Peer-Reviewed Publications


**Abstracts of Conferences**


Bywaters, K.F., McKay, C.P., and Quinn, R.C, Azospira suillum strain PS grown in Mars analog nutrients, Goldschmidt 2016, submitted


Cuzzi, J. N., Hartle, T., and Estrada, P. R. (2016). Planetesimal initial mass functions and creation rates under turbulent concentration using scale-dependent cascades. 47th LPSC Meeting, The Woodlands, TX, no. 2661.


Johnson, Spry, Race, Conley and Siegel. NASA’s Path to Planetary Protection Requirements for Human Exploration Missions: Update on Recent Progress, IEEE 2016- accepted abstract and paper for IEEE conference, March 5-12, Big Sky, MT.


**Technical Reports**

**Kepler Team:**

Completed review of final Transiting Planet Search (TPS) and Data Validation (DV) runs of Kepler Mission Pipeline (for primary mission Q1-Q17 with SOC 9.3 codebase). Approved export of results to NASA Exoplanet Archive at NExScI.

Continuing to write TCE paper describing Threshold Crossing Events (TCEs) identified in the TPS/DV runs above. Draft of paper is nominally due on 4/1. It is these TCEs that after vetting become the Kepler planet catalog.

Continuing to develop the Photometric Analysis (PA) software component for the TESS Mission Pipeline. This will be released with SPOC 2.0 later this spring/summer. PA performs cosmic ray removal, background estimation/subtraction, photometry, centroiding, mapping between sky/pixels, and computation of photometric performance metrics.
**Intellectual Property (IP)**

As of February 2016, 17 provisional patents have been filed as part of the SETI Institute new push on building a strong IP portfolio.

**Office of Applied Sciences (OAS)**

The OAS has completed its survey of skillsets and expertise that the scientists at the Institute can provide to the Industry. The information was organized in a database of Consulting Expertise and published on February 25, 2016 on businesswire.com at: http://www.businesswire.com/news/home/20160225006708/en/SETI-Institute-Offers-Technical-Consulting-Services

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**Invitation to Speak (Professional and Public Talks)**

Estrada, P. How can we solve the mystery of the plateaus? The role of ballistic transport in Saturn's rings.” Presented at the 68th Cassini PSG Meeting, February 8-12, 2016, JPL, Pasadena, CA.


Gulick, V.C. Fluvial and Hydrothermal Processes Science Theme Updates and Gully analysis studies update. MRO HiRISE Team meeting, Desert Studies Center, Zzyzx, CA, February 15, 2016.


https://scu.edu/ethics/focus-areas/more/resources/martian-morals/

Race, M.S. Death Valley National Park Centennial Celebration. Accepted speaking invitation- April 8-10, 2016

Race, M.S. Astrobiology -- for Career Fair, Acalanes HS, Lafayette CA. March 10, 2016.


Race, M.S. Accepted Panel Presentation and Webcast with JPL Solar System Ambassadors for program on STEM & Libraries, March 16, 2016.

Race, M.S. A Mosaic of Careers: From Marine Biology to Mars University of PA, Graduate Career Seminar, Biology Dept., March 18, 2016.

Race, M.S. Astrobiology and STEM: Searches for ET. Novato Library, April 6, 2016.


Proposals Status

- 15 Proposal submitted to NASA: SSW-2; Exobiology; K2GO4; HW)
- 1 Proposal submitted to NSF: Chemical Synthesis Program.
- 3 Private Funding Sources: BPF (2); Silicon Graphic Computer Cluster (1)
- 1 Proposal Awarded (NASA Cassini Participating Scientists)
- 1 Proposal Declined (NASA MSL Participating Scientists)

Significant Events

Bonaccorsi, R. Celestial Centennial/Mars Fest Symposium in Death Valley Natl. Park. Organizing Committee, and POC/organizer for Mars Fest Symposium.

Bonacors, R. Invitation for an interview at the SETI Institute (International TV documentary) February 29th, 2016.

Fenton, L.K.: Will be chairing a session at LPSC on MSL Curiosity’s passage through the Bagnold Dune Field in Gale Crater on Mars. This has been very exciting for the aeolian community and she expects to learn quite a bit.


Richards, J., finished observations of Wolf 1061c, the closest known potentially habitable exoplanet. No PR tet.

Zalucha, A desires collaboration with SI scientists about the transport of bacteria on Mars with regards to human missions for a possible proposal to the Planetary Protection program. Her part would be atmospheric computational modeling, perhaps using a mesoscale model. Angela’s work tends to focus upon the large scale (global climate) so she is reaching out to SETI PIs for advice for the small scale, but also would welcome input from any experts in astrobiology, which is outside her expertise.
Pending Stories for the Center for Outreach

Bonaccorsi, R. Short Story: [http://www.seti.org/node/2761](http://www.seti.org/node/2761)

**Alfonso Davila - Title: Astrobiology in the Hyperarid Atacama Desert**

In the extremely dry Atacama Desert of northern Chile life can only exists as microbial colonies underground or inside rocks. Scientists hypothesize that the same may be true if life exists on Mars. Researchers at the SETI Institute (Richard Quinn and Alfonso Davila) participated this month in a field deployment as part of the NASA funded Atacama Rover Astrobiology Drilling Studies (ARADS) project, along with more than 20 scientists and engineers from the United States, Chile, Spain, and France. Their work was primarily at Yungay Station, a mining ghost town at one of the driest places in the Atacama that has been a focal point for astrobiology research in the last two decades. During this deployment, scientists and engineers tested several technologies that are being developed to search for evidence of life on Mars within the next decade, including a Mars-prototype drill, a sample transfer arm, the Signs of Life Detector (SOLID) instrument, and a prototype version of the Wet Chemistry Laboratory (WCL) that flew on the Phoenix Mars mission in 2007. Over the next four years, the ARADS project will return to the Atacama to demonstrate the feasibility of integrated roving, drilling and life-detection, with the goal of demonstrating the technical feasibility and scientific value of a mission that searches for evidence of life on Mars.

**Frank Marchis** worked with the California Academy of Sciences on a documentary called “Incoming!” (about Asteroids - premiere on March 9) and a small 10min-documentary for Hohfeld Hall Program about Extrasolar Planet Formation

**Richard Quinn - Title: Expose-R2 Photochemistry on the Space Station**

After 18 months mounted externally on the International Space Station Zvezda module, the European Space Agency Expose-R2 Photochemistry on the Space Station (PSS) experiment was retrieved by cosmonauts during a February extravehicular activity. The PSS experiment investigates the evolution of organic compounds upon exposure to space radiation. Led by investigator Herv Cottin, from the University of Paris-Est Creteil, the PSS experiment involves a team of 30 Co-Investigators from 11 laboratories in the Netherlands, Italy, France and USA, including Richard Quinn of the SETI Institute. The Expose-R2 PSS samples will return to Earth in the Soyuz-44 capsule, which will land near the city of Zhezkazgan in Kazakhstan on Wednesday morning around 05:25 CET. The landing will be carried live on NASA television). Figure 1 shows the Expose-R2 and PSS experiment as imaged during a February 2016 EVA. Video of the PSS taken during the February EVA is also available.
Margaret Race:
Feature article in TechSoup-- about SETI Scientists & STEM programs at libraries: http://techsoupforlibraries.org/spotlight/contra-costcounty-libraries-blast-off-with-space-exploration

Margaret Turnbull: Selection of the WFIRST proposal.

Carl Sagan Center

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