2019 Poster Listing

Title	PI	Discipline
High Efficiency Superconducting Frequency Multiplier to 1 THz towards a 100 pixel heterodyne Array Receiver	Daniel P. Cunnane	Astrophysics, Heliophysics, Space Sciences, related Technology
Cosmology with the High and Low Redshift Universe	Olivier P. Dore	Astrophysics, Heliophysics, Space Sciences, related Technology
Eppur Si Muove: Defining the Next generation of Cosmological Missions	Eric M. Huff	Astrophysics, Heliophysics, Space Sciences, related Technology
Super-Massive Black Holes and the X-Ray to Far-IR Connection	William D. Langer	Astrophysics, Heliophysics, Space Sciences, related Technology
Setting the WFIRST Microlensing Fields: Analysis of the UKIRT Precursor Survey	Geoffrey Bryden	Astrophysics, Heliophysics, Space Sciences, related Technology
Exploring fundamental physics with multiple cosmological observables and data sets	Eric M. Huff	Astrophysics, Heliophysics, Space Sciences, related Technology
Ultrabroadband 5 THz Heterodyne Array Receiver for Extragalactic and Galactic Mapping	Boris S. Karasik	Astrophysics, Heliophysics, Space Sciences, related Technology
Direct Detection of Dark Energy through Precision Local Measurements in Space	Nan Yu	Astrophysics, Heliophysics, Space Sciences, related Technology
Preparing for the Deluge: Joint Processing and Analysis of Multi-Probe Dark Energy Data in the Coming Decade	Jason D. Rhodes	Astrophysics, Heliophysics, Space Sciences, related Technology
Advancing Celestial Frame Construction at Multiple Wavelengths	Christopher S. Jacobs	Astrophysics, Heliophysics, Space Sciences, related Technology
Bridging the Gap: Observations and Theory of Star Formation Meet on Large and Small Scales	Jorge Luis Pineda Galvez	Astrophysics, Heliophysics, Space Sciences, related Technology
A Flexible Radio-Frequency Readout for Multiplexed Submillimeter-Wave Detectors	Charles D. Dowell	Astrophysics, Heliophysics, Space Sciences, related Technology

Title	PI	Discipline
The Deep Space Network/Green Bank Telescope Hydrogen Recombination Line Galactic Plane Survey	Jorge Luis Pineda Galvez	Astrophysics, Heliophysics, Space Sciences, related Technology
Gravitational Wave Astronomy - Opening New Windows	Michele Vallisneri	Astrophysics, Heliophysics, Space Sciences, related Technology
Intensity Mapping of Cosmic Structures	Tzu-Ching Chang	Astrophysics, Heliophysics, Space Sciences, related Technology
Mapping the Baryonic Majority: Comprehensive Multi-Mission Analysis of the Circumgalactic Medium (CGM) and the Intergalactic Medium (IGM)	James G. Bartlett	Astrophysics, Heliophysics, Space Sciences, related Technology
Searching for Neutron Stars in the Dense Stellar Cluster at the Center of the Galaxy	Walid A. Majid	Astrophysics, Heliophysics, Space Sciences, related Technology
ASTHROS+: A 4-pixel ultra-broadband 1.4-2.06 THz receiver channel for the ASTHROS stratospheric balloon telescope	Jose Vicente Siles Perez	Astrophysics, Heliophysics, Space Sciences, related Technology
Antenna-Coupled TES Bolometer Arrays for CMB Polarimetry	James J. Bock	Astrophysics, Heliophysics, Space Sciences, related Technology
Tracing Water from Interstellar Clouds to Ocean Worlds	Paul F. Goldsmith	Astrophysics, Heliophysics, Space Sciences, related Technology
TKIDs for CMB Polarimetry and Submillimeter Astrophysics	Roger C. O'Brient	Astrophysics, Heliophysics, Space Sciences, related Technology
The Uber Catalogue of Debris Disk Architectures—from Debris Disks to Exoplanetary Systems	Farisa Y. Morales	Astrophysics, Heliophysics, Space Sciences, related Technology
Spectropolarimetric Modeling of Brown Dwarfs (BDs) and Extrasolar Giant Planets (EGPs)	Suniti V. Sanghavi	Astrophysics, Heliophysics, Space Sciences, related Technology
Physics of Magnetars: Highest Magnetic Field Objects in the Universe	Walid A. Majid	Astrophysics, Heliophysics, Space Sciences, related Technology
A Search For Flickering To Probe Accretion Activity And Binarity In Dying Stars Using Tess Data	Raghvendra Sahai	Astrophysics, Heliophysics, Space Sciences, related Technology

Title	PI	Discipline
Probing the Origin(s) of Fast Radio Bursts and the Physics of Their Emission Mechanism	Thomas A. Prince	Astrophysics, Heliophysics, Space Sciences, related Technology
Low-cost Paul trap to test reflective granular media to enable future astrophysics	Scott A. Basinger	Astrophysics, Heliophysics, Space Sciences, related Technology
NEAR-IR VLBI FOR HIGH ANGULAR RESOLUTION ASTRONOMY	Hien T. Nguyen	Astrophysics, Heliophysics, Space Sciences, related Technology
ESI Postdoc Proposal	Karl R. Stapelfeldt	Astrophysics, Heliophysics, Space Sciences, related Technology
The Occurrence Rates of Close-In Exoplanets as a Function of Stellar Age	Eric E. Mamajek	Astrophysics, Heliophysics, Space Sciences, related Technology
Prebiotic and Microbial Bioindicators for Exoplanet Discovery	Tiffany Kataria	Astrophysics, Heliophysics, Space Sciences, related Technology
Advanced Simulation and Modeling for Starshade-based Exoplanet Imaging Missions	Rhonda M. Morgan	Astrophysics, Heliophysics, Space Sciences, related Technology
A Bayesian Framework to Improve Exoplanet Detection with the Radial Velocity Technique	Graca M. Rocha	Astrophysics, Heliophysics, Space Sciences, related Technology
Vortex Fiber Nulling for Targeted Exoplanet Characterization within the Diffraction Limit	Dimitri P. Mawet	Astrophysics, Heliophysics, Space Sciences, related Technology
Laboratory Spectral Simulations of Habitable Exoplanet Atmospheres	Murthy S. Gudipati	Astrophysics, Heliophysics, Space Sciences, related Technology
The Role of Haze in Exoplanet Transit Spectra	Robert A. West	Astrophysics, Heliophysics, Space Sciences, related Technology
A Self Referenced Electro Optic Modulation Frequency Comb for Extreme Precision Radial Velocity Detection	Charles A. Beichman	Astrophysics, Heliophysics, Space Sciences, related Technology
Multi-mission, Multi-instrument Data Analysis Software for Exoplanet Exploration	Mark R. Swain	Astrophysics, Heliophysics, Space Sciences, related Technology
PARVI: The Palomar Habitable Zone Planet Finder	Gautam Vasisht	Astrophysics, Heliophysics, Space Sciences, related Technology

Title	PI	Discipline
Interdisciplinary Data Environment for Exoplanet Research	Jeffrey B. Jewell	Astrophysics, Heliophysics, Space Sciences, related Technology
Mid-IR Frequency Comb Generation for Very High Angular Resolution Astronomy	Gautam Vasisht	Astrophysics, Heliophysics, Space Sciences, related Technology
Exoplanet Image Postprocessing	Graca M. Rocha	Astrophysics, Heliophysics, Space Sciences, related Technology
Searching for new super-Earth exoplanets with ASTERIA	Vanessa Bailey	Astrophysics, Heliophysics, Space Sciences, related Technology
Solar Atmospheric Dynamics from Doppler and Magnetic Imaging	Neil Murphy	Astrophysics, Heliophysics, Space Sciences, related Technology
Extremely Compact Plume Detector and Tracking Sensor	Adrian J. Tang	Astrophysics, Heliophysics, Space Sciences, related Technology
Radial Velocity Technology Fusion: Combining Compact Adaptive Optics and Externally Dispersed Spectrographs	James K. Wallace	Astrophysics, Heliophysics, Space Sciences, related Technology
Array Scalable Zero-Bias Far-IR Detector with High Sensitivity an Dynamic Range	Boris S. Karasik	Astrophysics, Heliophysics, Space Sciences, related Technology
Validation of a Multi-Squint Vector Deformation Measurement Concept	Scott Hensley	Astrophysics, Heliophysics, Space Sciences, related Technology
Simultaneous X- and Ka-band Receiver for Astrometry and Navigation	Lorene A. Samoska	Astrophysics, Heliophysics, Space Sciences, related Technology
Curved UV Spectrometer Gratings	Richard J. Terrile	Astrophysics, Heliophysics, Space Sciences, related Technology
Integration of Superconducting Detectors and CMOS Optical Modulators for Scalable Cryogenic Readout	Emma Wollman	Astrophysics, Heliophysics, Space Sciences, related Technology
Preliminary Measurements of Astrophysical Targets with Small Space Based Radio Interferometers	Andrew Romero-Wolf	Astrophysics, Heliophysics, Space Sciences, related Technology
Low Density Invar	Scott N. Roberts	Astrophysics, Heliophysics, Space Sciences, related Technology

Title	PI	Discipline
From Astrospheres to the Circum-Galactic Medium: Studying Faint, Extended Structures in the UV using a Novel Spectroscopic Instrument	Raghvendra Sahai	Astrophysics, Heliophysics, Space Sciences, related Technology
Microarcsecond Astrometry Telescope (MAT) Instrument on the Lunar Orbital Platform-Gateway (LOP-G)	Inseob Hahn	Astrophysics, Heliophysics, Space Sciences, related Technology
Large Array of Single Photon Detecting Quantum Capacitance Detectors (QCDs) with Low Frequency Readout	Pierre M. Echternach	Astrophysics, Heliophysics, Space Sciences, related Technology
Technology for future Far-IR Missions: Demonstration of Large-Format Wideband Millimeter-Wave Spectroscopy with SuperSpec	Charles M. Bradford	Astrophysics, Heliophysics, Space Sciences, related Technology
A Compact Quad-Band THz Local Oscillator to Enable the Galactic Ecosystems Mapping Small Sat Concept	Jose Vicente Siles Perez	Astrophysics, Heliophysics, Space Sciences, related Technology
Quanta Image Sensor: A Potential Paradigm shift for Photon Counting Detectors in Space	Shouleh Nikzad	Astrophysics, Heliophysics, Space Sciences, related Technology
Radiometric Autonomous Navigation Fused with Optical for Deep Space Exploration	Todd A. Ely	Data Science, Autonomy, and Computing
Time Out – Recovering Time & State for Autonomous Navigation Systems in Deep Space	Joseph E. Riedel	Data Science, Autonomy, and Computing
Autonomous Operations for An Ocean Worlds Submersible	Andrew Branch	Data Science, Autonomy, and Computing
Autonomous Approach of Small Bodies	Issa A. Nesnas	Data Science, Autonomy, and Computing
Validation of Flight and Ground Autonomous Scheduling	Steve A. Chien	Data Science, Autonomy, and Computing
MAARS: Machine Learning-Based Analytics for Autonomous Rover Systems	Masahiro Ono	Data Science, Autonomy, and Computing
System Level Autonomy to Enable Autonomous Mapping Missions of Small Solar System Bodies	Rashied Amini	Data Science, Autonomy, and Computing
On-Board Autonomous Health Assessment	Ryan M. Mackey	Data Science, Autonomy, and Computing
Trusted Data Analytics: Uncertainty Quantification	Michael J. Turmon	Data Science, Autonomy, and Computing

Title	PI	Discipline
Enhancing JPLs Mission Science Planning & Data Discovery Capabilities with Machine Learning	Kiri L. Wagstaff	Data Science, Autonomy, and Computing
A Modeling Language for Next Generation Flight Software	Klaus Havelund	Data Science, Autonomy, and Computing
MOSAIC: Mars On-Site Shared Analysis, Information, and Computing	Joshua Vander Hook	Data Science, Autonomy, and Computing
Improving Shape Modeling Algorithm for Asteroids and comets - A Step Toward Automatization	Marina Brozovic	Data Science, Autonomy, and Computing
Automating DSN Scheduling Problems Using Quantum Computing and Deep Reinforcement Learning	Brian D. Wilson	Data Science, Autonomy, and Computing
Assurance of Model-Based Fault Diagnosis Techniques	Seung H. Chung	Data Science, Autonomy, and Computing
Responsive Onboard Science for the Europa Clipper Mission	Kiri L. Wagstaff	Data Science, Autonomy, and Computing
Small Body Shape Estimation via Extended Target Tracking	Shyamkumar Bhaskaran	Data Science, Autonomy, and Computing
A Formal Model for Assurance Case Development and Efficient Testing	Benjamin D. Smith	Data Science, Autonomy, and Computing
Curation and Annotation of Analogue Images for Icy World Surface Autonomy	Masahiro Ono	Data Science, Autonomy, and Computing
Unified Processing for Robotic Icy Terrain Exploration (UPRITE)	Brett A. Kennedy	Data Science, Autonomy, and Computing
Improved terrain classifier for Mars rovers, using a virtual IR sensor	Yumi Iwashita	Data Science, Autonomy, and Computing
Applying machine learning to mapping of small-scale ocean features using both SAR and sea surface temperature data	Benjamin M. Holt	Earth Science and related Technology
Extreme Weather Initiative	Derek J. Posselt	Earth Science and related Technology
Coupled Atmosphere-Surface Retrievals for Visible/Shortwave Infrared Imaging Spectroscopy	Vijay Natraj	Earth Science and related Technology
A Scalable, Flexible Instrument Simulation (OSSE) Toolkit for Mission Design	Brian D. Wilson	Earth Science and related Technology
Three-Dimensional Radiance Simulations for Trace Gas Spectroscopy from Space	David Crisp	Earth Science and related Technology
A 1U Monolithic Millimeter-wave Integrated Circuit (MMIC) Low Noise Spectrometer for Carbon Monoxide All-Sky Survey with a CubeSat	Lorene A. Samoska	Earth Science and related Technology

Title	PI	Discipline
Observational System for Constraining Clouds and Precipitation in Atmospheric Models	Kay Suselj	Earth Science and related Technology
Development and Validation of New Unified Parameterizations for Cloud and Boundary Layer Dynamics	Joao P. Teixeira	Earth Science and related Technology
High Resolution Atmospheric Carbon Cycle Data Assimilation	Kevin W. Bowman	Earth Science and related Technology
PanFTS - DFPA Electrical/Data Interface, Real-Time Processing, and Validation at CLARS	Stanley P. Sander	Earth Science and related Technology
Strategic Advances in Air Quality Research and Technology Development	Jonathan H. Jiang	Earth Science and related Technology
The Planetary Boundary Layer: A Decadal Survey Incubation Challenge	Joao P. Teixeira	Earth Science and related Technology
Maturing HiMAP (High-Resolution Imaging Multiple-species Atmospheric Profiler) System to TRL 6	Dejian Fu	Earth Science and related Technology
Reconstruction of the Vertical Structure of Clouds and Precipitation with Generative Adversarial Networks	Jussi S. Leinonen	Earth Science and related Technology
Innovation in Reducing Error in the Estimation of Ionospheric Total Electron Content	Lawrence C. Sparks	Earth Science and related Technology
Second (S)uper (F)luorescence (A)ir (SH)ower experiment, sFLASH2, at SLAC National Accelerator Laboratory.	Konstantin V. Belov	Earth Science and related Technology
Linking Chlorophyll Fluorescence from the Leaf to the Satellite	Christian Frankenberg	Earth Science and related Technology
Developing Multi-Instrument Approaches to Observing Terrestrial Ecosystems and the Carbon Cycle	David S. Schimel	Earth Science and related Technology
Flow of Water, Carbon, and Sediment within the Land-Sea Continuum	Marc Simard	Earth Science and related Technology
Design of the JPL land model data assimilation approach, VVUQ and interface requirements with the Caltech CliMA Earth System framework	Alexis A. Bloom	Earth Science and related Technology
Spatio-Temporal Super-Resolution for Geostationary Microwave Observing System Simulation Experiments (OSSE)	Igor Yanovsky	Earth Science and related Technology

Title	PI	Discipline
Rotating Beam Antenna Enabling Next Generation of Doppler Scatterometers	Paula R. Brown	Earth Science and related Technology
Traveling-wave parametric amplifiers for microwave and millimeter-wave radiometers	Peter K. Day	Earth Science and related Technology
Automated Mapping and Planning to Improve Assessment of Coral Reef Health	Michelle M. Gierach	Earth Science and related Technology
Under Ice-Shelf Ocean Exploration	Rebecca Castano	Earth Science and related Technology
Improving the Infrastructure for Regional Sea Level Studies and Related Mission Formulations by Including Time-Varying Cryospheric and Hydrological Forcings and Their Uncertainties	Tong Lee	Earth Science and related Technology
Improving Our Understanding of Ocean Acidification and the Effects of Novel Carbon Sequestration Mechanisms in the Ocean using ECCO-Darwin and New Rules for Carbonate Dissolution	Dimitris Menemenlis	Earth Science and related Technology
Drought tipping points: can satellite remote sensing provide improved early warning signals for food and water security?	Joshua B. Fisher	Earth Science and related Technology
Solid Earth & Natural Hazards (SE/NH): Linking Solid Earth and Climate	Surendra Adhikari	Earth Science and related Technology
Developing a solid Earth- Hydrosphere Modeling Infrastructure for Science and Mission Formulation	Paul R. Lundgren	Earth Science and related Technology
Resolving Historical Changes in Greenland Ice Discharge and Linking to Coincident Changes in Frontal Ablation and Surface Melt	Alex S. Gardner	Earth Science and related Technology
Earth's Interior Stress Field Perturbed by the Chandler Wobble	Surendra Adhikari	Earth Science and related Technology
Relating a Southern California Moving Mudpot to Tectonic Processes	Andrea C. Donnellan	Earth Science and related Technology
Constraining model estimates of Antarctic surface mass balance, using satellite gravimetry and altimetry	Nicole-Jeanne Schlegel	Earth Science and related Technology
COSMIC - Capturing Onboard Summarization to Monitor Image Change	Lukas Mandrake	Earth Science and related Technology
Silicon Micro-Machined 2 THz Mixer for 3-D Winds	Imran Mehdi	Earth Science and related Technology
Multi-Functional and Scalable Ka-band Active/Passive Digital Array Receiver	Sidharth Misra	Earth Science and related Technology

Title	PI	Discipline
Nanometer Motion Control for Space Optical Instruments	Yen-Hung Wu	Earth Science and related Technology
Science Case for Networked Constellations	Julie C. Castillo	Planetary Science, Life detection, and related Technology
Pattern to Process: Flood Basalt Emplacement Parameters and their Cross-Sectional Morphologies	Laura A. Kerber	Planetary Science, Life detection, and related Technology
Investigation of the Jovian Radiation Belts Using JADE's Background Noise	Insoo Jun	Planetary Science, Life detection, and related Technology
D/H in Comets: A VVUQ Approach for JPL Mission Concepts	Robert A. West	Planetary Science, Life detection, and related Technology
Infrasound as a Geophysical Probe Using Earth as a Venus Analog	Attila Komjathy	Planetary Science, Life detection, and related Technology
Planetary Interior Structure and Dynamics: New Directions for Research at JPL	Mark P. Panning	Planetary Science, Life detection, and related Technology
Hypervelocity Sampling Across the Solar System: Retiring Risks for Enceladus, Titan, Europa and Venus	Morgan L. Cable	Planetary Science, Life detection, and related Technology
Ocean Worlds	Kevin P. Hand	Planetary Science, Life detection, and related Technology
Enceladus Distributed Seismic Network	Steven D. Vance	Planetary Science, Life detection, and related Technology
Integrated Multi-Scale Spatial and Spectral Observations of Mars Relevant Material in Support of Future Mars Missions	Abigail A. Fraeman	Planetary Science, Life detection, and related Technology
Support for NEOWISE Reactivation Science	Amanda K. Mainzer	Planetary Science, Life detection, and related Technology
Studying Venus to Understand Astrobiology of Terrestrial Planets	Laura M. Barge	Planetary Science, Life detection, and related Technology
Broadband Dielectric Characterization of Water Inclusions in Evaporites at Martian Conditions	Daniel C. Nunes	Planetary Science, Life detection, and related Technology
Advanced Digital Elevation Modeling Capability Applied to Voyager Images	Tom Andre Nordheim	Planetary Science, Life detection, and related Technology
Role of Water Rich Surface Ice Features in Cometary Activity in 67P	Thangasamy Velusamy	Planetary Science, Life detection, and related Technology
Balloon-Borne Gravity Survey of Venus	Bruce G. Bills	Planetary Science, Life detection, and related Technology
Can Nitrates on Mars Drive Subsurface Organic Chemistry?	Laura M. Barge	Planetary Science, Life detection, and related Technology
Developing an OSSE for Mars: The Case for Wind and Water Vapor Profile Sounding	Leslie K. Tamppari	Planetary Science, Life detection, and related Technology

Title	PI	Discipline
Using Isotope Mass Spectrometry to Study Titans Hydrocarbon Cycle	Amy E. Hofmann	Planetary Science, Life detection, and related Technology
Laboratory Studies of the Heterogeneous Uptake of Methane in the Martian Atmosphere	Stanley P. Sander	Planetary Science, Life detection, and related Technology
Can a Multi-Wavelength Data Set Lead to a Consistent Model of Giant Planet Clouds and Dynamics?	Mark D. Hofstadter	Planetary Science, Life detection, and related Technology
Constraining Preservation, Chemistry and Metabolisms During Climate Extremes at the Dawn of Complex Life	Kenneth H. Williford	Planetary Science, Life detection, and related Technology
Planetary Habitability Test Beds	Laura M. Barge	Planetary Science, Life detection, and related Technology
Developing an Electrochemistry-Based Geochemical Framework for Organic Systems	Keith B. Chin	Planetary Science, Life detection, and related Technology
Isolation and Concentration of Biogenic Samples via Flow Cytometry for Icy Moons	Wayne W. Schubert	Planetary Science, Life detection, and related Technology
Europa's Habitability from Surface Mineralogy: What a Lander "Vibrational Spectrometer" May Find	Mathieu N. Choukroun	Planetary Science, Life detection, and related Technology
Astrobiogeochemistry, Habitability, and Returned Sample Science	Kenneth H. Williford	Planetary Science, Life detection, and related Technology
A Filter Based Planetary Doppler Imager	Neil Murphy	Planetary Science, Life detection, and related Technology
Development of Science Analysis Tools and Software for Orbital and In Situ Spectroscopic Data	Luther W. Beegle	Planetary Science, Life detection, and related Technology
Mars Subsurface Exploration Task I: Sounding for Groundwater (TH2OR: Transmissive H2O Reconnaissance)	Vlada Stamenkovic	Planetary Science, Life detection, and related Technology
Development of an Automated Long-Lived Gas Sampling System	Spencer Backus	Planetary Science, Life detection, and related Technology
Surface Acoustic Wave (SAW) Tunable Diffraction Grating for Hyperspectral Imagers	Mina Rais-Zadeh	Planetary Science, Life detection, and related Technology
Hardware Prototype for Passive Sounding of the Moon and Solar System Objects	Andrew Romero-Wolf	Planetary Science, Life detection, and related Technology
Enabling III-V Single Crystalline Growth on Amorphous Substrates for Back-End Integration of Photodetectors on CMOS	Harold F. Greer	Planetary Science, Life detection, and related Technology

Title	PI	Discipline
A Pyroelectric Instrument for Elemental Lithochemistry	Christopher M. Heirwegh	Planetary Science, Life detection, and related Technology
Next Generation Infrared Spectrometers for Solar System Exploration	Jordana Blacksberg	Planetary Science, Life detection, and related Technology
Light-Driven Electrochemical Production of Oxygen and Fuel from CO2 and Sunlight for Mars ISRU	John-Paul Jones	Planetary Science, Life detection, and related Technology
Integrated Calibration Switches for Compact Planetary Instruments	Cecile Jung-Kubiak	Planetary Science, Life detection, and related Technology
Dual-tone local oscillator (LO) investigation on quantum limited SIS receivers for the simultaneous observation of isotopic D:H in in solar system water.	Jacob W. Kooi	Planetary Science, Life detection, and related Technology
Integrated Photonics Fourier Transform Infrared spectrometer on chip	Alexander Soibel	Planetary Science, Life detection, and related Technology
Heat Pipe with Separable and Reconnectable Evaporator(s) and Condenser	Weibo Chen	Planetary Science, Life detection, and related Technology
Very Long, Variable Frequency, Dipole Antenna for Ground Penetrating Radar Science with Tethered Rovers	Jack D. Bush	Planetary Science, Life detection, and related Technology
Compact Low-frequency, Wide-bandwidth Antennas for Ice-sheet Ground Penetrating Radar	Mark S. Haynes	Planetary Science, Life detection, and related Technology
Optical Navigation with Deep-Space Optical Communication Terminals	Michael Y. Peng	Communication and Radar
Daytime Adaptive Optics for Optical Communication to Deep Space Assets	Lewis C. Roberts	Communication and Radar
Iris Transponder for Radio Science	David H. Atkinson	Communication and Radar
Ka-band GaN-based Solid-State Power Amplifier for Deep-Space Telecommunications	Masatoshi M. Kobayashi	Communication and Radar
Networked Constellation Communications Technologies	Jay L. Gao	Communication and Radar
Next Breakthroughs in Radio Metric Tracking	James S. Border	Communication and Radar
A five-fold refinement in the spatial resolution of atmospheric radar using overlapped scanning?	Ziad S. Haddad	Communication and Radar
Cold Capable Low Noise Amplifier for Deep Space Radar and Communication Application	Mohammad Ashtijou	Communication and Radar

Title	PI	Discipline
Surface pressure sensing radar using V-band (65-70 GHz)	Rohit S. Gawande	Communication and Radar
One-meter X/Ka-band Deployable antenna for Small Satellites	Nacer E. Chahat	Communication and Radar
Enabling Higher Data Rates with a New Generation of Higher Frequency Antennas	Samuel C. Bradford	Communication and Radar
Demonstration of Advanced Ranging Techniques	Meegyeong Paik	Communication and Radar
Implementation of Solid State Amplifier Module for One Megawatt Solid State Solar System Radar	Juan J. Ocampo	Communication and Radar
Compact Radar for Measurements of Clouds, Convection and Precipitation	Raquel Rodriguez Monje	Communication and Radar
Synergistic Use of Telecommunications Systems to Conduct Bistatic Radar	David J. Bell	Communication and Radar
Microwave Refractive Index Structure Constants Derived from Site Test Interferometer Data	David Morabito	Communication and Radar
Advanced Modeling of Fluid-Structure Interaction for Softgoods in Supersonic Flow (Advancement of Softgoods Modeling in Fluid Flows)	Lee D. Peterson	Spacecraft Systems
Qualified Electronics for Low Temperature Environment	Jean Yang-Scharlotta	Spacecraft Systems
Student-Sourcing Innovation – MATGL Mission Concept	Bogdan Oaida	Spacecraft Systems
Concurrent Engineering & Lifecycle Product Development: Research Opportunities for the next Generation of Space Systems Engineers	David C. Sternberg	Spacecraft Systems
Rapidly Reconfigurable Design, Analysis and Verification Capability for Next Generation Descent Sensors	Karthik Srinivasan	Spacecraft Systems
Combining Power and Data using Powerline Communication for Harness Simplification and Mass Reduction	Aubre Nutting-Walker	Spacecraft Systems
Visualization of Flight Software Components and Connections	Robert L. Bocchino	Spacecraft Systems
Adapting the Rad-Hard CubeSat Avionics Technology Sphinx for Interplanetary Missions	Yutao He	Spacecraft Systems

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Near-Earth-Object Orbit Determination using High Precision Astrometry and Parallax	Chengxing Zhai	Spacecraft Systems
An investigation into Inter-Satellite Ranging Techniques and Applications for Nanosatellite Platforms	Eric D. Gustafson	Spacecraft Systems
AutoNAV Across the Solar System	Shyamkumar Bhaskaran	Spacecraft Systems
Pulsar Based Navigation for Deep Space, Planetary and Interstellar Missions	David S. Bayard	Spacecraft Systems
Low Energy Capture into High Inclination Orbits for Ocean Worlds Missions	Martin W. Lo	Spacecraft Systems
Efficient Computation of Optimal Low Thrust Gravity Perturbed Orbit Transfers	Robyn M. Woollands	Spacecraft Systems
Low Thrust Trajectory Design Techniques for Enceladus Orbiter/Lander	Damon F. Landau	Spacecraft Systems
Parallel Propagation Techniques that Leverage Modern Computing for Improved Spacecraft Navigation	Robyn M. Woollands	Spacecraft Systems
Developing an Alternative to the Problematic Trajectory B-Plane	Nicholas Bradley	Spacecraft Systems
Analysis and Design of Abort Options for Low Energy Landing Trajectories	Tatiana Mar Vaquero Escribano	Spacecraft Systems
Trajectory Optimization with Uncertainties using Stochastic Optimal Control	Stefano Campagnola	Spacecraft Systems
GaN-Based Power Bus Converter with Autonomous Adaptive Control for Deep Space Small Spacecraft Power Subsystems	Ansel Barchowsky	Spacecraft Systems
Atomic Layer Deposition Coatings for Solid-State Lithium Metal Batteries	John-Paul Jones	Spacecraft Systems
An Additively Manufactured Lithium-Ion Battery Case that Prevents Thermal Runaway	Benjamin I. Furst	Spacecraft Systems
High-efficiency Lightweight Solar Array for Deep Space Missions	Andreea Boca	Spacecraft Systems
Nanostructured High Energy/Power Electrodes for Swarm Spacecraft Energy Storage	Erik J. Brandon	Spacecraft Systems
Power Generation from Hydrothermal Vent Energy for Robotic and In Situ Sensing Operations	Terry Hendricks	Spacecraft Systems
Improved Regenerative Fuel Cell Stack Design For Lunar Energy Storage	Keith J. Billings	Spacecraft Systems

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FloraMorph: A Non-Planar Origami-Folded Solar Array	Manan Arya	Spacecraft Systems
Towards the Development of a First Principles Multiphysics Lithium-ion Battery Operational Model to Assist JPL Mission Power Assessment Tools	Abhijit V. Shevade	Spacecraft Systems
Lithium Plasma Sources for High Specific Impulse Ion Thrusters	James E. Polk	Spacecraft Systems
Investigation of Hybrid Rocket Laser Ignition	Ronald T. Reeve	Spacecraft Systems
Analysis of Hybrid Rocket Combustion Efficiency based on Laser Spectroscopy	Ashley C. Karp	Spacecraft Systems
Alternative-Propellant Electric Thruster Cathodes	Dan M. Goebel	Spacecraft Systems
Ultra-High Specific Impulse Lithium-Fueled Ion Thruster for Interstellar Precursor Missions	John R. Brophy	Spacecraft Systems
Low-Power Electric Propulsion System Enabling High-ΔV Smallsats	Ryan W. Conversano	Spacecraft Systems
Measurement of Erosion Product Densities in Lanthanum Hexaboride (LaB6) Cathodes to Validate Life Models	James E. Polk	Spacecraft Systems
Technologies for International Science Space Station (TISSS)	Rudranarayan M. Mukherjee	Spacecraft Systems
Autonomous In-Space Assembly with Arm-Augmented CubeSats	Renaud J. Detry	Spacecraft Systems
Pulsed Plasma Discharge Drilling: Enabling Efficient Deep Subsurface Access to Mars' Polar Layered Deposits	Gareth Meirion-Griffith	Spacecraft Systems
Advanced Navigation for Future Mars Rotorcraft	Roland Brockers	Spacecraft Systems
Mars Science Helicopter System	Theodore Tzanetos	Spacecraft Systems
Distributed event-driven task determination and allocation in robot teams	Michael Wolf	Spacecraft Systems
Dynamic Modeling of Articulated Space Robotic Spacecraft Using Dual Quaternions	David S. Bayard	Spacecraft Systems
An Ultra-Light Weight Perching System for Sloped or Vertical Rough Surfaces on Mars	Arash Kalantari	Spacecraft Systems
Assessment of Terrain Trafficability using the M2020 Abrading Bit	Gareth Meirion-Griffith	Spacecraft Systems

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3D Printed Actuators with Innovative Integrated Thermal Management	Elham Maghsoudi	Spacecraft Systems
The Barefoot Rover: Smarts for Innervated Robotic Wheels	Lukas Mandrake	Spacecraft Systems
Enceladus Surface Sample Acquisition for In Situ Measurements	Paul G. Backes	Spacecraft Systems
Exploring and Sampling Recurring Slope Lineae (RSL) and Other Extreme Terrains	Issa A. Nesnas	Spacecraft Systems
Distributed System of Mobile Passive Tensegrity Structures	Kelly Y. Wang	Spacecraft Systems
Stilts for mobility on Ocean Worlds	Fernando Mier-Hicks	Spacecraft Systems
Specialized Ultraviolet Coatings for Smallsat/Cubesat Optics	John J. Hennessy	Spacecraft Systems
Michigan's Miniature Tether Electrodynamics Experiment II CubeSat Mission	Vritika Singh	Spacecraft Systems
Backend development and testing of ASU Smallsat Ground Station	Andrew T. Klesh	Spacecraft Systems
Dust-Off! Advancing the Distributed Universal Satellite Technologies (DUST) Concept to Flight	James A. Smith	Spacecraft Systems
SWARMS	Adarsh Rajguru	Spacecraft Systems
3D Tomography of Convective Environments with a Locally Dense Constellation of CubeSats	Chi O. Ao	Spacecraft Systems
Small Satellite Aerocapture for Increased Mass Delivered to Venus and Beyond	Adam P. Nelessen	Spacecraft Systems
Two-Phase Thermal Control Technology for Small Spacecraft Exploration	Eric T. Sunada	Spacecraft Systems
Small Spacecraft Avionics Subsystem for Planetary Science Missions	William D. Whitaker	Spacecraft Systems
Submillimeter-Wave Spectrometer for Small Satellites	Goutam Chattopadhyay	Spacecraft Systems
Feasibility of Detecting Venus Seismically-Induced Atmospheric Waves Via Cubesat Occultations	Attila Komjathy	Spacecraft Systems
Inherent Instabilities in Swarm Formations and How to Avoid Them	Saptarshi Bandyopadhyay	Spacecraft Systems

Title	PI	Discipline
Experimental Validation of Swarm Array Results using Mars Cube One (MarCO) A,B Downlink Signals	Bruno M. Quadrelli	Spacecraft Systems
Multidisciplinary Topological Optimization of a mechanical mount for thermoelastic stability	Adam V. Duran	Spacecraft Systems
Testing the efficacy of FAR-UVC light in inactivating bacterial spores, and hardy vegetative cells	Arman Seuylemezian	Spacecraft Systems
Multi-functional Oscillating Heat Pipe System for High-Density Heat Management	Takuro Daimaru	Spacecraft Systems
Application of Balloon Support Platform for Use in Descent and Landing Testing	John McCann	Spacecraft Systems
Barrier Infrared Detector Digital Focal Plane Arrays	David Z. Ting	Crosscutting Technology
Miniature Advanced Pointing Imaging Instrument (mAPII) (Mini-Advanced Pointing Imaging Camera (mAPIC) and GPU Algorithms for Onboard Processing)	Sang H. Park	Crosscutting Technology
Superlattice-doped, 3D-stacked Hybrid CMOS Detectors	Michael E. Hoenk	Crosscutting Technology
TRL Advancement and Qualification for UV and UV/Optical Photon Counting & Scientific Silicon Detector Arrays	Shouleh Nikzad	Crosscutting Technology
The Grass is Always Blacker: Integration of Black GaSb with HOTBIRD FPAs	Brian J. Pepper	Crosscutting Technology
Real-Time Reconfigurable Full-Frame/Hyperspectral Imager	Daniel W. Wilson	Crosscutting Technology
Thermal Technology Development for the ARTEMIS Initiative	David C. Bugby	Crosscutting Technology
Additive Design and Development of 3D Printed Magnetically Shielded Hall Thrusters	Robert P. Dillon	Crosscutting Technology
Design and Manufacturing of Lightweight Excavating and Trenching Tools for Future Landers using Additive Manufacturing, Topology Optimization and Gradient Alloys.	Douglas C. Hofmann	Crosscutting Technology
Additive Design and Manufacturing of SmallSat Structures	Bryan W. McEnerney	Crosscutting Technology
Let’s Keep it Clean- Assessing the Efficacy of a Novel Antimicrobial Coating after Recurrent Contamination of the Spacecraft Metal Surfaces	Parag A. Vaishampayan	Crosscutting Technology

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3D Printed Rocks for High-Fidelity Hydrothermal Vent Simulations	Samad A. Firdosy	Crosscutting Technology
Micro/Nanofabrication of Bulk Metallic Glass via Thermoplastic Forming	Kalind C. Carpenter	Crosscutting Technology
Development of Metamaterial Elements with Polarization Sensitivity	Lloyd Doug Bell	Crosscutting Technology
ThermoElectric Additive Manufacturing Using Reactive Sintering Algorithm (TEAM URSA)	Dean A. Cheikh	Crosscutting Technology
Photometric Performance Validation for the ASTERIA Space Telescope	Matthew W. Smith	Crosscutting Technology
Semi-Permanent Fiber Seismic Network at the Goldstone DSN Station	Andrew T. Klesh	Crosscutting Technology
Development of Lithium-Niobate-on-Insulator Waveguides for Nonlinear Integrated Photonics	Ryan M. Briggs	Crosscutting Technology
Periodic Poling of Thin-Film Lithium Niobate Waveguides	Luis M. Ledezma Hernandez	Crosscutting Technology
Atomic Layer Etching for Etching, Smoothing, and Precise Thinning of High Temperature/Large Gap Superconductors	Harold F. Greer	Crosscutting Technology
Trade Study for a 95GHz Ultra Low Noise Photonic Radar Front End	Razi U. Ahmed	Crosscutting Technology