



**NASA-KSC/EX-E High Education
Internship Project & Abstract Form**

Please provide this information requested to: rose.m.austin@nasa.gov
Telephone: 321.867.6481

Full name (First MI Last):	Jesse J. Hinricher
Academic Institution:	South Dakota School of Mines and Technology
City, State, Zip Code:	Rapid City, SD 57701
Funding Source:	South Dakota Space Grant Consortium
Name of Branch or Division:	Applied Physics Division
Desk Location (Bldg Name, Cube #):	O & C, 1730E
Degree of Study: (i.e. MBA, BS in Electrical Engineering, etc) Major & Minors	Major: Chemical Engineering Major: Chemistry Minor: Physics
Expected Graduation (Month/ Year):	May 2017
Project Title:	LAVA Integration and Testing

Project / Abstract Summary: (Approximately 300 words)

One complete paragraph in itself (not an introduction). It should indicate subjects while also stating objectives of the project. Newly observed facts and conclusions of project discussed must be stated in summary form. Readers should be able to understand your project and what you completed in your abstract.

The Resource Prospector Mission (RPM) is an in-situ resource utilization (ISRU) technology demonstration mission planned to launch in 2018. The mission will use the Regolith and Environment Science & Oxygen and Lunar Volatile Extraction (RESOLVE) Payload to prospect for lunar volatiles such as water, oxygen, and carbon dioxide. These compounds will validate ISRU capability. The payload, particularly the Lunar Advanced Volatile Analysis (LAVA) subsystem, requires numerous temperature measurements to accurately control on-board heaters that keep the volatiles in the vapor phase to allow quantification and prevent the clogging of delivery lines.

Previous spaceflight missions have proven that Resistive Temperature Detector (RTD) failure impedes mission success. The research resulted in a recommendation for a flight-forward RTD. The recommendation was based on accuracy, consistency, and ease of installation of RTDs procured from IST, QTI, and Honeywell.

If you are writing a paper for school or specific internship program, provide the following:

Paper Title:	TEST AND RECOMMENDATION OF FLIGHT-FORWARD RESISTIVE TEMPERATURE DETECTOR FOR RESOURCE PROSPECTOR MISSION
Mentor Name:	Dr. Mary Coan
Mailcode:	NE-L5

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