Radioisotope power systems have extended our knowledge of the solar system. Due to the hazardous material that can be released during a launch accident, the potential health risk of an accident must be quantified.

An updated Final Safety Analysis Report was prepared for the MSL launch. A summary of the results of the source term analysis from the updated Final Safety Analysis Report are presented here.

The nuclear fuel in a radioisotope power system is contained within an iridium alloy. To avoid brittle behavior, the iridium grains must be small compared to the clad thickness. This paper describes an improved model for grain growth.

Observations from accident videos have enabled a closer look into the solid propellant processes that occur during a launch accident. Modifications to the fragment distribution model, along with a secondary fragmentation model are discussed.

The temperature below a burning propellant during a hypothetical accident is of interest for determining possible vaporization of hazardous materials. The conditions for aluminum drop oxidation that would affect the temperature below the propellant are analyzed.

Nuclear and Emerging Technologies for Space 2012