

Department of Engineering Science

Announces the 8th lecture of the Engineering Science Lecture Series Academic Year 2011-2012

This is a series designed to benefit the Sonoma State students and faculty in the School of Science and Technology, high tech and biotech industries and related businesses and community in the North Bay Region.

The Lecture Series covers a broad range of topics with focus on recent developments and trends and provides a platform for the exchange of ideas among the audience.

Attendance is open to the students, faculty and staff of SSU and other academic institutions, engineers and scientists from industries, members of the business community and members of the community, in general.

Days & Dates: 1st & 3rd Thursday of every month

Venue: Cerent Engineering Science Complex, Salazar Hall Room #2009A

Reception: 4:00 to 4:30 p.m.

Lecture: 4:30 to 5:15 p.m.

Q&A: 5:15 to 5:30 p.m.

Acknowledgement

The ES Lecture Series is sponsored by the Agilent Technologies Foundation under the SSU-Agilent Partnership Program.

“Reaching for the Saturn System with the Cassini Spacecraft”

by

**Dr. Essam Marouf, Prof., Dept. of
Electrical Engineering, SJSU**

Thursday, February 16, 2012

Abstract – Cassini is a spacecraft that has been orbiting planet Saturn since July 2004, completing 160 orbits of varying geometry as of February 2012. Twelve major scientific instruments on board Cassini allow it to explore the planet, its beautiful ring system, and major satellites in remarkable detail. This is a general talk on the Cassini Mission itself and example results from one of its 12 instruments, namely, the Radio Science Instrument. The instrument was designed to investigate physical properties and structure of Saturn’s rings, the atmospheres and ionospheres of Saturn and Titan, and to determine the mass and gravitational harmonics of Saturn, Titan, and other major satellites. The radio observations are conducted using three nearly monochromatic coherent signals (0.94, 3.6, and 13 cm-wavelength), a capability unique to Cassini. The talk emphasizes radio occultation observations of Saturn’s rings as a specific example to illustrate measurement techniques and present example results.

Dr. Essam Marouf is currently a Prof. of EE, College of Engineering, San Jose State University. He obtained a Ph.D. degree in Electrical Engineering from Stanford University in 1975. From 1975 to 1990, he was a Senior Research Scientist at the Space, Telecommunications, and Radioscience Laboratory, Stanford University. He joined SJSU as Professor in 1990, where he teaches and guides



research in the areas of Digital Signal Processing and Communications. He is a Member of the NASA selected Radio Science Team of the International Cassini-Huygens Mission to Saturn, and Member of the Radio Science Investigation Team of the Rosetta Mission to rendezvous with a comet in 2015. From 1979 to 1989, he was an Associate Member of the Radio Science Team of the Voyager Mission to Jupiter, Saturn, Uranus, and Neptune. Prof. Marouf served as the Principal Investigator or Co-Investigator of many completed research projects related to planetary exploration.

Upcoming Lectures

2012	Title of the Lecture	Guest Speaker
Mar 1	Cloud Networking Some bio and pic	Dr. Patrick Pfeffer, Senior Director of Strategy and Planning, Juniper Networks
Mar 15	Emerging Trend in Engaging Eng'g Tools to Biological Research	Dr. Lily Chen, Prof., Biology Dept., & Director, Profession Science Master's, SFSU
Apr 5	Circuit Simulation for Computer-Aided Design	Dr. David Root: Agilent Research Fellow, & Dr. Radek Biernacki: Senior MTS, Agilent, both IEEE Fellow
Apr 19	Human Touch on a Finger Pad	Dr. Mansour Rahimi, Assoc. Prof., Epstein Dept. of Industrial & Systems Eng'g, USC