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The Juno Mission and the Origin of Jupiter

Scott Bolton (1), Toby Owen (2), David Stevenson (3), Andy Ingersoll (3), Jack Connerney (4), Michael Janssen (5), and William Folkner (5)

(1) SWRI, San Antonio, United States (sbolton@swri.edu), (2) University of Hawaii, Honolulu, United States (owen@IfA.Hawaii.Edu), (3) Caltech, Pasadena, United States (djs@gps.caltech.edu, api@gps.caltech.edu), (4) NASA Goddard Space Flight Center, United States (jack.connerney@nasa.gov), (5) JPL Caltech, Pasadena, United States (Michael.A.Janssen@jpl.nasa.gov, william.m.folkner@jpl.nasa.gov)

The Juno mission is the second mission in NASA's New Frontiers program. Launched in August 2011, Juno arrives at Jupiter in July 2016. Juno science goals include the study of Jupiter's origin, interior structure, deep atmosphere, aurora and magnetosphere. Jupiter's formation is fundamental to the evolution of our solar system and to the distribution of volatiles early in the solar system's history. Juno's measurements of the abundance of Oxygen and Nitrogen in Jupiter's atmosphere, and the detailed maps of Jupiter's gravity and magnetic field structure will constrain theories of early planetary development. Juno's orbit around Jupiter is a polar elliptical orbit with perijove approximately 5000 km above the visible cloud tops. The payload consists of a set of microwave antennas for deep sounding, magnetometers, gravity radio science, low and high energy charged particle detectors, electric and magnetic field radio and plasma wave experiment, ultraviolet imaging spectrograph, infrared imager and a visible camera. The Juno design enables the first detailed investigation of Jupiter's interior structure, and deep atmosphere as well as the first in depth exploration of Jupiter's polar magnetosphere. The Juno mission design, science goals, and measurements related to the origin of Jupiter will be presented.