

Monday, July 27, 2015
San Diego Section Life Member Meeting/Luncheon

‘Exploring on the Surface of Mars‘

Keynote Speaker: Dr. Robert Bonitz

You won't want to miss this exciting presentation on **Monday, July 27th at 11:30AM**

Presentation:

From the Viking landers of the 1970s to the recent Curiosity rover, robotic spacecraft have been exploring on the surface of Mars for almost four decades. The various lander and rover robotic arms were a significant enabler in performing close up scientific examination of the Martian surface. The robotic arms were used to place spectrometers on rocks and soil, position cameras for close-up imaging of the terrain, insert thermal and conductivity probes into the soil, and to place tools on rocks for abrading and drilling. They also scraped and dug to reveal subsurface features and soil properties as well as collected samples for transfer to on-board science instruments for *in situ* analysis. Dr. Bonitz will discuss the design and development of the Mars robotic arms as well as how they are operated on Mars to support the scientific exploration of the Martian surface.

Keynote Speaker:

Dr. Robert Bonitz graduated in 1969 from the University of Nebraska with a Bachelors degree in electrical engineering. After graduating, he headed east to work for Raytheon in the Boston area. At Raytheon he primarily did systems and circuit analyses on radar systems, but got his first exposure to space systems when doing analyses on the Apollo guidance computer and a receiver used in a scientific experiment to find water below the surface of the moon (none was found).

In 1976 he headed west for the blue skies of California where he worked for a number of industrial companies in Silicon Valley. He then got bitten by the robotics bug and pursued graduate studies in control systems and robotics earning a Masters degree from Santa Clara University in 1990 and a PhD from the University of California, Davis, in 1996.

He joined the Robotic Manipulation and Sampling Group at the Jet Propulsion Laboratory in 1996 where he developed the control algorithms and software for the Mars Volatiles and Climate Surveyor Robotic Arm and the Mars Exploration Rover Instrument Deployment Device. For the Phoenix Mars Lander. Dr. Bonitz was the manager for all elements of the Robotic Arm system including, software, control electronics, mechanisms, bio-barrier, integration and test, and operations. For his work on Phoenix he received NASA's Exceptional Achievement Award. Following Phoenix he was principal investigator for developing technology for sample acquisition and handling to return samples from the moon and solar system small bodies. His last assignment was as manager for the Mars InSight Robotic Arm which will launch in the spring of 2016. He retired in 2014, but still does some part time work serving on review boards for the Mars 2020 project.

This Life Member Luncheon/Meeting is scheduled for Monday, July 27, 2015 at 11:30AM at Vittorio's located at 7875 Highland Village Place just off of Route 56 in San Diego. It is located about a block north of the Camino Del Sur exit. Highland Village Place is the 1st light from Route 56. Turn left onto Highland Village Place and turn immediately left (next light) into the shopping center and then immediately left and all the way to the end.

We have set up a special menu and room at 11:30AM. To help defray the cost of this Luncheon, we have set the cost to attend at \$15 cash per person at the door. Please **RVSP by email to Bill Denke, wdenke1@san.rr.com by Friday, July 24th** so that we can make sure we have room for all. Please retract you RSVP if you find out that you cannot honor your RSVP, ASAP, so that we can honor our waiting list.