

Plasma-Pulsed Power Generation (P³G)

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Introduction

- Background
- Conceptual Design
 - Power Potential
 - Propulsion Potential
- Program Progress
 - Analysis
 - Experiments
- Summary

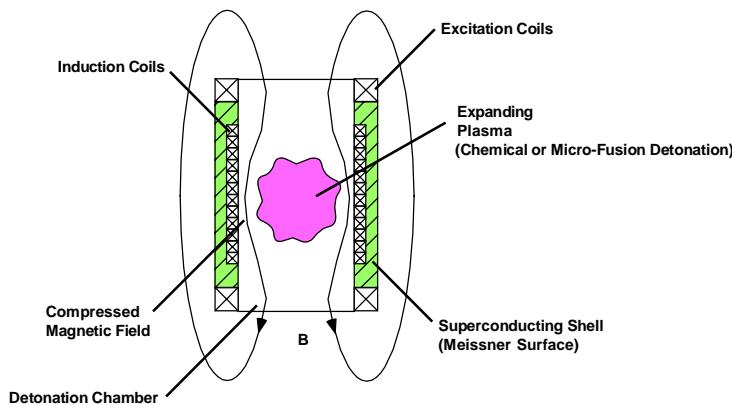
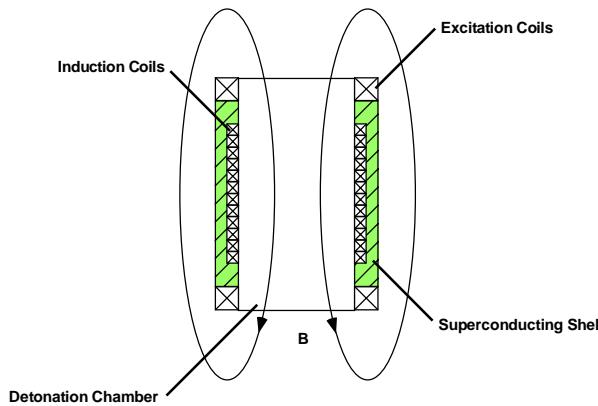


Mission Drivers

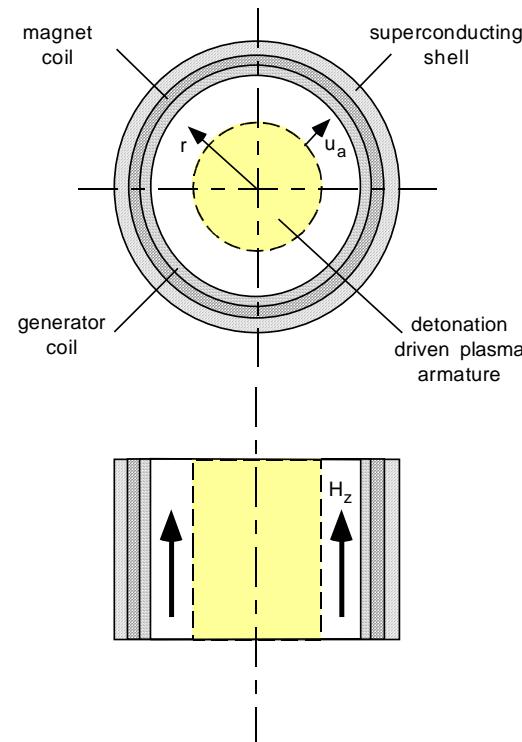
- Low Cost, Convenient Access to Space
- Rapid, Affordable Space Travel
 - Power --- “...a critical technology...space activities.” (*“Space Technology for the New Century”*, National Research Council)
 - Interstellar Transport



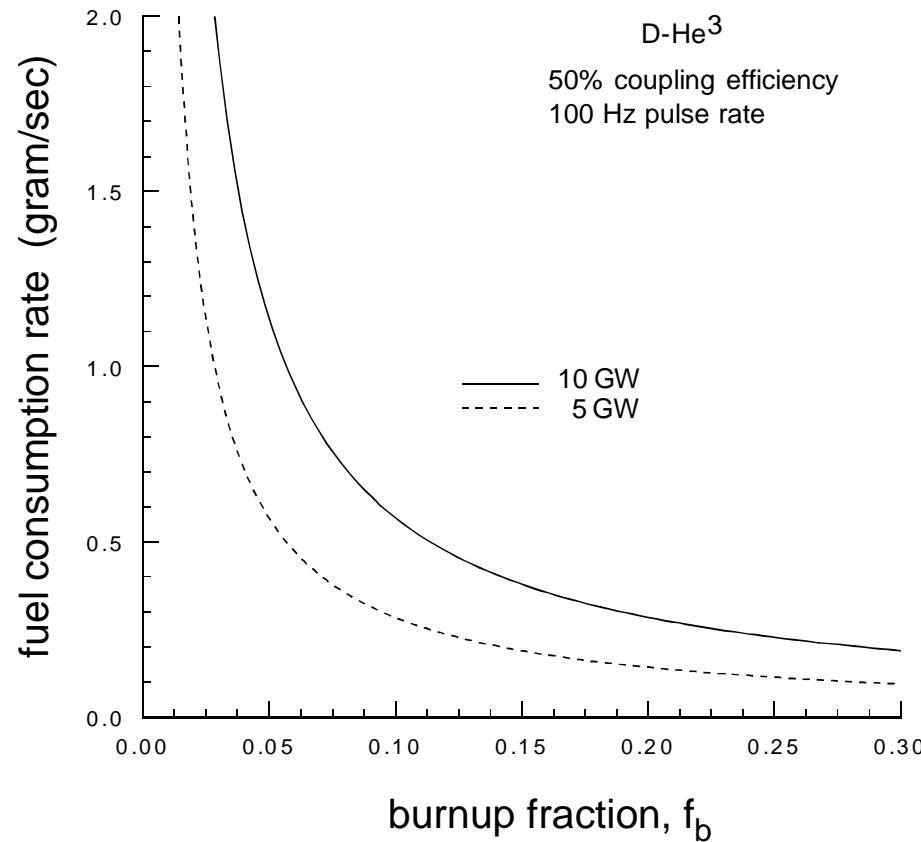
The P³G Concept



radial flux compression generator



P³G Power Potential

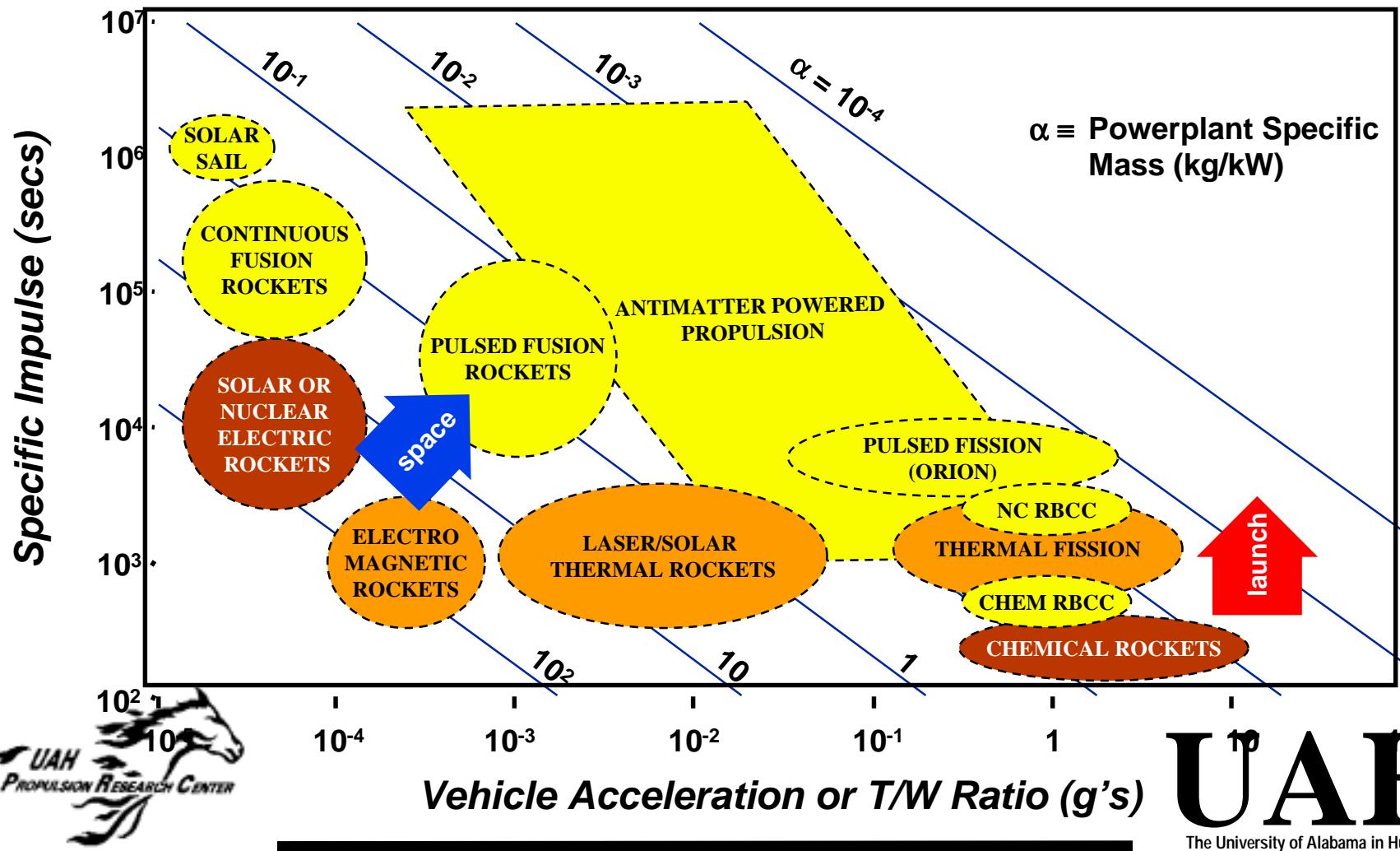


Mission Drivers

- Interstellar Transport
 - Propulsion -
 - Pulsed Fusion Thruster

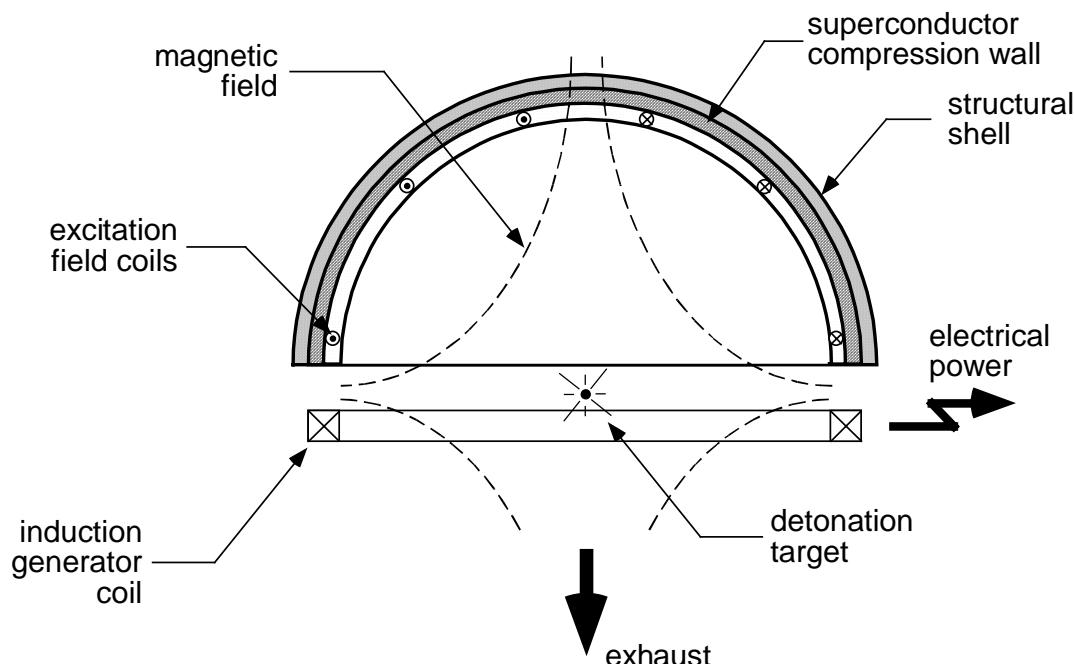


Propulsion System Comparison

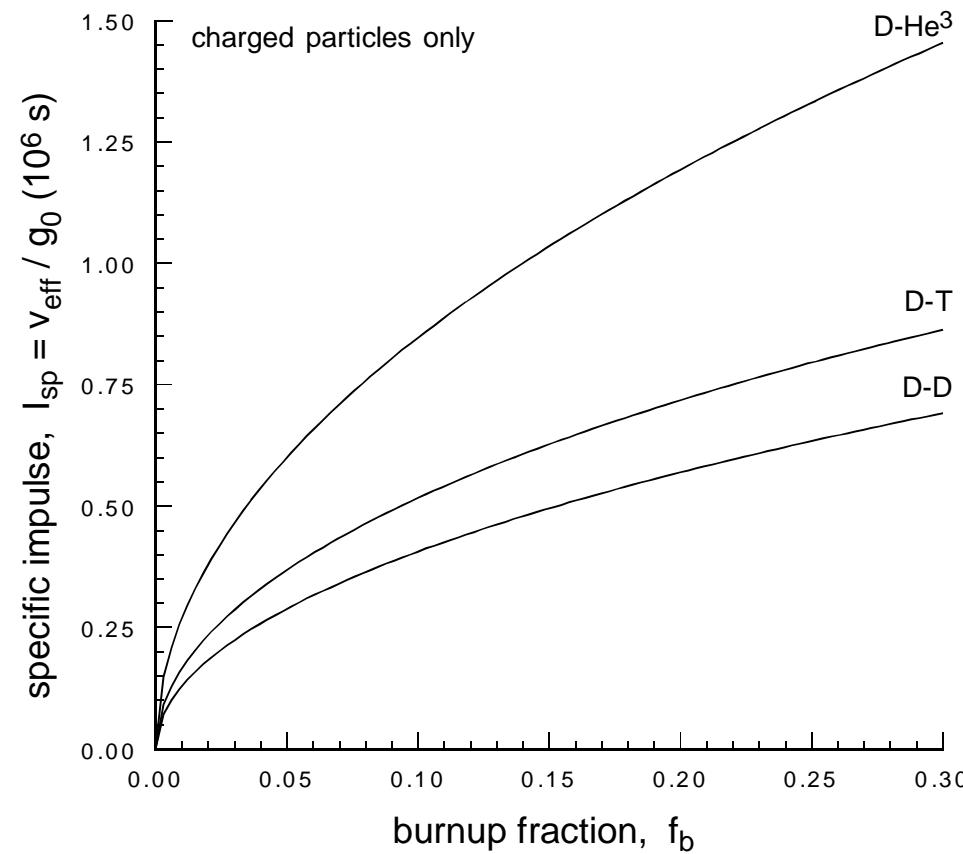


P³G Propulsion Potential

**Winterberg / Daedalus
Magnetic Compression Reaction Chamber**



P³G Propulsion Potential

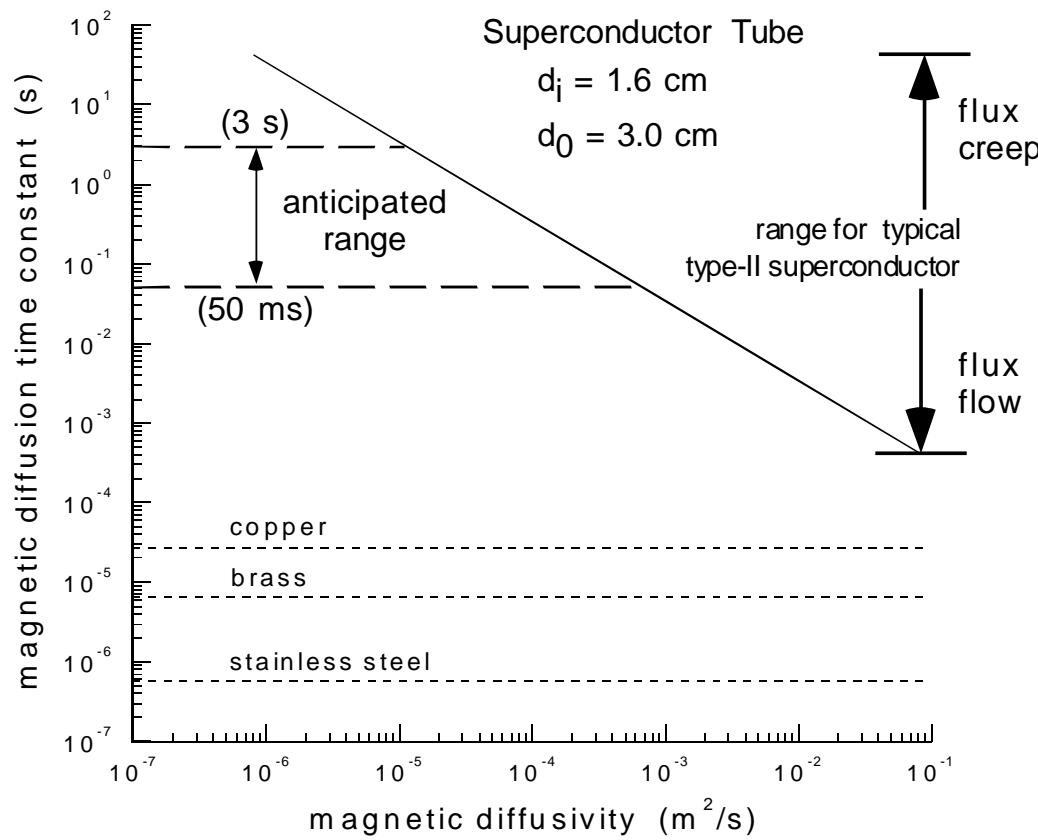


Research Drivers

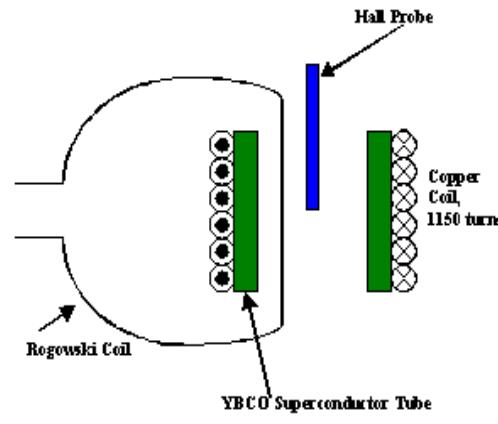
- Plasma Containment
- Efficient Compression of Magnetic Field
 - Minimize Magnetic Diffusion Loss to Plasma or Wall
 - Type II Superconductor



P³G Progress (Analytical)



P³G Progress (Experimental)



Test Cylinders:

superconductor
stainless steel
aluminum
copper



Summary

- P³G Addresses NASA Mission Interests
- P³G has:
 - High Power Potential
 - Possible Propulsion Applications
- P³G Analysis Shows:
 - Power Promise
- P³G Experiments Continuing



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