Lynn Justine Rothschild

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education

1987-90	National Research Council Postdoctoral Fellow, NASA Ames Research Center
1985-87	Postdoctoral Fellow, Brown University
1985	Ph.D., Molecular and Cell Biology, Brown University Ph.D. Thesis title: Assessment of evolutionary relationships among protistan phyla and a blue-green prokaryote by comparison of the enzyme ribulose-1,5-bisphosphate carboxylase.
1981	M.A., Zoology, Indiana University, Bloomington
1979	Visiting Graduate Student, Department of Zoology, University of Maryland, College Park
1978	B.S., Biology, Yale University

professional experience

2025	Adjunct Professor, Department of Earth and Planetary Sciences, Stanford University
2016-20	Bio and Bio-Inspired Technologies, Research and Technology Lead for NASA HQ STMD
2015-present	Senior Scientist, Planetary Systems Branch, NASA Ames Research Center
2012-8	Adjunct Professor, Department of Microbiology and Toxicology, UC, Santa Cruz
2012-5	Senior Scientist, Biospheric Science Branch, Earth Science Division, NASA Ames
2011-9	Faculty Advisor, Stanford-Brown iGEM team (awards listed below)
2010-11; 13-5	Lead Scientist, Synthetic Biology Program, NASA Ames Research Center
2008-present	Adjunct Professor, Molecular Biology, Cell Biology and Biochemistry, Brown University
2007-13	Consulting Professor, Program in Human Biology, Stanford University
2005-7	Director, Astrobiology Strategic Analysis and Support Office
2003-2007	Consulting Associate Professor, Program in Human Biology, Stanford University
1997-present	Research Scientist, NASA Ames Research Center
1990-97	Research Scientist, Johnson Controls World Services
1977	Research Associate, Department of Zoology, University of Cambridge

honors

2024	Member, EBRC (Engineering Biology Research Consortium)
2024	NIAC (NASA Innovative Advanced Concepts) Fellow, NASA
2021	Presidential lecture, Phycological Society of America
2020	NASA Group Achievement Award, PowerCell on EuCROPIS
2020	NASA Ames Group Achievement Award, PowerCell on EuCROPIS
2020	NIAC (NASA Innovative Advanced Concepts) Fellow, NASA
2019	NASA Ames Director's Award for EuCROPIS mission
2019	TEDx talk posted on TED global

https://www.ted.com/talks/lynn_rothschild_the_living_tech_we_need_to_support_human_life_on_other_planets?language=en (388 k views as of 4.26.2022)

2018	NIAC (NASA Innovative Advanced Concepts) Fellow, NASA
2018	VanZant Endowed Lectureship sponsored by Rice Bioscience Graduate students (March)
2016	2016 Gagliardi Family Distinguished Lecture, Roger Williams University, Bristol, RI (25 Oct)
2016	2016 Colston Symposium Public Lecture, Bristol, UK (7 September)

2016 NIAC (NASA Innovative Advanced Concepts) Fellow, NASA
2016 Vice-Chancellor Award Public Lecture, University of Southern Queensland, Australia (19 July)
2015 Horace Mann Medal, Brown University Graduate School (awarded at May graduation)
2015 American Humanist Association's Isaac Asimov award (awarded at Annual Meeting. citation: http://conference.americanhumanist.org/awardees2015/ acceptance speech: https://www.youtube.com/watch?v=nlCK7HO2Cyg)
2014 TEDx talk, March 9, Life as we (now) know (https://www.youtube.com/watch?v=nlCK7HO2Cyg)
2013 NIAC (NASA Innovative Advanced Concepts) Fellow, NASA
2013 Lecture, Royal Swedish Academy of Sciences-Molecular Frontiers, May
2012 CEO Award, Gen9 G-Prize
2010 Distinguished Planetary Science Lecture, University of Western Ontario (Canada)
2009 Tim Mutch Memorial Lecturer, Brown University
2005 Elected Corresponding Member, International Academy of Astronautics (Life Sciences)
2004 Elected Fellow, California Academy of Sciences
2004 Elected Fellow, The Explorer's Club
2004 NASA Outstanding Achievement Award
2002 Keynote Speaker, Vatican, and Windsor Castle
2002-3 President, Society of Protozoologists
2001 Auger Fellow, Hotchkiss School
2000 NASA Group Achievement Award, Astrobiology Team
1999 Elected Fellow, Linnean Society of London
1990, 1998 Jack N. Nielson Award, NASA Ames Research Center
1987-90 National Academy of Sciences NRC Research Associate
1987 National Research Council Fellowship, Canada (declined to accept NAS NRC)
1979 University Fellowship, Indiana University

professional activities

Journals, Societies, Boards

2024- Advisory Board, Engineered Living Materials Institute @ Cornell
2024- Advisory Board, E-RISE RII: Maine Algal Research Infrastructure and Accelerator (MARIA), Bigelow Labs
2016-7 Editorial Board, LIFE
2001-2005 Founding co Editor-in-Chief, International Journal of Astrobiology; Editorial Board
2004-5 Executive Council, International Society of Protistology
2001-4 Executive Council, Society of Protozoologists
1998-2002 Editorial Board, Origins of Life and Evolution of the Biosphere
1995-1998 Grants and Fellowship Committee, Phycological Society of America
1995-2000 Board of Reviewers, Journal of Eukaryotic Microbiology
1994-2000 Elected Secretary (3 terms), International Society for Evolutionary Protistology
2000-2002 North American Councilor, International Society for Evolutionary Protistology
1994-5 Elected Chairman of Nominating Committee, Society of Protozoologists
1993 Member, Global Emiliania Modelling Initiative
1992; 2000 Elected to Nominating Committee, Society of Protozoologists
1990-4 Executive Council, International Society for Evolutionary Protistology

Meetings Organized

2018, 2020 Build-A-Cell, Stanford 2018; NASA Ames Jan 2020

2015 SOC, COSPAR 2016 F3.1/3.5 Astrochemistry, Astrobiology, and The Formation of Life in the Universe, COSPAR Istanbul Scientific Assembly, summer 2016 (meeting cancelled)
2011 São Paulo Advanced School of Astrobiology, University of São Paulo, Brazil
2011 Evolution, Astrobiology, and Synthetic Biology: Defining the Common Foundations, National Evolutionary Synthesis Center, Duke University with Allen Rodrigo
2005 Geology and Habitability of Terrestrial Planets, International Space Studies Institute, Bern, Switzerland
2004 Third Astrobiology Science Conference, NASA Ames Research Center
2002 Second Astrobiology Science Conference, NASA Ames Research Center
2001 NASA Astrobiology Institute/NIH joint conference, NIH, Bethesda
2000 First Astrobiology Science Conference, NASA Ames Research Center
1999 Evolution on Planet Earth, The Impact of the Physical Environment, Linnean Society, London
1999 Evolution of the carbon cycle (International Botanical Congress)
1997 Responses of photosynthetic organisms to global changes in CO_2, Silwood Park, UK
1988 Evolution of symbiosis (International Society for Evolutionary Protistology)

Representative Keynote Lectures, Invited Seminars and Symposia Lectures since 1995

2025 Invited keynote, Inaugural ARIA summit, London (May), https://vimeo.com/1087848226/1ac592a8d4
2025 Invited plenary, "Biomaterials", California College of the Arts (Feb)
2024 Invited plenary, FI Europe Summit, Frankfurt (November)
2024 Invited Keynote, Materials Research Society Spring Meeting, Seattle (April)
2024 "Hello Tomorrow" keynote, Paris, France (March)
2024 Invited Keynote, 26th North American Mushroom Conference 2024/ 20th Congress International Society for Mushroom Science
2023 Annual Graduate Student Lecture, Ecology and Evolution, Rutgers University (November)
2023 Frontiers Symposium, Bigelow Labs, Maine (October)
2023 Interstellar Symposium, (July) Montréal
2023 BioFutures Symposium, Northumbria University, UK (July)
2023 BioManufacturing, Ohio State (March)
2022 Materials Research Society (November)
2022 Applied Synthetic Biology in Europe conference (Edinbrugh, November)
2022 Life in the Universe, NSF & Bulgarian Academy of Sciences (November)
2022 DTU BIOSUSTAIN, Novo Nordisk Foundation Center for Biosustainability (May)
2022 Fungal Biomaterials and Biofabrication (Penn State, May)
2022 MIT Bioengineering (April)
2022 American Chemical Society (March)
2022 31st Fungal Genetics conference (March)
2022 Leveraging Biology to Power Engineering Impact (March)
2021 EMBL PhD Symposium (December)
2021 Interstellar Symposium, IRG 2021 (September)
2021 Mars Innovation Forum (May)
2021 Ramon SpaceTech 2021 Conference, Israel (January, talk on youtube)
2020 SLAC Colloquium Series (Oct; https://sites.slac.stanford.edu/colloquium/all-event-recordings)
2020 MidAtlantic iGEM meetup (July)
2020 Israeli Plant Ecology Society (Weizmann Institute, February)
2020 Space Horizons, Brown University (February)
2019 SBD4 Synthetic Biology for Defense (Arlington, September)
2019 Yale's Integrated Graduate Program in Physics Engineering and Biology (PEB) (New Haven, June)

2019 Frontiers in Materials Science for the 21st Century (University of Rochester, May)
2019 Humans to Mars Panelist (Washington, DC May)
2019 Breakthrough Discuss Panelist (UC Berkeley, DC May)
2019 American Chemical Society symposium speaker (ACS, Orlando April)
2019 Center for the Utilization of Biological Engineering in Space (CUBES; UC Berkeley) (February)
2019 Space Horizons, Brown University (February)
2018 MIT Earth and Planetary Sciences (September)
2018 TechFestival, Copenhagen (September) https://video.techfestival.co/lynn-rothschild-at-techfestival-2018-astrobiology?mc_cid=cfb2dda92c&mc_eid=12b618ed95
2018 The Conference, Malmö, Sweden (September) http://videos.theconference.se/dr-lynn-rothschild-designing-nature
2018 McMaster University, Canada, public lecture sponsored by the Origins Institute (June)
2018 DTU BIOSUSTAIN, Novo Nordisk Foundation Center for Biosustainability (April)
2018 Breakthrough Discuss conference (April)
2017 Plant Biotechnology for Health and Sustainability Symposium, Michigan State (Oct)
2017 Berkeley Paleontology (September)
2017 Earth Life Science Institute, Tokyo Tech (August)
2017 Norwegian Physical Society, Tromsø (August)
2017 Yale University "Editing Nature" (April) (https://www.youtube.com/watch?time_continue=8&v=WP_bf6pWp5o)
2017 University of Newcastle, UK (April)
2017 Keynote, Microbiology Society, Synthetic Biology Symposium (April, Edinburgh)
2017 NASA HQ STMD (March)
2017 Harvard University Origins Institute (February)
2017 MIT Lincoln Labs (February)
2016 Lehigh University, Howard Hughes Medical Institute (HHMI) Visiting Scholar (Sept)
2016 Biomimicry Summit for Aerospace, Cleveland (Aug 2)
2016 Australasian Astrobiology Meeting (July 12)
2016 University of Leicester (March 22)
2016 Cambridge Philosophical Society (March 18)
2016 Houston Spaceport Frontiers Lecture series (spacefrontiers.rice.edu) (Jan 21)
2015 TU Delft, Department of Bionanoscience (Oct 9)
2015 Astrobiology Society of Britain (Sept 3)
2015 Synthetic Biology UK (Sept 1)
2015 NIST at Stanford (Aug 20)
2015 Carl Sagan Center Opening, Cornell University (May 9)
2015 Queens University, Belfast (Feb 25)
2015 Oberlin College, Oberlin, OH (Feb 12&13)
2015 Novo Nordisk Foundation Center for Biosustainability, Technical University of Denmark
2014 Optimal Production of High Value Compounds, Berkeley, CA (Nov 10)
2014 Inside 3D Printing, Santa Clara, CA (Oct 22)
2014 Oxford University, Dept. Biochemistry (Oct 17)
2014 AbGradE (European Astrobiology Graduate Students), Edinburgh, UK (Oct 9)
2014 LeMoyne College, Syracuse, NY (Sept 19)
2014 Refactored Materials, San Francisco (Sept 12)
2014 Northern California iGEM meetup, UCSC (Aug 15)
2014 American Chemical Society 248th National Meeting, San Francisco, CA (Aug 10)
2014 Freshwater Algae Course 2014, Kindrogan Field Centre, Perthshire, Scotland (June 23)
2014 University of Oregon (April 30)
2014 Institut Tecnologico y De Estudios Superiores De Monterrey, Campus Queretaro, Mexico

2014 SynBiCITE Synthetic Biology Conference, Imperial College, London
2014 Explorers Club, San Francisco, CA (Feb. 28)
2014 College of William and Mary (Feb. 26)
2013 Brazilian Synchrotron Light Laboratory, Campinas, Brazil (Dec. 17)
2013 UNESP, Bauru, Brazil (Dec. 17)
2013 PaleoSP, UFSCar-Sorocaba, Brazil (Dec. 16)
2013 Astrobio2013, Santiago, Chile (Dec. 10)
2013 University of Texas, Austin (Nov. 15)
2013 Keynote speaker, The 2013 Ward Francillon Time Symposium, CalTech (November)
2013 Keynote speaker, International Phycological Congress (August)
2013 Society of Biological Engineers lecture, Chalmers University (Gothenburg, Sweden, May 30)
2013 Astrobiology Series, University of Arizona (Tucson, May)
2013 Keynote speaker, Astrobiology Society of Britain (Edinburgh, April)
2013 Keynote speaker, Opening of the UK Centre for Astrobiology (Edinburgh, April)
2013 Università of Rome, Università di Roma Tor Vergata (Rome)
2012 Institute for Advanced Biosciences, Keio University, Tsuruoka, Japan, November 15
2012 Ecology, Evolutionary Biology and Behavior; Beacon Seminar, Michigan State University, Nov 8, 9
2012 iGEM World Competition, MIT
2012 NASA Space Grant Annual Meeting, Seattle
2012 Nordita, Stockholm, Sweden, October 18
2012 European Astrobiology Network Association (EANA), Stockholm, Sweden, October 16
2012 Wetsus 2012 Congress, Leeuwarden, The Netherlands, October 2
2012 Horizons Lecture, University of Bergen, Norway, September 27
2012 BioDesign, University of Cambridge, UK September 26
2012 1st Synthetic Biology Symposium, BioSint, 2012. Tec de Monterrey, Campus Querétaro. Sept. 22
2012 Live Interview @ Studio-X (LI@SX), Columbia Architecture School, May 7
2012 University of California Santa Cruz, May 1
2012 Rhode Island Space Grant Annual Meeting, April 27
2012 Planet Under Pressure, London, UK, March 27
2012 University of Michigan, Feb 15
2012 Planets around stellar remnants, Arecibo Observatory, Puerto Rico, Jan. 27
2011 iGEM World Competition, MIT November 6
2011 Northwestern University, November 2
2011 Metabolic Design 2011 Summit, San Diego, May 24
2011 Seven Pines Symposium, Stillwater, MN, May19
2011 Georgia Institute of Technology, April 29
2010 ESF-COST High-Level Research Conference Extreme Environmental Events, U Cambridge, Dec. 16
2010 Delaware Biotechnology Institute, Dec. 2
2010 NAI Workshop Without Walls. Molecular Paleontology and Resurrection: Rewinding the Tape of Life
2010 Keynote, 26th Boulder Conference on the History & Philosophy of Science, UC Boulder, October
2010 National Evolutionary Synthesis Center, Duke University, October
2010 Yale University, Frontiers in Paleontology and Geomicrobiology, May
2010 Center for Integrative Planetary Science (CIPS), UC Berkeley Astronomy Department, March
2010 Distinguished Lecturer in Planetary Science, University of Western Ontario, Canada, March
2009 Silicon Valley Astronomers Lecture Series, Mountain View, CA November
2009 Featured speaker, Helmholtz Alliance on 'Planetary Evolution and Life'. DLR Berlin, September
2009 Beckman Scholars invited speaker, Beckman Institute, July
2009 Tim Mutch Memorial Lecture, Brown University, April
2009 Commonwealth Club, Yale Club, (with Dr. George Coyne, SJ) February

2009 Ethical Culture Society, February
2009 Darwin Day, Stanford University, February
2008 SB4.0: Fourth International Conference on Synthetic Biology, Hong Kong, October
2008 Indiana University, September
2008 NASA Ames Research Center Director's Colloquium, July
2008 2008 Polar Technology Conference, SRI, April 26-27
2008 University of San Francisco
2008 Chemical Evolution and Origin of Life, Roorkee IIT, India, March
2008 Cyanobacteria in a lunar environment, NASA Ames January
2007 Royal Society of London, November
2007 University of Wageningen
2007 Institute of Microbiology, Chinese Academy of Sciences, May Beijing
2007 IAA 16th Humans in Space Conference, May Beijing
2007 2007 Polar Technology Conference, SRI, April 26-27
2007 New England Aquarium
2007 Lawrence Livermore National Laboratory
2006 Aarhus University, Aarhus, Denmark
2006 Stanford University
2006 Nordita Institute and Neils Bohr Institute, Copenhagen, Denmark
2006 The range of habitats for life on earth, AAAS Annual Meeting
2006 Astrobiology and the Moon, Astrobiology Science Conference 2006, Washington, D.C.
2005 Chico State University
2005 Scandinavian Society for Astrobiology, Oslo, Norway
2005 Wright Lecture, Boston Museum of Science
2005 Geology and Habitability of Terrestrial Planets, International Space Studies Institute, Bern
2005 Habitability around M-stars, SETI Institute
2005 McMaster University, Canada
2005 Woods Hole Oceanographic Institute
2005 Evolution and the Universe, Vatican Observatory Foundation
2005 University of San Francisco, Physics Department Seminar
2005 Western Photosynthesis Conference
2005 Macquarie University, Australia
2004 Early Mars Conference, Jackson Hole
2004 Fulbright Scholars, San Francisco
2003 AAAS, Astrobiology and Ethics
2003 UCLA, Wednesday Evening Evolution Group
2003 National Academy Committee on Origin and Evolution of Life
2003 University of Washington
2003 UC Davis, Department of Geology
2003 Pennsylvania State University
2003 NASA Headquarters
2003 Emergence, Stanford University
2003 Southern California Chapter, American Society for Microbiology
2003 Templeton Foundation Board of Directors
2003 Idaho State Accelerator
2003 UK Astrobiology Meeting, Cambridge
2002 Emergence, Granada
2002 Santa Clara University
2002 National Institute of Medical Science, London
2002 Society for General Microbiology, Loughborough, UK

2002 Lehigh University Foster Hewitt Lecture (Geological Sciences)
2002 AAAS Symposium
2002 Microbiology of Space Station, Tokyo
2001 Yale University, Evolution and Ecology Department
2001 Dean Lecture, California Academy of Sciences
2001 New Directions in Marine Biotechnology Symposium, Bodega Bay
2001 Connecticut High School Physics Teachers Institute
2001 Sonoma Astronomical Society
2001 DARPA
2000 Photobiology Congress
2000 Yale University, Department of Astronomy
2000 Evergreen College
2000 Astronomical Society of the Pacific
2000 Lockheed Martin
2000 Mt. Tamalpais Lecture Series
1999 Queens University Belfast
1999 Montana State University
1998 16th International Botanical Congress
1998 UC Berkeley
1998 California Academy of Sciences
1998 Iowa State University
1997 University College London
1996 National Institute of Water and Atmospheric Research
1995 American Society for Limnology and Oceanography
1995 Kennedy Space Center
1995 University of Colorado
1995 University of Rhode Island, Graduate School of Oceanography
1995 University of Connecticut, Storrs
1995 Yellowstone National Park

Working Groups

2019-present Synthetic Biology Working Group, under the Biological Sciences Subcommittee of the Committee on Science at NSTC (NASA representative)
2021 Synthetic Biology: Projected Scientific Breakthroughs in 2026-2031, Army Research Laboratory, Technology Forecasting Office
2021 NASA rep, NSC Interagency Policy Committee subIPC on Biotech/Biomanufacturing Initiative
2012-3 NASA rep, Synthetic Biology Working Group, under the National Science & Technology Council

Advisory Boards

2022- "Origins of Biology: How energy flow structures metabolism and heredity at the origin of life" (BBSRC, Nick Lane University College London, PI)
2021- External Advisory Committee, "Exploring Uncertainty and Risk in Contemporary Astrobiology" (Leverhume funded project, Peter Vickers Durham University PI)
2020- The Hub for Biotechnology in the Built Environment (HBBE) (joint initiative between Newcastle University and Northumbria University)
2016-8 GeneLab Science Working and Advisory Group, NASA
2014-7 Foundation for Investing in Research on SETI Science and Technology (FIRSST), Berkeley
2014 UK Centre for Astrobiology Review Board
2014-9 iSSB Review Board (French synthetic biology consortium)
2013-8 International Advisory Board, Flowers Consortium (UK synthetic biology consortium)

2009-13 Advisor of the Brazilian Exobiology Program
2009-10 California Academy of Sciences MicroLife Initiative
2008-12 Center for Integrative Planetary Science (CIPS) at the University of California, Berkeley
2005 SHOT Mars Chambers
2005-9 Provosoli-Guillard Culture Collection (CCMP)
2001-4 New York Hall of Science
2000-3 Denver Museum of Nature and Science

grants awarded[1]

2024-7 "Evolutionary processes that drove the emergence and early distribution of life" NASA Science Mission Directorate Planetary Internal Scientist Funding Model (ISFM) Co-I with Mark Ditzler
2024-5 "An Off Planet Laundromat" (Center Innovation Fund, CIF, Rothschild PI)
2024-6 "Mycotecture off Planet" (NASA Institute for Advanced Concepts (NIAC) Phase 3, Rothschild, PI) Press release: https://www.nasa.gov/news-release/nasa-advances-research-to-grow-habitats-in-space-from-fungi/
2024-5 "Defining the Figures of Merit for an On-demand Astropharmacy", (TRISH, Rothschild, PI)
2024-5 ""Detoxifying Mars: the biocatalytic elimination of omnipresent perchlorates" (NASA Institute for Advanced Concepts (NIAC) Phase 1, Rothschild, PI)
2023-4 "Green Energy for the Red and Blue Planets" (Center Innovation Fund, CIF, Rothschild PI)
2023-4 ""No longer inert: a tunable fungal display platform" (Ames Research Innovation Award (ARIA), Rothschild PI)
2023-2025 "A flexible, personalized, on-demand Astropharmacy" (NASA Institute for Advanced Concepts (NIAC) Phase 2, Rothschild, PI)
2023-4 "Biomineralization-Enabled Self-Growing Building Blocks for Habitat Outfitting on Mars " (NASA Institute for Advanced Concepts (NIAC) Phase 1, Congrui (Grace) Jin, PI
2021-3 "Mycotecture off Planet" (NASA Institute for Advanced Concepts (NIAC) Phase 2, Rothschild, PI)
2021 "Understanding amyloids to prevent biofilm formation in space" (Ames Research Innovation Award, Rothschild PI)
2021 "Miniature biomimetic Swarms: A novel approach to remote sensing" (NASA Ames Innovation Fair)
2020 "Biological Nanowires: Self-Assembly of Complex Nanoelectronic Components from Biologically-Derived Precursors" (Center Innovation Fund)
2020-1 "An Astropharmacy" (NASA Institute for Advanced Concepts (NIAC) Phase 1, Rothschild, PI)
2020-3 "Space Synthetic Biology" (ESA Topical Team, Rothschild member)
2018-9 "Myco-architecture off planet: growing surface structures at destination" (NASA Institute for Advanced Concepts (NIAC) phase 1, Rothschild, PI)
2019-24 "RCN Build-a-Cell: An Open Community Considering & Advancing the Construction of Synthetic Cells" (NSF RCN, Rothschild Co-I)
2018-20 "Biological Solutions for Sustainable Mining" (USGS; Rothschild Co-I)
2016-7 "Survey of Airborne Microorganisms in Earth's Stratosphere: Acquiring Samples in the Northern and Southern Hemisphere with Ride-Along Flights on NASA Aircraft" (NASA Science Innovation Fund; Rothschild Co-I)
2016-7 "A robust, cell-free production system for on-demand protein synthesis in space" (NASA Innovation Fund; Rothschild PI)

[1] Not including proposals in review, or grants in support of iGEM

2016-7 "Urban biomining meets printable electronics: end-to-end at destination biological recycling and reprinting" (NASA Institute for Advanced Concepts (NIAC) phase 1, Rothschild, PI)

2016-9 "Low cost, disposable and field-deployable biosensors for real-time detection of wildlife diseases" (USGS Innovation Award)

2015-6 "Worms on Returned Mars Mission Science (WORMMS)" (UKSA, Rothschild Co-I)

2015-6 "Direct observation of co-evolution at the RNA-protein interface" (Science Innovation Fund, Rothschild Co-I)

2014-7 "Biomining" (Advanced Exploration Systems, NASA HQ, Rothschild, PI)

2014-5 "To the plumes of Enceladus and elsewhere: developing miniature electrochromatographic monolithic columns for the in situ analysis of extraterrestrial organic molecules and biomarkers" (NASA Innovation Fund; Rothschild PI)

2014- EuCROPIS satellite mission (NASA Director's Fund)

2013 "Biomaterials out of thin air: in situ, on-demand printing of advanced biocomposites" (NASA Institute for Advanced Concepts (NIAC) phase 1, Rothschild, PI)

2012, 2013 "Materials Manufactured from 3D Printed Synthetic Biology Arrays" (NASA Innovation Fund; Rothschild PI)

2012 "de novo evolution of genetic function" (NASA Synthetic Biology; Rothschild PI)

2012 "Digitization & 3D printing of a multicellular organism" (NASA Synthetic Bio; Rothschild PI)

2011-12 "A Synthetic Biology Tool Kit for Manned Missions Outside Low Earth Orbit" (NASA Innovation Fund; Rothschild PI)

2011-12 "Astrobiology-Scientific Ballooning: An Innovative Learning, Instruction and Field Experience Model to Increase the Aspirations of High School Students in STEM Careers" (NASA HQ, Terry Shehata, PI)

2010-13 "Reactive oxygen species on the early Earth: Exobiological implications" (Netherlands Organization for Scientific Work, Paul Mason, PI)

2010-11 "What are the potential roles for synthetic biology in NASA missions?" (Keck Foundation, Rothschild & Cumbers Co-PIs)

2009-13 "Canadian Astrobiology Training Program" (NSERC, Canada, L. Whyte, PI)

2009-13 "Early habitable environments and the evolution of complexity" (NASA Astrobiology Institute, D. DesMarais, PI)

2008-10 "Developing Multidisciplinary Astrobiology Research Infrastructure through Exploration of Extreme Environments at the Intersection of Maine's Metal Mining Past and the Gulf of Maine" (NASA EPSCoR RID award, M. Duboise, PI, Rothschild NASA Scientist)

2007-9 Sustaining the Maine ScienceCorps: Collaborative integration of research experiences and active learning into biosciences education (NSF International Supplement, M. Duboise, PI)

2007 Ames Strategic Investment funds, suborbital program. (Rothschild, PI, ARC)

2007-2009 Mars Environmental Simulator Studies (T.C. Onstott, PI, NAI DDF, $253k)

2007-2008 Design, fabricate and test a laboratory simulator of extreme environments. (Deamer and Rothschild, PIs, ARP or UARC, $25k)

2007 Use of Ocean Optics USB4000 for BioLaunch: Multidisciplinary Class Projects for Near-Space Missions, a joint project from Stanford University's HumBio 183 (Astrobiology and Space Exploration) and AA 236 (Spacecraft Design), Rothschild and Cutler, PIs ($1k)

2007-8 BioLaunch: Multidisciplinary Class Projects for Near-Space Missions (Cutler and Rothschild, PIs, Alliance for Innovative Manufacturing at Stanford).

2007-8 Planning for Infrastructure Development in Environmental Microbiology, Microbial and Viral Ecology, and Bio-nanotechnology at the University of Southern Maine. (Maine Space Grant Consortium, M. Duboise, PI, Rothschild NASA mentor)

2003-8 Origins of Aerobic Metabolism, Iron, the Oxygen Transition, and Photosynthesis (NAI)

2003-8 Interplanetary Pioneers (NASA Astrobiology Institute)

2000-4 Survival of Terrestrial Microorganisms on Spacecraft Components and Analog Mars Soils

	under Simulated Martian Conditions (NASA Planetary Protection)
2003	Planetary Protection upgrade ($36K)
2001-10	Yellowstone/Astrobiology outreach (NAI)
2001-2	Oxidative damage in Nature ($136k)
2001-2	Iron Oxide: An Early Sunscreen for Photosynthetic Microbes? ($80k)
2000-3	Life beyond the planet of origin: Microbes in Space (NAI, $452k)
2000-1	Training for Oxygen: Peroxy in Rocks and Early Life ($80k)
2000	Astrobiology Science Conference ($70k)
2000-3	Survival of Terrestrial Microorganisms on Spacecraft Components and Analog Mars Soils under Simulated Martian Conditions ($508k)
1999	Evolution on Planet Earth: The Impact of the Physical Environment $10k)
1998-2000	Determining annual variation in effects of UV radiation on SF Bay plankton: A unique collaboration of NASA research and education ($165k)
1998-2000	DNA damage repair in nature? ($130k)
1997-8	Does UV radiation affect carbon isotope fractionation? ($80k)
1994-5	Does the collapse of diatom blooms trigger coccolithophore blooms? ($80k)
1991-4	Impact of CO_2 and day length on carbon metabolism on early earth ($270k)
1991-2	Detection of autotrophic life on Mars by surveying for oxygen ($70k)
1984-5	Evolution course; Incentive Grant, Brown University

field experience

2009	Radiation and DNA damage on Mt. Everest (Scott Parazynski & Keith Cowing, collaborators)
2007	Measurement of UV radiation and its effects, a transect from Chile to Denmark (Bente Lomstein, University of Aarhus, collaborator)
2007, 2008	UV measurements, UV effects and microbial diversity, Rift Valley, Kenya
2005, 2007	Microbial diversity, UV measurements, and UV effects on the aquatic ecosystems, Andes
2004	Microbial diversity and UV effects on radioactive aquatic ecosystems, Australia
2004	Microbial diversity and UV effects on the highest altitude aquatic ecosystems, Bolivian Andes
1997-2001	UV effects on DNA damage and pigments in phytoplankton, San Francisco Bay
1990-present	Carbon fluxes, DNA synthesis and DNA repair in microbial ecosystems, Yellowstone
1987-1990	Carbon fluxes and DNA synthesis in halophiles and mats, Baja California, Mexico
1996	Carbon fixation and DNA synthesis, New Zealand
1993-5	Chlorophyll a levels, Monterey Bay
1985-7	Carbon fluxes in marine intertidal in New England

flight experience

2015-	Co-I, BIOMEX (Biology and Mars Experiment) on EXPOSE-R2 attached outside on the Zvezda module of the International Space station (ISS)
2012-	PI, PowerCell secondary payload on the DLR EuCROPIS satellite mission (launched 3 Dec 2018) http://www.sciencefriday.com/articles/to-survive-on-mars-byo-bacteria/ ACTIVE
2012	Astrobiology Scientific Ballooning Program, Maine Space Grant (May 9, 3 balloons)
2011	BioLaunch B11 (110,000 feet; 8 Sept filmed by BBC)
2010	Mavericks Rocketry, Clotho project (flight July 2010)
2008	Stanford BioLaunch B08A&B high altitude balloon flight (106,654 ft; 32,508 m). (8 March)
2007	Stanford BioLaunch B07A (11 March), high altitude balloon flight (82,274 ft). Payload director and chief scientist (http://docs.google.com/Doc?id=dgjtb2j7_22dbqnqh) BioLaunch B07C (9 June), high altitude balloon flight (92,000 ft). Payload director and chief scientist (http://docs.google.com/Doc?id=dgjtb2j7_22dbqnqh)

Research experience

2011-present	Active projects include origin of life, origin of prions, radiation-resistant microbes, growing mycomaterials for habitats off planet, biomining, biomaterials, bioprinting, biological wires, paper-based biosensors, satellite mission, astropharmacy, detoxification of perchlorates on Mars
2015-7	Halophiles for Mars colonization
2008-15	Chroococcidiopsis phenotype, phylogeny and potential in synthetic biology
2007-10	Solar spectrum up to 32 km; effect of balloon flight on DNA damage
1987-2002	Effect of UV radiation on DNA synthesis, carbon metabolism and mutation/DNA repair. Evolution and ecology of carbon cycling and DNA synthesis in microbial communities. The relationship between diatom and coccolithophore blooms. Field studies of marine phytoplankton abundance and distribution. The evolution of biology carbon fixation, including enzyme evolution and stable carbon isotope fractionation (NASA Ames)
1985-7	The evolution of a multigene family: site-directed mutagenesis of yeast rDNA in vitro, and the selective impact of the mutated rDNA in the transformed host cell.
1981-5	Assessment of evolutionary relationships among protistan chloroplasts and cyanobacteria by structural and immunological comparisons of RuBPCase
1980-1	Isolation and bouyant density analysis of the nuclear DNA of the binucleate dinoflagellates
1977	The ultrastructual and biochemical nature of the costa, a motile organelle in the termite gut flagellates Trichomonas gigantea and T. termopsidis

iGEM (international Genetically Engineered Machine) competition

2019	Faculty advisor, Brown-Stanford-Princeton iGEM team, "Astropharmacy" (http://2019.igem.org/Team:BrownStanfordPrinctn) winner, Genscript iGEM award, top 100 Tech Briefs "Create the Future", https://contest.techbriefs.com/2019/top-100. iGEM gold medal and iGEMers award.
2018	Faculty advisor, Stanford-Brown-RISD iGEM team, "Myco for Mars" (http://2018.igem.org/Team:Stanford-Brown-RISD) runner up, best new composite part, best in manufacturing, bronze medal
2017	Faculty advisor, Stanford-Brown iGEM team, "Mars: getting there and staying there" (http://2017.igem.org/Team:Stanford-Brown), bronze medal
2016	Faculty advisor, Stanford-Brown iGEM team, "BioBalloon" (http://2016.igem.org/Team:Stanford-Brown) Blue ribbon sustainability, Maker Faire, winner, best measurement, gold medal, runner up for best in manufacturing) (see https://news.brown.edu/articles/2016/10/igem)
2015	Faculty advisor, Stanford-Brown iGEM team, "Self-folding Origami" (http://2015.igem.org/Team:Stanford-Brown, winner, manufacturing track, gold medal, nominated for best poster, best composite biobrick and best biobrick collection) (see https://www.calacademy.org/explore-science/packing-for-space, https://www.newscientist.com/article/dn28532-bacteria-build-bendy-plastic-that-astronauts-could-use-for-tools/
2014	Faculty advisor, Stanford-Brown-Spelman iGEM team, "Towards a biodegradable UAV" http://2014.igem.org/Team:StanfordBrownSpelman#SBS%20iGEM (gold medal). Projects: Biomaterials, Waterproofing, Cellulose linker, Amberless Hell Cell, Biodegradation. This project has generated enormous attention, from Discovery Canada to Popular Mechanics, Tech Times, Tech WeekEurope UK, Fast Company, Ubergizmo, Mirror UK, Toronto Star, Autoevolution, Le Monde, Olhar Digital, International Business Times Italia, Endgadget, Forbes, Atlantic Tech, Wired UK, Exec Gov, Washington Post, CNN tech

2013 Faculty advisor, Stanford-Brown iGEM team, "Synthetic BioCommunication" http://2013.igem.org/Team:Stanford-Brown (gold medal, finalist). Projects: BioWires, CrisprCas, De-Extinction, EuCROPIS

2012 Faculty advisor, Stanford-Brown iGEM team, "Synthetic Astrobiology" http://2012.igem.org/Team:Stanford-Brown (winner, "Best New Part", Western Regionals; "Top 16" World Championship; honorable mention "Human Practices" Western Regional and World). Projects: Hell Cell, Biomining, Venus Life (http://www.calacademy.org/sciencetoday/igem-competition/ http://www.calacademy.org/sciencetoday/igem-competition/)

2011 Faculty advisor, Brown-Stanford iGEM team, "Mars BioTools: Synthetic Biology for Space Exploration" http://2011.igem.org/Team:Brown-Stanford (winner, two Editors Choice blue ribbons, Maker Faire Sept. 2011, iGEM gold medal, "Best Presentation" and final four, Americas; sweet 16 and Best New Application, World Championship). Projects: RegoBrick, PowerCell (also see http://www.calacademy.org/sciencetoday/igem-competition/)

Summary of courses taught

"Astrobiology and Space Exploration", Stanford University (2003-2013; 2025)

summary of additional teaching experience and awards

Postdoctoral Fellow Supervision: Charles Cockell, Julie Bartley, Jamie Foster, Stefan Leuko, Ivan Paulino-Lima, Daiki Horikawa, Kosuke Fujishima, Nils Averesch, Tomasz Zajkowski, Garrett Roberts Kingman, Rolando Cruz Perez, Jessica Snyder. Current: Alina Kunitskaya, Devan Nisson (postdocs), Garrett Roberts Kingman, Rolando Cruz Perez, Jessica Snyder (staff scientists)

2024-8 NASA supervisor of Ph.D. Student and NASA Space Technology Fellow, Karol Woloszyn (New York University)

2024 visiting Ph.D. student Ana Gabriela Veiga Sepulchro (Danish Technical University)

2023-4 Supervisor, senior thesis Justin Kipness, Rebecca Blum, Cagn Walker (Brown University)

2022-3 Supervisor, Masters student Karoli Clever (UC Santa Cruz)

2022-3 Supervisor, Masters student Cynthia Bui (Brown University)

2022 Co-advisor, Nicolas Fuentes Musitu, "Myco-Algae Composites for Space Architecture: Strain Engineering of Mycelium grown in Cyanobacterial Substrates" DTU (September)

2022 Thesis examiner, Carolyn Bayer, "Engineering Bacterial Genomes throughout the Central Dogma of Molecular Biology" DTU BIOSUSTAIN (May)

2022-3 Supervisor, visiting Ph.D. student Alec Vallota-Eastman (UC Santa Barbara)

2020 Supervisor, Masters student Arvind Veluvali (Brown University)

2020 Supervisor, visiting Ph.D. student Rainbow Lo (Imperial College London)

2019 Supervisor, Masters student Monika Lipinska (International Space University)

2019-21 Supervisor, Ph.D. student Amanda Carbajal (UC Santa Cruz)

2017-8 Supervisor, Ph.D. student Benjamin Lehner (TU Delft, The Netherlands)

2017-8 Supervisor, Master's student Gustaf Edman (Chalmers University, Sweden)

2017-8 Supervisor, Master's student Dylan Spangle (Bioengineering, Brown University), "Dissolution of silica by *Methanosarcina thermophila* silicase enzyme expressed in Escherichia coli for use in recycling electronic waste." https://repository.library.brown.edu/studio/item/bdr:792922/

2017 Supervisor, Master's student Clément Lapierre (SynSys Sup'Biotech, Paris)

2016,7 Masters Student, Ryan Lorig-Roach (UC Santa Cruz, summer 2016 and 2017)

2017 Masters Student, Alessandro Napoli (Università di Roma Tor Vergata, Italy)

2016 CT Space Grant awardee Cerys Hostage, supervisor

2016 TV interview and lecture, University of Southern Queensland, Toowoomba Campus

2016 Guest lecture, Vatican Observatory Summer School
2014-7 Ph.D. Student, Tom Folliard (Biochemistry, University of Oxford) synthetic biology
2014-9 NASA supervisor of Ph.D. Student and NASA Space Technology Fellow, Simon Vecchioni (Columbia University) Building BioWires
2014-8 Co-Supervisor, Ph.D. Student, Cyprien Verseux (Università di Roma Tor Vergata) engineering artificial extremophiles
2014-7 Supervisor, Ph.D. Student, Toshitaka Matsubara (Department of Bioengineering, Tokyo Institute of Technology), engineering halophiles (defended, 2017)
2014 Supervisor, Masters student Carlos Alexander Ruiz Pérez (Columbian Center for Genomics and Bioinformatics of Extreme Environments -- GeBiX) microbiome of Andean plants
2013-4 Supervisor, Masters student Raphael Ferreria (Synthetic & Systems Biology Sorbonne Paris – Diderot University - ParisTech)
2013 Supervisor, NASA Planetary Biology Intern, Siddharth Hegde (Max Plank Institut for Astronomie) pigment bio-signatures on extrasolar planets
2013 Supervisor, Masters student Cyprien Verseux (University of Évry-Val-d'Essonne)
2012 NASA Mentor, NASA OCT fellow Lucas Hartsough (Rice University)
2012-8 Ph.D. thesis advisor, Jesica Navarette (Microbiology, . California Santa Cruz) Biomining
2011 Faculty member, São Paulo Advanced School of Astrobiology (U. of São Paulo, Brazil)
2011-2 Mentor, NASA Space Technology Research Fellow Lucas Hartsough (Rice University)
2011 Advisor, NASA Academy student Jesica Naverette (University of Texas El Paso)
2011-8 Postdoctoral advisor, Kosuke Fujishima (Japan, Origin of Life)
2011-4 NPP postdoctoral advisor, Ivan Paulino-Lima (Brazil, radiation resistance under high Mn)
2010 Supervisor, NASA Planetary Biology Intern, Haley Sapers (University of Western Ontario)
2010 Ph.D. thesis examiner, Ivan Paulino-Lima, Instituto de Biofísica Carlos Chagas Filho, Universidade Federal do Rio de Janeiro, Brazil
2004-13 Professor "Astrobiology and Space Exploration", Stanford University (HumBio 183). This course is available through our course website, http://www.stanford.edu/group/astrobiology/cgi-bin/ as well as featured on iTunesU, youtube, Academic Earth, etc.
2009-15 Ph.D. thesis advisor, Diana Gentry, Stanford University
2009 Professor "Extent of the Biosphere", Stanford University
2009 Ph.D. thesis reviewer, Philip Butterworth, McQuarie University, Australia
2008-11 Ph.D. thesis advisor, John Cumbers, Brown University
2009- 11 Lecturer in AP Biology Classes, Carlmont High School (CA)
2008-11 NPP postdoctoral advisor, Stefan Leuko
2008-10 NPP postdoctoral advisor, Daiki Horikawa
2008-9 Master's thesis advisor, Adam Monroe, Stanford University
2008 Ph.D. thesis reviewer, Falicia Qi Yun Goh, University of New South Wales, Australia
2007 Professor "Aerobiology", Stanford University
2007 Master's thesis advisor, Adam Freedman, Stanford University
2007 Supervisor, François Picard & Dr. Melike Balk, Effect of peroxy defects on aerobic metabolism
2006 Opponent, Ph.D. defense, Aarhus University, Denmark
2006 Professor, "Is evolution predictable?", Stanford University
2005-6 Honors Thesis advisor, Mamei Sun, Stanford University
2005-6 Co-term advisor, Erin Lashnits, Stanford University
2005 Supervisor, NASA Planetary Biology Intern, Stefan Leuko, University of New South Wales,
2004-5 Honors thesis advisor, Erin Lashnits, Stanford University
20045 Ph.D. Thesis Committee, Rebekah Shepard (U.C. Davis, Geology)

2003-6	NIH postdoctoral fellow advisor, Jamie Foster
2003	Lecturer at Crystal Springs Upland (CA)
2001	Lecturer at Greenwich High School (CT)
2000	Supervisor, Masters student from the International Space University (Jacqueline Garget)
1998-2002	Teaching/research project on the effect of UV on the plankton of SF Bay. Involved students from grades 3-12 in field research.
1993-present	National Research Council Post-Doctoral Fellow Advisor (three accepted)
1998-2002	Supervisor, Astrobiology Academy fellowship students
1992-2000	Supervisor, NASA Planetary Biology Intern (students from UK and US)
1996	Supervisor, Honors Thesis, Stanford
1995	Supervisor, High School Space Biology Interns (12 over 9 years)
1992-3	Supervisor, Senior Thesis, Stanford University (Ben Squires)
1986-7	Shoals Marine Station (Cornell & U. New Hampshire) faculty Field Marine Science
1985	Brown University, Teaching Fellow, designed and taught course "Evolution"
1982-4	Brown University, Teaching Assistant, Evolutionary Genetics, Botany, Molecular Biology, Invertebrates, Microbial Ecology in Aquatic Environments, Medical Microbiology
1979	University of Maryland, Teaching Assistant, Zoology
1978-81	Indiana University, Associate Instructor, Ecology & Evolution, Invertebrates, Parasitology, Introductory Biology

Teaching interests: astrobiology and space exploration, biomaterials/biomimetics, environmental influences on evolution, biological payloads, major transitions in evolution evolution/paleobiology, protistology

patents

"System for the 3D construction of biologically derived materials, structures and parts" U.S. Patent No. 10,815,474, issued on October 27, 2020. Innovators: Diana Gentry, Christopher Venter, Lynn Rothschild

"Functionalizing biological substrates with bioengineered peptides to bind targeted molecules for utilization in water filtration applications" U.S. Patent No. 12,116,420 B1, issued on October 15, 2024. Innovators: Lynn Rothschild, Jesica Urbina, Advait Patel

publications[2]

Onofri, S., Moeller, R., Billi, D., Balsamo, M., Becker, A., Benvenuto, E., Cassaro, A., Catanzaro, I., Cockell, C., Desiderio, A., Ellis, T., Gonzalez Pastor, J.E., Hahn, C., Leys, N., Leo, P., Maurel, M-C., Pacelli, C., Pavletic, B., Ripa, C., **Rothschild**, L.J. & Surdo, L. Synthetic biology for Space Exploration. *Nature Microgravity*, **11**, 41. doi.org/10.1038/s41526-025-00488-7

Cordero, RJB, de Grow, KK., Dragotakes, Q., Singla, S., Maurer, C., Trunek, A., Chiu, A., Hwang, J., Crowell, S., Benyo, T., Thon, SM., **Rothschild, L.J.**, Dhinojwala, A., and A. Casadevall. 2025. Radiation Protection and Structural Stability of Fungal Melanin Polylactic Acid Biocomposites in Low Earth Orbit. *PNAS* 122 (18) e2427118122. doi.org/10.1073/pnas.2427118122

Roberts Kingman, G., Kipness, J.L. & Rothschild, L.J. 2025. Raiding nature's genetic toolbox for UV-C resistance by functional metagenomics. *Sci Rep* **15**, 223. doi.org/10.1038/s41598-024-83952-w

Abil, Z., Giaveri, S., Erb, T. and **Rothschild**, L. 2024. Integrating metabolism and evolution towards the realization of synthetic life. *Nature Rev. Bioengineering.* https://doi.org/10.1038/s44222-024-00267-1

[2] published or accepted, not including those in review or revision

Ginter T, Dujardin A, Roumans S, Rothschild LJ, Rheinstädter MC. Environmental constraints on the origin of life based on membrane formation: the role of salinity. Internatl J Astrobiology. 2024;23:e25. doi:10.1017/S147355042400020X

Massa , A., Baiget, M., Rothschild, L.J., Axpe, E., and Carrero-Carralero, C. 2024. New food ingredient via acid-tolerant *Rhizopus oligorporus* growth, *Applied Food Research*, vol 4, issue 2, doi: https://doi.org/10.1016/j.afres.2024.100583

Vora, T.J., Averesch, N.J.H., DeBenedictis, E.A. and Rothschild, L.J. 2024. Space Synthetic Biology: a Paradigm for Sustainability on Earth and Beyond. *New Space* (published online) https://doi.org/10.1089/space.2024.0002

Rothschild, L.J., Averesch, N.J.H., Strychalski , E., Moser, F., Glass, J.I., Cruz Perez, R., Yekinni, I.O., Rothschild-Mancinelli, B., Roberts Kingman, G.A., Wu, F., Waeterschoot, J., Ioannou, I.A., Jewett, M.C., Liu, A.P., Noireaux, V., Sorenson, C., and Adamala, K.P. 2024. Building Synthetic Cells – from the Technology Infrastructure to Cellular Entities. *ACS Synthetic Biology*. 13, 4, 974–997. https://pubs.acs.org/doi/epdf/10.1021/acssynbio.3c00724

Vallota-Eastman, A., Bui, C., Williams, P., Valentine, D.L., Loftus, D., Rothschild, L.J. 2023. Bacillus subtilis engineered for aerospace medicine: a platform for on-demand production of pharmaceutical peptides. *Frontiers in Space Technologies* Vol 4 doi.org/10.3389/frspt.2023.1181843

Brandon Lu, Yoel P. Ohayon, Karol Woloszyn, Chu-fan Yang, Jesse B. Yoder, Lynn J. Rothschild, Shalom J. Wind, Wayne A. Hendrickson, Chengde Mao, Nadrian C. Seeman, James W. Canary, Ruojie Sha, and Simon Vecchioni. 2023. Heterobimetallic Base Pair Programming in Designer 3D DNA Crystals. *J. Am. Chem. Soc.*, 145, 32, 17945–53. doi.org/10.1021/jacs.3c05478

Zajkowski T, Lee MD, Sharma S, Vallota-Eastman A, Kuska M, Malczewska M, Rothschild LJ. 2023. Conserved functions of prion candidates suggest a primeval role of protein self-templating. *EINS: Structure, Function, and Bioinformatics*. Sep;91(9):1298-1315. doi: 10.1002/prot.26558

Vecchioni, S., Lu, B., Livernois, W., Ohayon, Y. P., Yoder, J. B., Yang, C.-F., Woloszyn, K., Bernfeld, W., Anantram, M. P., Canary, J. W., Hendrickson, W. A., Rothschild, L. J., Mao, C., Wind, S. J., Seeman, N. C., Sha, R., 2023. Metal-Mediated DNA Nanotechnology in 3D: Structural Library by Templated Diffraction. *Adv. Mater.* 35, 2210938. https://doi.org/10.1002/adma.202210938

Gallego Fernandez, B., Rothschild, L.J., Fagliarone, C., Chiavarini, S. & Billi, D. 2023. Feasibility as feedstock of the cyanobacterium *Chroococcidiopsis* sp. 029 cultivated with urine-supplemented Moon and Mars regolith simulants. *Algal Research* 71: 103044 doi.org/10.1016/j.algal.2023.103044

Vickers, P., Cowie, C., Dick, S.J., Gillen, C., Jeancolas, C., Rothschild, L.J. and McMahon, S. Confidence of Life Detection: The Problem of Unconceived Alternatives. *Astrobiology* online ahead of print doi.org/10.1089/ast.2022.0084

Vecchioni, S., Sha, R., Seeman, N.C., Rothschild, L.J., and Wind, S.J. 2023. DNA by Design: De novo computational framework for DNA sequence design and nanotechnology. *Journal of Self-Assembly and Molecular Electronics* 1: 17–76. doi: 10.13052/jsame2245-8824.2022.002

Lipińska, M., Maurer, C., Morrow, R., Dade-Robertson, M., Senesky, Magdalini Theodoridou, D., Zhang, M. and Rothschild, L. 2022. Biological Growth as an Alternative Approach to On and Off-Earth Construction. *Frontiers in Built Environment*/ 19 September 2022 doi.org/10.3389/fbuil.2022.965145

Baqué M, Backhaus T, Meeßen J, Hanke F, Böttger U, Ramkissoon N, Olsson-Francis K, Baumgärtner M, Billi D, Cassaro A, de la Torre Noetzel R, Demets R, Edwards H, Ehrenfreund P, Elsaesser A, Foing B, Foucher F, Huwe B, Joshi J, Kozyrovska N, Lasch P, Lee N, Leuko S, Onofri S, Ott S, Pacelli C, Rabbow E, Rothschild L, Schulze-Makuch D, Selbmann L, Serrano P, Szewzyk U, Verseux C, Wagner D, Westall F, Zucconi L, de Vera JP. 2022, Biosignature stability in space enables their use for life detection on *Mars. Sci Adv.* Sep 9;8(36):eabn7412. doi: 10.1126/sciadv.abn7412.

Limaye, S., Mogul, R., Baines, K.H., Bullock, M.A., Cockell, C., Cutts, J.A., Gentry, D.M., Grinspoon, D.H., Head, J.W., Jessup, K-L., Kompanichenko, V., Yeon Joo Lee, Mathies, R., Milojevic, T., Pertzborn, R.A., Rothschild, L., Sasaki, S., Schulze-Makuch, D., Smith, D.J., and Way, M.J. 2021. Venus, an Astrobiology Target. *Astrobiology*, 21(8) DOI: 10.1089/ast.2020.2268

Zajkowski, T., Lee, M.D., Mondal, S.S., Carbajal, A., Dec, R., Brennock, P.D, Piast, R.W., Snyder, J.E., Bense, N.B., Dzwolak. W., Jarosz, D.F., & Rothschild, L.J. 2021. The hunt for ancient prions: Archaeal prion-like domains form amyloids and substitute for yeast prion domains. Molecular Biology and Evolution. 38(5):2088–2103. doi.org/10.1093/molbev/msab010

Reyes, S.G., Kuruma, Y., Fujimi, M., Yamazaki, M., Eto, S., Tamaki, S., Kobayashi, A., Mizuuchi, R., Rothschild, L., Ditzler, M., Fujishima, K. 2021. PURE mRNA display and cDNA display provide rapid detection of core epitope motif via high-throughput sequencing. Biotechnol Bioeng. 118(4): 1702-15 doi.org/10.1002/bit.27696

Billi, D., Fernandez, B.G., Fagliarone, Chiavarini, C.S., & Rothschild, L.J. 2020. Exploiting a perchlorate-tolerant desert cyanobacterium to support bacterial growth for in-situ resource utilization on Mars. *Internatl. J. Astrobiol.* 20(1), 29-35. doi:10.1017/S1473550420000300

Volger, R., Pettersson, G.M., Brouns, S.J.J., Rothschild, L.J., Cowley, A., & Lehner, B.A.E. 2020. Mining moon & mars with microbes: Biological approaches to extract iron from Lunar and Martian regolith. *Planetary & Space Science*, 184: 104850 https://doi.org/10.1016/j.pss.2020.104850

Urbina, J., Patil, A., Fujishima, K., Paulino-Lima, I.G., Saltikov, C, & Rothschild, L.J. 2019. Urban biomining: A new approach to bioengineering surfaces for reclaiming and recycling metals from e-waste. *Scientific Reports, Nature Publishing Group* 9:16422 doi.org/10.1038/s41598-019-52778-2

Mosca, C., Rothschild, L.J., Napoli, A., Ferre F., Pietrosanto, M., Fagliarone, C., Baqué, Raboow, E., Rettberg, P, & Billi, D. 2019. Over-expression of UV-damage DNA repair genes and ribonucleic acid persistence contribute to the resilience of dried biofilms of the desert cyanobacterium *Chroococcidiopsis* exposed to Mars-like UV flux and long-term desiccation. *Frontiers in Microbiology* 10: 2312. doi: 10.3389/fmicb.2019.02312

Snyder, J.E., Walsh, D., Carr, P. & Rothschild, L.J. 2019. A Makerspace for Life Support Systems in Space. *Trends in Biotechnology* 37: 1164-74. https://doi.org/10.1016/j.tibtech.2019.05.003

Lehner, B., Schlechten, J., Filosa, A., Pou, A., Mazotta, D., Spina, F., Teeney, L., Snyder, J., Tjorn, S., Meyer, A.S., Brouns, S., Cowley, A. & Rothschild, L.J. 2019. End-to-end mission design for microbial isru activities as preparation for a moon village. *Acta Aeronautica* 162: 216-26. https://doi.org/10.1016/j.actaastro.2019.06.001

Fujishima, K. Dziomba, S., Yano, H., Kebe, S.I., Guerrouache, M., Carbonnier, B. & Rothschild., L.J. 2019. The non-destructive separation of diverse astrobiologically relevant organic molecules by customizable capillary zone electrophoresis and monolithic capillary electrochromatography. *Internatl. J. Astrobio*. pp 1–13. https://doi.org/10.1017/ S1473550419000065

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Averesch, N. & Rothschild, L.J. 2019. Metabolic engineering of *Bacillus subtilis* for production of para-aminobenzoic acid – unexpected importance of carbon-source is an advantage for space application. *Microbial Biotechnology*, 12(4):703-714. doi: 10.1111/1751-7915.13403

de Vera, J.-P., Alawi, M., Backhaus, T., Baqué, M., Billi, D., Böttger, U., Berger, T., Bohmeier, M., Cockell, C., Demets, R., de la Torre Noetzel, R., Edwards, H., Elsaesser, A., Fagliarone, C., Fiedler, A., Foing, B., Foucher, F., Fritz, J., Hanke, F., Herzog, T., Horneck, G., Hübers, H-W., Huwe, B., Joshi, J., Kozyrovska, N., Kruchten, M., Lasch, P., Lee, N., Leuko, S., Leya, T., Lorek, A., Martínez-Frías, J., Meessen, J., Moritz, S., Moeller, R., Olsson-Francis, K., Onofri, S., Ott, S., Pacelli, C., Podolich, O., Rabbow, E., Reitz, G., Rettberg, P., Reva, O., Rothschild, L., Sancho, L.G., Schulze-Makuch, D., Selbmann, L., Serrano, P., Szewzyk, U., Verseux, C., Wadsworth, J., Wagner, D., Westall, F., Wolter, D., Zucconi, L. 2019. Limits of Life and the Habitability of Mars: The ESA Space Experiment BIOMEX on the ISS. *Astrobiology* 19:145-57. DOI: 10.1089/ast.2018.1897 (top read paper in Astrobiology for 2019)

Vecchioni, S. Capece, M.C., Toomey, E., Rothschild, L. & Wind, S.J. 2019. Methods of Synthesis and Characterization of Conductive DNA Nanowires Based on Metal Ion-Mediated Base Pairing for Single-Molecule Electronics. *J. Self-Assembly and Molecular Electronics (SAME),* 6: 61-90. doi: https://doi.org/10.13052/jsame2245-4551.6.4

Stamenković, V., Beegle, L.W., Zacny, K., Arumugam, D.D., Baglioni, P., Barba, N., Baross, J., Bell, M.S., Bhartia, R., Blank, J.G., Boston, P.J., Breuer, D., Brinckerhoff, W., Burgin, M.S., Cooper, I., Cormarkovic, V., Davila, A., Davis, R.M., Edwards, C., Etiope, G., Fischer, W.W., Glavin, D.P., Grimm, R.E., Inagaki, F., Kirschvink, J.L., Kobayashi, A., Komarek, T., Malaska, M., Michalski, J., Ménez, B., Mischna, M., Moser, D., Mustard, J., Onstott, T.C., Orphan, V.J., Osburn, M.R., Plaut, J., Plesa, A.-C., Putzig, N., Rogers, K.L. Rothschild, L., Russell, M., Sapers, H., Sherwood Lollar, B., Spohn, T., Tarnas, J.D., Tuite, M., Viola, D., Ward, L.M., Wilcox, B. & Woolley, R. 2019. The next frontier for planetary and human exploration. *Nature Astronomy*, 3(1) https://doi.org/10.1038/s41550-018-0676-9

Konosuke, M.I, Kono, N., Paulino-Lima, I.G., Tomita, M., Rothschild, L.J., & Arakawa, K. 2019. Complete genome sequence of *Arthrobacter sp*. Strain MN05-02, a UV-resistant bacterium from a manganese deposit in the Sonoran Desert. *J. Genomics* 7:18-25. doi:10.7150/jgen.32194

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Mancinelli, R.L. & L.J. Rothschild. "Extremophiles: Who, What, Where and How". McMillan Encyclopedia of Biology, 2002.

Rothschild, L.J. 2002. Life in Extreme Environments. Ad Astra 14: 32-40.

Rothschild, L.J. 2001. "Astrobiology". McGraw Hill Encyclopedia of Science & Technology, 2002. pp. 21-4 (First encyclopedia entry for "Astrobiology")

other non peer-reviewed

Rothschild, L.J. 2010. Evolution, Synthetic Life, and The Tin Woodman Dilemma. J. Cosmology 8: http://journalofcosmology.com/ArtificialLife100.html#14

Rothschild, L.J. 2009. Life battered but unbowed. Nature (London) 459:335-6.

Rothschild, L.J. 2006. A microbiologist explodes the myth of the unculturables. Nature (London) 443: 239.

Outreach since 1999

2025

Podcast, Future is Fungi (July)

Film for NHK, Japanese Public Television for "Human Journey" Episode: "Journey to the Moon and Mars" (Jan)

Interview for podcast "Curiosity Weekly" (Jan)

2024

Episode 132 of the This Week in Space podcast, titled "Living in Martian Mushrooms". https://www.space.com/entertainment/space-movies-shows/this-week-in-space-podcast-this-week-in-space-podcast-episode-132-living-martian-mushrooms

Panel and Interview, Opening of Imperial College London's Food Centre, San Francisco, (29 Oct)

Interview, Planetary Society (11 September) https://www.planetary.org/video/live-from-the-nasa-innovative-advanced-concepts-stage

SMARC opening, Washington University (18 April)

Swissnex SF Panel on Extremophiles (11 April)

Filmed for French Global Television, Paris (21 March)

Spotlight on SETI podcast (5 Feb)

2023

Appeared on NOVA, “Ancient Earth: Birth of the Sky” (https://www.youtube.com/watch?v=pmbUv0rAeeg&ab_channel=NOVAPBSOfficial, Oct)

Interview with Universe Today youtube channel, Astropharmacy (April) https://www.youtube.com/watch?v=jvHEKqrdP9k&ab_channel=FraserCain

Interview with Will Adams, ed World Book Inc.'s "Out of this World" Series 3, about mycoarchitecture (Jan 23)

Symposium, “Life not as we know it”, hosted by the Astronomy and Space Exploration Association (ASX), University of Toronto (10 Feb)

2022

Air and Space Magazine, Smithsonian, https://airandspace.si.edu/air-and-space-quarterly/summer-2022/there-doctor-house

Film, BBC for NOVA Episode on the Atmosphere (Aug 18)

Podcast, Yale iGEM team (July 8)

Interview, National Geographic (July 8)

NHK, Japan's Public TV, Documentary "Power of Microbes" re Synthetic Biology, Myco-architecture (June 30)

Orange Radio 94.0 (Vienna) Spaceuriosity (April 14)

Madeleine Gregory, reporter, Discover Magazine, article on mycotecture (March 31)

Leading Ladies of Aerospace, panel (February 24)

Interview with Michael Dalton, writer for The Week Junior Science+Nature (UK), about life and career for "Heroes in Science" profile (Jan 14)

Interview with Muriel Valin, journalist for Epsiloon (French Science Magazine) about mycotecture (Jan 24)

2021

Interview with Theodore Anton for a book "about NASA's work in synthetic biology in space” (Dec 20)

Chabot Science Center re-opening talk (Nov)

The Daily Beast interview, mycotecture (Nov 8)

Wired interview, mycotecture (Nov 8)

Johns Hopkins’ online science magazine “The Science Writer” (https://www.thesciencewriter.org).

Interview on mycotecture (Oct 4)

Wired, Here’s a Sneak Peek at the Far-Out Future of Space Travel, mycotecture https://www.wired.com/story/heres-a-sneak-peek-at-the-far-out-future-of-space-travel/

Interview, Air and Space magazine (Sept 10)

Mushroom Houses on Mars and the Future of Astronaut Habitats By Kaleigh Rogers (Sept 10) https://mailchi.mp/mcmaster/science-long-read-2?e=0a3c6124df

Discover Magazine at.https://www.discovermagazine.com/the-sciences/space-is-expensive-can-3d-printing-and-on-orbit-construction-drive-the-cost and Forbes https://www.forbes.com/sites/jamiecartereurope/2021/04/09/nasa-teases-a-mars-base-made-from-mushrooms-a-spacecraft-swarm-for-venus-and-a-telescope-on-the-moon/ .

2020

Interview, IFL Science, https://www.iflscience.com/astropharmacy-and-a-telescope-on-the-moon-among-new-concepts-selected-for-nasa-funding-55653

Interview, NeoLife https://neo.life/2021/01/to-boldly-go-where-no-pharma-has-gone-before/

Interview, The Guardian, https://www.theguardian.com/science/2020/sep/05/are-aliens-hiding-in-plain-sight
Interview, The Medicine Maker, https://themedicinemaker.com/manufacture/the-astropharmacy-concept
Lecture, Galaxy Forum, Vi at Palo Alto (July 4))
Interview, BBC Sky & Telescope (April 27)
Lecture, Rotary Club of Los Altos (Feb 27)
Interview for CBS, Orlando about Myco-architecture in space (Feb 3)
Interview for British Broadcasting Corporation (BBC) about Myco-architecture in space (Jan 27)
Interview for Forbes about Myco-architecture (Jan 21)
https://www.forbes.com/sites/linhanhcat/2020/01/31/future-buildings-on-mars-made-of-mushrooms/
Interview for "OneZero," about Myco-architecture (Jan 15)

2019

Filmed for "The Age of Innovation", Robert Downey Jr. production (Palo Alto, Sept. 20)
https://www.youtube.com/watch?v=IlvrIKaNCRE starting around 10.5 minutes
BYU Radio interview (Aug 20), NASA living tech, http://www.byuradio.org/episode/9018efda-0cd6-4df8-94eb-a8864b031aa6/top-of-mind-with-julie-rose-kashmir-nasa-living-tech-name-recognition?playhead=1307&autoplay=true
Filmed for Atlantic Productions (July 2)
Filmed for tested.com (June 13)
Filmed for documentary on Stuart Brandt (May 19)
WonderTech Summit, Women in Technology (Copenhagen, May 11)
Recorded for "The SHABAM! Show." Talking to middle schoolers and high school students about microbes, space exploration and terraforming planets (March 28)
Space Day Panel, MIT (March 14)
BlueYard Capital, "Synthetic Biology for Space" (Feb 28)
Intelligence Squared USA, "Don't Bring Extinct Creatures Back to Life" (Jan 31)
https://www.intelligencesquaredus.org/debates/dont-bring-extinct-creatures-back-life
Wonderfest lecture, "Is there a Universal Biology?" (Jan 27)

2018

TEDx Beacon Street @ WGBH Boston (Oct 29) The living tech we need to support human life on other planets
https://www.ted.com/talks/lynn_rothschild_the_living_tech_we_need_to_support_human_life_on_other_planets?utm_source=tedcomshare&utm_medium=email&utm_campaign=tedspread

lecturer for STEAM week, Los Altos High School (Oct 11)
Boston Museum of Science, "From Science Fiction to Science Fact" (Sept 22)
taped, podcast, Copenhagen with TechFestival
filming, BBC The Planets, Venus (July 16) Scheduled to air on NOVA in 2019
podcast, How Could Genetic Engineering Affect Space Exploration? - Offworld Episode 12 (YouTube series on Tested,) https://www.youtube.com/watch?v=Cc0HvlmAuAY published Oct 15
Wonderfest lecture, "Universal Biology?" http://wonderfest.org/is-there-a-universal-biology-apr-8/
ComiCon Panelist, "Pack Your Bags: We're Moving to Mars! (Eventually)", Silicon Valley Comic Con, Jason Lederman (Pop Sci), moderator. http://www.svcomiccon.com, https://www.nasa.gov/svcc2018

lecture, “Where synthetic biology meets E.T.” University of California Museum of Paleontology Short Course: Where worlds collide: How microbes from Earth's deep biosphere and extreme environments can teach us about our planet's history and shape its future. http://ucmp.berkeley.edu/about/shortcourses/shortcourse18.php (Feb 24)
Darwin Day talk, Sunday Assembly Silicon Valley (Feb 11)
zdf/3sat filming, synbio for Mars exploration (Zdf/3sat is the scientific and cultural flagship program of the German, Austrian and Swiss public broadcasting channels (http://www.3sat.de/mediathek/?mode=play&obj=72912)

2017

Science Friday Trivia Quiz, NASA team, SF (Oct 30)
NOVA filming, synbio (Aug 4)
NIAC Presentations, Chicago Museum of Science and Industry (May 13)
Filming, Breakthrough Foundation (May 4)
NASA 360 podcast https://www.nasa.gov/multimedia/podcasting/nasa360/index.html
Filming, Motherboard/Vice (Feb 24) https://www.youtube.com/watch?v=ukBenR6FjPo
“How to hunt for aliens: finding Darwin beyond Planet Earth”. Darwin Day, Yale Humanists (Feb 12)
“Are we alone? The search for life in the universe.” Public Lecture, ELSI, Tokyo Institute of Technology (Jan 11)

2016

Shaping the Future, Campaign for Science and Education, 30th Anniversary Event, Senate House, London (Nov 14) http://www.sciencecampaign.org.uk/our-work/campaigns/case-30th.html
Brown University home page (Oct/Nov) https://news.brown.edu/articles/2016/10/igem
Popular Science (Nov 1) http://www.popsci.com/can-we-bring-life-to-mars
Interview, Sky News (Sept 7) (https://www.youtube.com/watch?list=PLG8IrydigQfckEQNNdxoPiQ0GtAJLP5_5&v=CzqRYNNiHvc)
Interview, Science Friday (Aug 29)
Filming, Loyola Productions, educational video on evolution (Aug 8)
Filming, Essential Media and Entertainment (July, Australia, August, NASA Ames)
Two Queensland television spots, one University of Southern Queensland, Australia (July 19)
Radio Spot, 4GR, Southern Cross Austereo, Australia (July 18)
All Hallows School, Brisbane, lecture to students including surrounding schools (July 15)
London City College, lecture to students (May)
BBC Forum, Extremophiles (March 16)
Darwin Day talk, Sunday Assembly Silicon Valley (Feb 14) http://sasv.podomatic.com/entry/2016-02-22T16_43_58-08_00
Public Lecture, San Mateo County Astronomical Society (Feb 5)
Podcast: The Star Spot (Toronto, Jan 30) http://starspotpodcast.com/2016/03/20/making-life-lab-implications-alien-hunting-lynn-rothschild/
Plenary, Astronomy and Space Exploration Society (ASX) at the University of Toronto 13th Space Science Symposium keynote (Jan 29)

2015

Filmed, BBC, “End of the solar system”, Yellowstone National Park (Oct. 22-5)
BBC, Naked Scientists Radio Show “Mars Exploration” (Oct 18)
Carlmont High School Biotech Day (Oct 16)
Mt Tam Astronomy Program, CA (Aug 22)

Bay Area Maker Faire, San Mateo, CA, Main Stage talk (May 16)
https://www.youtube.com/watch?v=5HfQReYgMlo&feature=youtu.be&list=PLwhkA66li5vBCWRVXAXbNPUsWDYVrjZNX
Huff Post Live filming (March 21) http://live.huffingtonpost.com/r/segment/drone-zone-amazon-prime-air-/5517e8b52b8c2a7ca6001255
Let's have an awesome time doing science! Berkeley (March 24)
http://sci.berkeley.edu/?q=conference
Henderson State University Physics club conversation (via skype)
Discovery Canada Channel, "Biodegradable drones" (http://www.discovery.ca/dailyplanet) aired (Jan 15)

2014

Filmed, Discovery Canada Channel, "Biodegradable drones", NASA Ames Research Center (Nov. 21)
Brandeis University 3D printing society (Nov 1)
Inside 3D printing, interview: NASA Looking at 3D Printing and Synthetic Biology for Mars, Earth. (Oct.)
http://inside3dprinting.com/video-nasa-looking-at-3d-printing-and-synthetic-biology-for-mars-earth/
Stanford Retirement Home VI, Palo Alto, CA (Sept 9)
Stanford LASER talk, "Synthetic Astrobiology", https://www.youtube.com/watch?v=0ADV_gpj4CU (Aug. 10)
Idaho HS Scholars, NASA ARC (July 29)
Advanced Studies Lab, ARC (July 24)
TEDx, Santa Cruz (March 8), https://www.youtube.com/watch?v=_h6o0EbCh_c
Darwin Day, Stanford (Feb 18)
Phi Beta Kapa of Northern California, Asilomar (Feb 16)
Sacramento Darwin Day Keynote Speaker (Feb 9)
Commonwealth Club and Wonderfest, "A biologist and a chemist confer on the recipe for life" (Jan 14)

2013

Community Day, California Academy of Sciences with 2013 iGEM team (Oct 12)
Lectured to Idaho Science and Aerospace Scholars ISAS (July 23)
Presented at Maker Faire, Bay Area (May 18)
Lecture, AP Bio Classes, Carlmont High School, Belmont, CA (March 15)

2012

Filmed, Discovery Channel, "Aliens", NASA Ames Research Center (Nov. 30)
Taped, Radio Interview, Sveriges Radio (Swedish national radio) (Nov. 12)
Filmed, California Academy of Sciences, iGEM (Oct. 12)
Interviewed for Ciel et Espace (Oct. 16)
Public lecture, Innovation in Space Discoveries: Is There Life Out There? University of Bergen, Norway (September 27)
Public Lecture, "Life at the Edge: Life in Extreme Environments on Earth and the Search for Life in the Universe", San Jose Astronomical Association (February 4)

2011

TV interview, National TV in Brazil on location at PETAR caves,
http://www.tvtribuna.com/videos/?video=12730

Filmed, “New Frontiers in Ballooning”, http://www.polyhedronlearning.com/newfrontiers/marscityFrameset.html (November 17)
Featured lecture, Maker Faire, New York Hall of Science (September 17)
Filmed, BBC Horizon "Synthetic Biology”, Central Valley, California (September 8)
Lecture, High School Teachers Online, “Life at the Edge: Life in Extreme Environments on Earth and the Search for Life in the Universe” Santa Clara County Office of Education (April 4)
Public Lecture, “Life at the Edge: Life in Extreme Environments on Earth and the Search for Life in the Universe”, Santa Barbara Museum of Science (March 24)
Filmed, Morgan Freeman’s Through the Wormhole, season 2, Mt. Baldy & LA (March 22)
Darwin Day Lecture, “Why Darwin is critical to astrobiology”, Stanford University (Feb 26)
Science Lecture Series, “Darwin 101: from Earth to Space”, Carlmont High School, Belmont, CA (Feb 16)
Darwin Day, “Darwin 101: from Earth to Space”, North Carolina Museum of Natural History, Raleigh (Feb 12)
Public Lecture, “Defining the Envelope for the Search for Life in the Universe”, San Mateo County Astronomical Society, College of San Mateo, San Mateo, CA (Feb 4)

2010

Lecture, AP Bio Classes, Carlmont High School, Belmont, CA (7 Dec)
Filmed, BBC "Do We Really Need the Moon?", Death Valley (September 30)
Public Lecture, Innovation in Space Discoveries: Is There Life Out There? Collin College, Plano, Texas (Sept. 29)
Filmed, “Extra Terrestrials”, Treasure Island, CA (June 10)
Filmed, Morgan Freeman’s Through the Wormhole, season 1, California Academy of Sciences, Botanical Gardens (March 23) (http://science.discovery.com/tv-shows/through-the-wormhole) See ~3-8 minutes in. Rothschild’s clip is the fourth most viewed clip on the internet to date at 280,315 views as of May 30, 2013) https://www.sciencechannel.com/tv-shows/through-the-wormhole/full-episodes/are-we-alone
Keynote lecture, Evolutionpalooza, San Francisco (February 13)
Lecture, NASA Explorer School Teachers in Yellowstone (January 20)

2009

Lecture, Silicon Valley Astronomy Lecturer (11 Nov) http://www.astrosociety.org/education/podcast/index.html
Lecture, 8th grade, Brunswick Middle School, Brunswick, Maine (9 November)
SETI Radio, Are we alone? (August (http://radio.seti.org/episodes/Skeptic_Check_Doomsday_at_the_Movies)
Filmed National Geographic “Space Traveler” episode, NASA Ames (23 July)
Filmed National Geographic “Unknown Universe” episode, Oakland Zoo (4 May)
Maine Space Day presenter (May 1)
Lecture, San Francisco Amateur Astronomers (March 18)
Lecture, NASA Explorer School Teachers in Yellowstone (January 21)

2008

Lecture to Ames Exploration Docents (Nov. 18, 2008)
Education and outreach lectures in diversity of schools and Lake Bogoria Visitors’ Centre, Kenya (Oct)
Filmed Discovery Channel episode, “Life in the Solar System”, NASA Ames and Rift Valley, Kenya (Sept-Oct 2008)

Filmed National Geographic "Naked Science" episode, "Venus", Yellowstone National Park, NASA, Stanford (August 2008) (http://channel.nationalgeographic.com/series/naked-science/3897/Photos#tab-Videos/06795_00)
Filmed National Geographic "Naked Science" episode, "The future of life", Cargill Salt Company and California Academy of Sciences (June-July 2008)
Filmed History Channel show, "The Universe: Alien Faces", Fitzgerald Marine Reserve, CA (June 11, 2008) http://www.youtube.com/watch?v=B1RSZDtm8Zw
KQED Public Radio, The California Report, Astrobiology (April 16, 2008) http://www.californiareport.org/archive/R804160833
Lecturer, Adventure Series, Mystic Seaport, Mystic CT "Exploring the limits of life in the Universe" (March 20)
Lecture, NASA Explorer School Teachers in Yellowstone (January 11, 2008)

2007

Guest Lecture, "Astrobiology", UCSF (November 29)
Radio Interview, Stanford KZSU noon show. (October 29)
Filmed BBC Horizon show, "The hunt for a second earth", Bolivian altiplano and Atacama desert (July) (http://www.bbc.co.uk/sn/tvradio/programmes/horizon/broadband/tx/alone/highlights/)
Filmed National Geographic show, "Origin of Life", Bolivian altiplano and Atacama desert (June-July)
Lecture to ScienceCorps Teacher program, Maine (NSF), (June)
Filmed two segments for Comcast (CNN) in San Francisco studio (May)
Public lecture, Boston Aquarium, as part of Danish symposium on global change (April)

2006

Filmed for BBC show on Aliens, Stanford Theater (December 2006)
Filmed three segments for Comcast (CNN) in San Francisco studio (November 2006)
Lecture to 200+ high school students and teachers, Aarhus, Denmark (November 2006)
Guest Lecture, "Astrobiology", UCSF (October 2006)
Contributor to Roger Williams Park Museum exhibit on Astrobiology (fall, 2006)
Guest on "KidsCorner", WXPN radio, Philadelphia (September 20)
Presentation of Yellowstone outreach project, Space 2006, San Jose (September 20)
Filmed two segments for Comcast (CNN) at de Young Museum, San Francisco (July 12)
Lecture to ScienceCorps Teacher program, Maine (NSF), June 2007
Filmed three segments for Comcast (CNN) in San Francisco studio
Filmed for science syndicate at Exploratorium on finding new species (see Science Daily, 1 March 2006, http://www.sciencedaily.com/videos/2006/0307-name_that_species.htm
Public event at Exploratorium in SF on discovering new species

2005

Plenary lecture, Launching a Dream, Teacher Workshop, Kansas City
Filmed for National Geographic special on the Moon, on location, Bar Harbor, Maine
Filmed for Comcast (CNN) in San Francisco studio
Lectured to ~20 NASA Explorer School Teachers
Lecture, SETI Science Day, NASA Ames
Interviewed on multipart series, Pulse of the Planet (NPR)
Interviewed for National Geographic web site
Hosted approximately 30 National Park Interpretive Staff in lab tour

2004

Filmed for “What we don’t know”, TV series with Martin Reese, Astronomer Royal (aired in UK, Dec. 2004)
Ran 30 minute workshops for 40 National Park Interpretive Staff in “Earth to Sky” program (October)
Filmed for Comcast (CNN) on USS Hornet, 35th anniversary of Apollo 11 (July 20)
Panelist, “Women in Space Science”, USS Hornet, Apollo 11 Anniversary celebration) (July 20)
Filmings: New York Hall of Sciences (Extremophile exhibit); BBC4 (with Martin Rees, Astronomer Royal-initial airing in UK, 5 December 2004), German TV in Bolivia
Organized and chaired outreach session, “Astrobiology and Humanity”, NASA Ames (March 28)
Interviewed on Eyewitness News, San Francisco, March 27, 2004
Plenary lecturer for Skyline College, Women in Science Day (attended by over 1000) (March 20)

2003

Interviewed for SETI Radio, Are we alone? July (July)
Space Science Update Press Conference, NASA HQ (February 19)
Lecture, Crystal Springs Upland School (February)
Public lecture, Penn State Erie, “A biologists guide to the galaxy” (April)
Interview, ASM radio for NPR (May)

2002

Santa Clara University. The Good (?) Old Days: Life in the Precambrian (June 4)
Met with High School Students, Los Altos High School (April 30)
Photographed for Photo by Volker Steger / Science Photo Library. (May)
Interviewed on Canadian Broadcast Company, Quirks and Quarks (February 23) (http://www.radio.cbc.ca/programs/quirks/archives/01-02/feb2302.htm)

2001

Filmed for BBC TV for ‘Cell City,’ a popular science program, to air next year.
Debater for Wonderfest 2001 (UC Berkeley) on “What is Life?”
London Sunday Telegraph Magazine section, on Astrobiology by David Bennum (Oct. 14)
Team leader, Yellowstone National Park/Astrobiology Institute Outreach effort
Lecture to Sonoma County Astronomical Society (February)
Dean Lecture, Astrobiology Series, California Academy of Science (March)
Interview with NPR for DNA Files program on Astrobiology (February 2001, aired Nov. 2001). (Note: on May 20, 2002 The Robert Wood Johnson Foundation awarded The DNA Files and SoundVision Productions the RWJ Prize for Health and Medical Reporting.)
Filmed for Discovery Show on Extrasolar Planets (April, Yelllowstone)
Organizer of Astrobiology Institute/Yellowstone National Park outreach program
Advisor, New York Hall of Science (Extremophile Exhibit)
Advisor, Denver Museum of Natural & Science (Space Odyssey Exhibit)

2000

Speaker for Mount Talmalpais Astronomy Lecture Series (October)
Filmed for TV documentary on human space exploration (October) Shandra Productions
Speaker for TTI/Vanguard Meeting (September)
Lecture to staff, Yellowstone National Park (September)
Speaker for Astrobiology lecture series, Evergreen College, San Jose (May)
Filmed for TV documentary on the moon (Aug. 1999) York Television; aired December 1999, January 2000, autumn 2000. Still in re-runs 2012

Filmed for ABC World News Tonight with Peter Jennings on Extremophiles. Aired October 18, 2000. http://more.abcnews.go.com/onair/worldnewstonight/wnt001018_yellowstone_feature.html

1999

Photographed for Stern Magazine
Interview, Jack Cole Show, Palm Beach, Florida on Astrobiology (December)
Filmed TV documentary, "If we had no moon" (Aug. 1999) York Television
BioForun symposium speaker California Academy of Sciences for teacher training series, Oct 1998 (http://www.accessexcellence.org/BF/bf05/rothschild/bf05b2.html)
Invited banquet speaker for the SCATS (Schools and Colleges for Advancing the Teaching of Science) program (September 21)
Spoke to k-8 on anniversary of Apollo 11 on the Apollo 11 mission and the moon in general (July)