

## **MSA David Cooper Memorial Lecture 2018**

### **“The Past, Present and Future of Mars Exploration”**

Dr Mitchell Schulte, NASA Headquarters, Washington, USA

NASA has been systematically exploring Mars for decades. Through a series of orbiter, lander, and rover missions and funding of data analysis and basic research programs, great strides have been made in understanding a number of scientific aspects of the Red Planet. NASA has followed a series of strategies to understand Mars as a planetary system, and to determine whether Mars may have once been inhabited (and whether it may be today). The strategies having included determining the presence of liquid water at or near the surface and the habitability of Mars in the past and present, and is now actively seeking signs of life in the surface materials present on Mars. During this presentation, information will be presented on the numerous missions flown to Mars, and highlights of the scientific discoveries that have resulted from the approach NASA has taken. We will also discuss missions currently in development (including our numerous collaborations with international partners), and the prospects for these mission to answer a number of outstanding scientific questions remaining about Mars. Of particular interest are the InSight mission, the first geophysics mission, currently en route to Mars, and the Mars 2020 rover, now being built for a July 2020 launch. Finally, NASA has also increased activity related to returning samples from Mars (for which Mars 2020 is the first step), and the architecture for Mars sample return will be presented.

### **Speaker Biography**

Dr Mitchell D. Schulte is a Program Scientist with the Mars Exploration Program at NASA Headquarters in Washington D.C. He is a geochemist currently working on the Mars 2020 and the US contribution to the European Space Agency's ExoMars 2020. Schulte focuses on the formation of organic compounds in hydrothermal environments and the microorganisms that inhabit them, as well as the implication of water-rock reactions for the emergence of life on early Earth and other planetary bodies. He is a member of the editorial board for the journal *Astrobiology* and a board member of UNSW Science's Big Questions Institute.