'Neil, M. Fouskaki, S. P. Kounaves, and N. A. Chaniotakis, *Electrochem. Commun*. **2015** *55*, 51-54, doi: 10.1016/j.elecom.2015.03.014.

90. "Identification of the perchlorate parent salts at the Phoenix Mars landing site and implications" S. P. Kounaves, N. A. Chaniotakis, V. F. Chevrier, B. L. Carrier, K. E. Folds, V. M. Hansen, K. M. McElhoney, G.D. O'Neil, A.W. Weber, *Icarus*, **2014**, *232*, 226-231, doi:10.1016/j.icarus.2014.01.016

89. "Evidence of martian perchlorate, chlorate, and nitrate in Mars meteorite EETA79001: implications for oxidants and organics", S. P. Kounaves, B. L. Carrier, G. D. O'Neil, S. T. Stroble, M. W. Claire, *Icarus*, **2014**, *229*, 206-213, doi:10.1016/j.icarus.2013.11.012

88. "Electrochemistry of Aqueous Colloidal Graphene Oxide on Pt Electrodes", G. D. O'Neil, A.W. Weber, R. Buiculescu, N. A. Chaniotakis, S. P. Kounaves, *Langmuir*, **2014**, *30*, 9599-9606, doi:10.1021/la502053m

87. "Comparison of the Phoenix Mars Lander WCL Soil Analyses with Antarctic Dry Valley Soils, Mars Meteorite EETA79001 Sawdust, and a Mars Simulant", S. T. Stroble, K. M. McElhoney, and S. P. Kounaves, *Icarus*, **2013**, *225*, 933-939, doi:10.1016/j.icarus.2012.08.040

86. "Stability and Lifetime of Potassium Solid-Contact Ion Selective Electrodes for Continuous and Autonomous Measurements", K. McElhoney, G. D. O'Neil, N. A. Chaniotakis, S. P. Kounaves, *Electroanalysis*, **2012,** *24*, 2071-2078, doi:10.1002/elan.201200264

85. "An Electrochemically-Based Total Organic Carbon Analyzer for Planetary and Terrestrial On-Site Applications", S. T. Stroble and S. P. Kounaves, *Anal. Chem.*, **2012**, *84*, 6271–6276, doi:10.1021/ac301704m

84. "Effects of Extreme Cold and Aridity on Soils and Habitability: McMurdo Dry Valleys as an Analog for the Mars Phoenix Landing Site", L. K. Tamppari, R. M. Anderson, P. D. Archer Jr., S. Douglas, S. P. Kounaves, C. P. McKay, D. W. Ming, Q. Moore, J. E. Quinn, P. H. Smith, S. Stroble, A. P. Zent, *Antarctic Science*, **2012**, *24*, 211-228, doi:10.1017/S0954102011000800

83. "Carbon Nanofiber-Based Nanocomposite Membrane as a Highly Stable Solid-State Junction for Reference Electrodes", G. D. O'Neil, R. Buiculescu, S. P. Kounaves, and N. Chaniotakis *Anal. Chem.*, **2011**, 83, 5749-5753, doi:10.1021/ac201072u.

82. "The Oxidation-Reduction Potential of Aqueous Soil Solutions at the Mars Phoenix Landing Site", R. C. Quinn, J. D. Chittenden, S. P. Kounaves, M. H. Hecht, *Geophys. Res. Let.*, **2011,** *38*, L14202, doi:10.1029/2011GL047671.

81. "Soluble Sulfate in the Martian Soil at the Phoenix Landing Site" S. P. Kounaves, M. H. Hecht, J. Kapit, R. C. Quinn, D.C. Catling, B. C. Clark, D. W. Ming, K. Gospodinova, P. Hredzak, K. McElhoney, J. Shusterman, *Geophys. Res. Let.*, **2010**, 37, L09201, doi:101029/2010GL042613.

80. "Discovery of Natural Perchlorate in the Antarctic Dry Valleys and Its Global Implications ", S. P. Kounaves, S. Stroble, R. M. Anderson, Q. Moore, D. C. Catling, S. Douglas, C. P. McKay, D. Ming, P. H. Smith, L. K. Tamppari, A. Zent, *Environ. Sci. & Tech.*, **2010**, *44*, 2360-2364.

79. "Habitability of the Phoenix Landing Site" C. R. Stoker, A. Zent, D. C. Catling, S. Douglas, J. Marshall, D. Archer, B. C. Clark, S. P. Kounaves, M. Lemmon, R. C. Quinn, N. Renno, P. H. Smith, and S. Young, *J. Geophys. Res.*, **2010,** *115,* E00E20, doi:10.1029/2009JE003421

78. "A Perchlorate Brine Lubricated Deformable Bed Facilitating Flow of the North Polar Cap of Mars: Possible Mechanism for Water Table Recharging" D. Fisher, M. H. Hecht, S. P. Kounaves, and D. C. Catling, *J. Geophys. Res.*, **2010,** *115,* E00E12, doi:10.1029/2009JE003405

77. "Atmospheric Origins of Perchlorate on Mars and in the Atacama" D. C. Catling, M. W. Claire, K. J. Zahnle, R. Quinn, B. C. Clark, M. H. Hecht, and S. P. Kounaves**,** *J. Geophys. Res.*, **2010,** *115*, E00E11, doi:10.1029/2009JE003425

76. "The Wet Chemistry Experiments on the 2007 Phoenix Mars Scout Lander Mission: Data Analysis and Results", S. P. Kounaves, M. H. Hecht, J. Kapit, K. Gospodinova, L. DeFlores, R. Quinn, W. V. Boynton, B. C. Clark, D. C. Catling, P. Hredzak, D. W. Ming, Q. Moore, J. Shusterman, S. Stroble, S. J. West, and S.M.M. Young, *J. Geophys. Res.*, **2010,** *115*, E00E10, doi:10.1029/2009JE003424

75. "Detection of Perchlorate & the Soluble Chemistry of Martian Soil at the Phoenix Mars Lander Site", M. H. Hecht, S. P. Kounaves, R. Quinn, S. J. West, S.M.M. Young, D. W. Ming, D. C. Catling, B. C. Clark, W. V. Boynton, J. Hoffman, DeFlores, L., Gospodinova, K., Kapit, J., and P.H. Smith, *Science*, **2009**, *325*, 64-67

74. "Evidence for Calcium Carbonate at the Mars Phoenix Landing Site" W. V. Boynton, D. W. Ming, S. P. Kounaves, S. M. Young, R. E. Arvidson, M. H. Hecht, J. Hoffman, D. K. Hamara1, R. C. Quinn, P. Smith, B. Sutter, D. C. Catling, and R. V. Morris, *Science*, **2009**, *325*, 61-64

73. "H_2O at the Phoenix Landing Site" P.H. Smith, L.K. Tamppari, R.E. Arvidson, D. Bass, D. Blaney, W.V. Boynton, A. Carswell, D.C. Catling, B.C. Clark, T. Duck, E. DeJong, D. Fisher, W. Goetz, H.P. Gunnlaugsson, M.H. Hecht, V. Hipkin, J. Hoffman, S.F. Hviid, H.U. Keller, S. P. Kounaves, C.F. Lange, M. Lemmon, M.B. Madsen, M. Malin, W.J. Markiewicz, J. Marshall, C.P. McKay, M.T. Mellon, D.W. Ming, R.V. Morris, N. Renno, W.T. Pike, U. Staufer, C. Stoker, P. Taylor, J. Whiteway, A.P. Zent, *Science*, **2009**, *325*, 58-61

72. "Possible Physical and Thermodynamical Evidence for Liquid Water at the Phoenix Landing Site ", N.O. Renno, B.J. Bos D. Catling, B.Clark, L. Drube, D.Fisher, W. Goetz, S. Hviid, H. Keller, J.F. Kok, S. P. Kounaves, K. Leer, M. Lemmon, M.B. Madsen, W. Markiewicz, J.Marshall, C. McKay, M. Mehta, M.Smith, M. P. Zorzano, P.H. Smith, C. Stoker, S. Young, *J. Geophys. Res.* **2009**,*114*, E00E03, doi:10.1029/2009JE003362.

71. "The MECA Wet Chemistry Laboratory on the 2007 Phoenix Mars Scout Lander, S. P. Kounaves, M. H. Hecht, S. J. West, J. Morookian, S. Young, R. Quinn, P. Grunthaner, X. Wen, M. Weilert, C. A. Cable, A. Fisher, K. Gospodinova, J. Kapit, S. Stroble, P. Hsu, B. C. Clark, D. W. Ming, and P. H. Smith, *J. Geophys. Res.*, **2009**, *114*, E00A19, doi:10.1029/2008JE003084

70. "Introduction to Special Section on the Phoenix Mission: Landing Site Characterization Experiments, Mission Overviews, and Expected Science", Smith, P. H., L. Tamppari, R. E. Arvidson, D. Bass, D. Blaney, W. Boynton, A. Carswell, D. Catling, B. Clark, T. Duck, E. DeJong, D. Fisher, W. Goetz, P. Gunnlaugsson, M. Hecht, V. Hipkin, J. Hoffman, S. Hviid, H. Keller, S. P. Kounaves, C. F. Lange, M. Lemmon, M. Madsen, M. Malin, W. Markiewicz, J. Marshall, C. McKay, M. Mellon, D. Michelangeli, D. Ming, R. Morris, N. Renno, W. Pike, U. Staufer, C. Stoker, P. Taylor, J. Whiteway, S. Young, and A. Zent, *J. Geophys. Res.,* **2008** 113, E00A18,doi:10.1029/2008JE003083

69. "Effects of the Phoenix Lander descent thruster plume on the Martian surface", D. H. Plemmons, M. Mehta, B. C. Clark, S. P. Kounaves, L. L. Peach, N. O. Renno, L. Tamppari, and S. M. M. Young, *J. Geophys. Res.,* **2008**, *113*, E00A11, doi:10.1029/2007JE003059

68. "Unambiguous Detection of Microbial Metabolic Activity in Astrobiology Applications", A. Hoehn, K. L. Lynch, J. Clawson, J. B. Freeman, J. Kapit, S. M. M. Young, S. P. Kounaves, and I. I. Brown, *SAE Proceedings, ICES 2007*, International Conference On Environmental Systems, Proceedings, Chicago, IL, USA, **2007**

67. "Analysis of Simulated Martian Regolith Using an Array of Ion Selective Electrodes", S. R. Lukow and S. P. Kounaves**,** *Electroanalysis*, **2005**, *17*, 1441-49 (Special Issue Invited Paper).

66. "The MSP'01 MECA Wet Chemistry Lab - A Sensor Array for Chemical Analysis of the Martian Soil", S. P. Kounaves, S. R. Lukow, B. Comeau, M. H. Hecht, S. M. Grannan, K. Manatt, S. J. West, X. Wen, M. Frant, T. Gillette*, J. Geophys. Res.*, **2003**, *108(E7)*, 5077-89

65. "Electrochemical Approaches for Chemical and Biological Analysis on Mars" S. P. Kounaves, *ChemPhysChem*, **2003** *4*, 162-168 (Special Issue Invited Paper)

64. "Voltammetric Measurement of Arsenic in Natural Waters", R. Feeney and S. P. Kounaves, *Talanta,* **2002**, *58*, 23-31 (Special Issue Invited Paper)

63. "Rapid On-Site Analysis of Arsenic in Groundwater using a Microfabricated Gold Ultramicroelectrode Array", R. Feeney and S. P. Kounaves, *Anal. Chem.,* **2000**, *72*, 2222-28

62. "Microfabricated Ultramicroelectrode Arrays: Developments, Advances, and Applications in Environmental Analysis", R. Feeney and S. P. Kounaves, *Electroanalysis*, **2000**, *12*, 677-84

61. "The Source of the Anomalous Cathodic Peak During ASV with In Situ Mercury Film Formation in Chloride Solutions", M. A. Nolan and S. P. Kounaves, *Electroanalysis,* **2000**, *12*, 96-99.

60. "Adsorptive Stripping Analysis of Trace Nickel at Iridium-Based Ultramicroelectrode Arrays", J. Wang, J. Wang, W. K. Adeniyi, and S. P. Kounaves, *Electroanalysis*, **2000**, *12*, 44-47.

59. "Determination of Heterogeneous Electron Transfer Rate Constants at Microfabricated Iridium Electrodes", R. Feeney and S. P. Kounaves, *Electrochem.Comm.*, **1999**, *1*, 453-458

58. "Microfabricated Array of Iridium Microdisks as a Substrate for Direct Determination of Cu^{2+} or Hg^{2+} using Square Wave Anodic Stripping Voltammetry ", M. A. Nolan and S. P. Kounaves, *Anal. Chem*., **1999**, 71, 3567-3573

57. "Effects of Chloride Ion Concentration on Mercury (I) Chloride Formation During ex Situ and in Situ Mercury Deposition with Selected Electrode Substrates and Electrolytes", M. A. Nolan and S. P. Kounaves, *Anal. Chem.,* **1999,** *71*, 1176-82

56. "Failure Analysis of Microfabricated Ir-Ultramicroelectrodes in Chloride Media", M. A. Nolan and S. P. Kounaves, *Sensors & Actuators B*, **1998**, *50*, 117-124

55. "Effects of Mercury Electrodeposition on the Surface of Microlithographically Fabricated Ir Ultramicroelectrodes", M. A. Nolan and S. P. Kounaves, *J. Electroanal. Chem.* **1998,** *453*, 39-48

54. "Determination of Selenium(IV) at a Microfabricated Gold Ultramicroelectrode Array Using SWASV", S. Tan and S. P. Kounaves, *Electroanalysis*, **1998**, *10*, 364-368

53. "Analytical Characterization of Microlithographically Fabricated Ir-Based Ultramicroelectrode Arrays", R. Feeney, J. Herdan, M. Nolan, S. Tan, V. Tarasov, and S. P. Kounaves, *Electroanalysis*, **1998**, *10*, 89-93

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SELECTED MEDIA APPEARANCES & E/PO LINKS

- ***ACS Kavli Award Lecture*** "The Chemistry of Finding Extraterrestrial Life" April 2019

- ***AAAS Annual Meeting News*** "Perchlorate on Mars" February 2013

- ***NECN TV*** "Curiosity Rover Lands on Mars" August 2012

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- ***WGBH 7 One Guest Interview*** May 2009

- NOVA ScienceNOW "Phoenix Lander Wet Chemistry with PBS/Tyson" July 2008

***- MSNBC Today Show* "Is There Life on Mars" Interview with Ann Curry** June 2008

RECENT PRESENTATIONS & INVITED TALKS

University of Notre Dame IN, October 8, 2025, “The Role of Chemistry in the Search for Life on Mars & Icy Worlds” (**Impact Lecturer, Invited**)

Open University, Astrobiology Department, Milton Keynes, UK, March 20, 2025, “UV-Generated Oxychlorines on Mars and their Effects on Organic Compounds” (**Invited**)

56th Lunar & Planetary Science Conference, Houston, TX, March 12, 2025, “Quantification of the Degradation and Fragmentation of Adenosine Under Martian conditions” (with K. M. Twombly)

56th Lunar & Planetary Science Conference, Houston, TX, March 12, 2025, “Effects of Chlorine Dioxide Gas on Heterocyclic Aromatic Organic Structures: Implications for Subsurface Biomarkers on Mars” (with B. M. Dineen)

Tenth International Conference on Mars, Pasadena, CA, July 23, 2024, "Alteration & Destruction of Subsurface Organic Compounds on Mars by Permeation of UV-Generated ClO_2(g)" (**Invited**)

Tenth International Conference on Mars, Pasadena, CA, July 22, 2024, "Scenarios for Mineral Alteration in Liquid CO_2 on Early Mars" (with M. Hecht)

Eighth International Conference on Mars Polar Science and Exploration, Whitehorse, Canada, July 10, 2024, “Liquid CO_2 on early Mars, and why we should care about it” (with M. Hecht)
AbSciCon 2024 Astrobiology Conference, Providence, RI, May 9, 2024, “Microbial Growth in Regolith from Martian Meteorite EETA79001”, Abstract 401-02. (with N. Naz)

54nd Lunar & Planetary Science Conference, Houston, TX, On-Line, March 13, 2023, “Fragmentation of Tryptophan as a Biomarker on Mars when Exposed to UV Irradiation in the Presence of an Oxychlorine” Abstract 2634. (**Invited**)

Technology Showcase for Future NASA Planetary Missions, Galveston, TX, January 9, 2023, “Microfluidic Icy-world Chemical Analyzer” (with R. Quinn et al.)

Sixth Annual German Astrobiological Society (DAbG) Meeting, Bremen, Germany, September 5, 2022, "Understanding the Potential Role of Oxychlorines in Altering Chemical Biosignatures on Mars" (with F. Arens et al.)

AbSciCon 2022 Astrobiology Conference, Atlanta, GA, May 18, 2022, “Science Objectives for Flagship-class mission concepts for the search for evidence of life at Enceladus”, Abstract 430-03. (with S. MacKenzie, et al.)

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2021 Virtual In Situ Science and Instrumentation Workshop for the Exploration of Europa and Ocean Worlds, On-Line, May 20, 2021, “The Microfluidic Icy-World Chemistry Analyzer (MICA): Plans and Progress”, (with A. Ricco, et al.)

52nd Lunar & Planetary Science Conference, Houston, TX, On-Line, March 18, 2021, “Analysis of Synthetic Terrestrial and Modeled Enceladian Seawater Using the Microfluidic Wet Chemistry Laboratory (mWCL)” Abstract 2233. (with N. Naz)

American Geophysical Union, Fall Meeting, On-line, December 11, 2020, "MICA: Microfluidic Icy-World Chemistry Analyzer", (with A. Ricco, et al.)

American Geophysical Union, Fall Meeting, On-line, December 15, 2020, "Comparative Study of the Ability of Three Martian Simulants to Support Bacterial Growth"

Harvard University, Space & Life Sciences Seminar Series, November 6, 2020, "Determining the Habitability of Mars & Icy Ocean Worlds" (**Invited)**

236th Electrochemical Society Meeting, Atlanta GA, October 13-17, 2019, " Measuring Soluble Properties of Planetary Science Samples: Sensor and System Development Since the Wet Chemistry Laboratory". (with A. Noell et al.)

German Astrobiological Society (DAbG), Vienna Austria, September 27, 2019, "Comparison of sterilization methods on bacteria embedded in a Mars regolith analog" (with J. Schirmack et al.)

European Astrobiology Network Association (EANA-2019), Orléans, France, September 4, 2019, " The Process of Deliquescence Might Allow Methanogenic Archaea to Metabolize on Mars" (with D. Maus et al.)

NASA/ESA Interplanetary Probe Workshop, IPPW-2019, Oxford University, Oxford UK, July 8, 2019, "Assessing the Habitability of Icy Ocean Worlds" (**Invited**)

AbSciCon 2019 Astrobiology Conference, Seattle, WA, June 24, 2019, “Assessing Habitability of Ocean Worlds Using the Microfluidic Wet Chemistry Laboratory (mWCL): Preliminary Results With Simulated Enceladus Brine” Abstract 406-5. (with N. Naz et al.)