December 2011 MSS/LPS/SPS Joint Subcommittee Meeting
ABSTRACT SUBMITTAL FORM

The submission of an abstract is an agreement to complete a final paper for publication and attend the meeting to present this information. Complete all information requested in the author and co-author information sections; the first author listed will receive paper acceptance notices and all correspondence. Abstracts must be submitted electronically; submittal instructions are located in the call for papers. **The abstract deadline date is June 13, 2011.**

ABSTRACT INFORMATION

Title: The J-2X Oxidizer Turbopump - Design, Development, and Test

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ABSTRACT SUBMITTAL FORM

Unclassified Abstract

(250-300 words; do not include figures or tables)

Pratt and Whitney Rocketdyne (PWR), a NASA subcontractor, is executing the Design, Development, Test, and Evaluation (DDT&E) of a liquid oxygen, liquid hydrogen two hundred ninety-four thousand pound thrust rocket engine initially intended for the Upper Stage (US) and Earth Departure Stage (EDS) of the Constellation Program Ares-I Crew Launch Vehicle (CLV). A key element of the design approach was to base the new J-2X engine on the heritage J-2S engine which was a design upgrade of the flight proven J-2 engine used to put American astronauts on the moon. This paper will discuss the design trades and analyses performed to achieve the required uprated Oxidizer Turbopump performance; structural margins and rotordynamic margins; incorporate updated materials and fabrication capability; and reflect lessons learned from legacy and existing Liquid Rocket Propulsion Engine turbomachinery. These engineering design, analysis, fabrication and assembly activities support the Oxidizer Turbopump readiness for J-2X engine test in 2011.