I. Introduction and Motivation

A. Motivation

B. Scope of Work

II. Background and Literature Review

A. Previous Space Reactor Work

1. RTGs
2. SP-100
3. INL paper
4. Kilopower

B. Cermet Fuel Work

1. INL paper
2. NASA testing

III. Reactor Physics Parameter Sweeps

IV. Mass Modeling Methods

A. Initial Reactor Design Choices

B. Thermal Hydraulic Analysis Methods

1. Core Geometry
2. Flow Properties
   a. Temperature
   b. Pressure
   c. Thermal Conductivity
   d. Viscosity
   e. Specific Heat
3. Fuel Properties
   a. Thermal Conductivity
   b. Density
   c. Maximum Temperature
4. Flow Analysis
   a. Mass Flux
   b. Reynold's Number
   c. Nusselt Number
   d. Heat Transfer Coefficient
5. 1D Heat Transfer
   a. Plane Wall Condution Approximation
   b. Radius of Conduction