



# NASA's Robotic Solar System Exploration

By Dr Jakob van Zyl

For nearly 60 years, NASA has been exploring space and the furthest probes have actually ventured beyond the confines of our Solar System. Space telescopes peer deep into the Universe and have discovered thousands of planetary systems, with numerous planets like the earth orbiting other stars. In this talk we will examine the wonders of our own solar system as revealed by NASA missions. We will discuss the results from recent Mars missions and what we have learnt so far about the Red Planet. We will also look forward in time and discuss the goals of the Insight and Mars2020 missions to Mars. Finally, we will look at the evidence of the presence of water elsewhere in our Solar System and discuss how this knowledge has fundamentally changed our views of where conditions suitable for life as we know it may exist.

## About the Speaker

Jakob van Zyl was born in Outjo, Namibia, in 1957. He received the Hons. B.Eng. degree (*cum laude*) in Electronics Engineering from the University of Stellenbosch, Stellenbosch, South Africa, in 1979, and the M.S. and Ph.D. degrees in Electrical Engineering from the California Institute of Technology (Caltech), Pasadena, in 1983 and 1986, respectively. He received an Honorary Ph.D. from the University of Stellenbosch in South Africa in 2015 for his contributions to space missions, for being a good ambassador for Africa, and for inspiring young scientists and engineers in his home continent.



Dr Van Zyl joined NASA's Jet Propulsion Laboratory (JPL) in 1986, where he started as a research scientist developing models to infer soil moisture from spaceborne radar images. By 2006 he became the JPL's Director for Astronomy and Physics, and his portfolio expanded to include Astronomy, Physics and Space Technology. Astrophysics missions that were started or launched under his leadership include the Galaxy Evolution Explorer, the Spitzer Space Telescope, Kepler, the Wide-Field Infrared Survey Explorer, NASA's contributions to ESA's Herschel and Planck missions and Nuclear Spectroscopic Telescope Array.

In 2011, Dr Van Zyl became the Associate Director of JPL responsible for Project Formulation and Strategy. He was instrumental in the development of innovative technologies during this time, including the first deep space small satellites to launch to Mars (May 2018) and the demonstration of a small helicopter for increased mobility on Mars (2020). Since August 2016, he is the Director for Solar System Exploration at JPL, where he is responsible for a portfolio exceeding \$750 million per year that includes missions to Mars, asteroids Psyche, Vesta and Ceres, Jupiter, Europa, and the Saturnian system.



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**Time:** 18:00

**Venue:** Auditorium 1, off Brahm's Street

## Enquiries

Ms Megan Bezuidenhout

Secretary

Department: Communications and Marketing

T: +264 61 207 2225

E: mbezuidenhout@nust.na