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Tristructural Isotropic (TRISO) Coated Particle Fuel

April 2023

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Changing the World's Energy Future

Idaho National Laboratory

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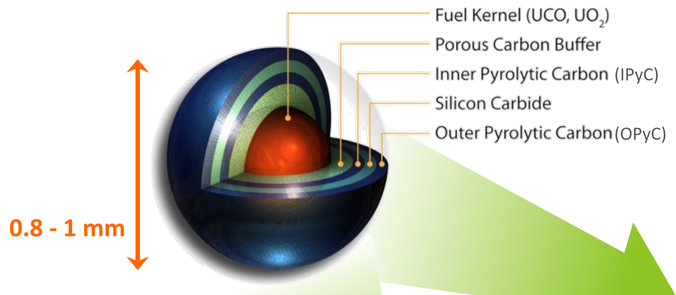
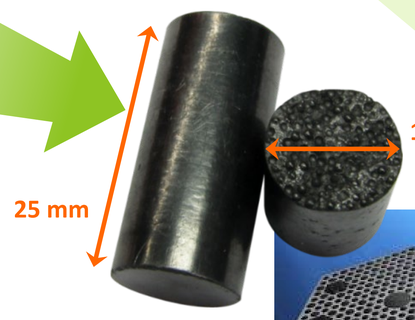
Testing performance of fuel for advanced high-temperature reactors



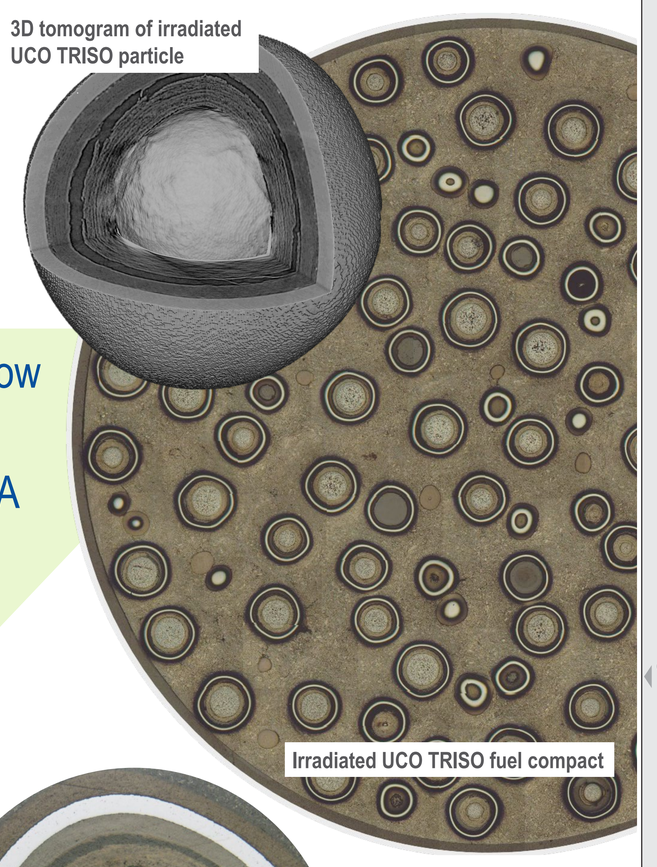


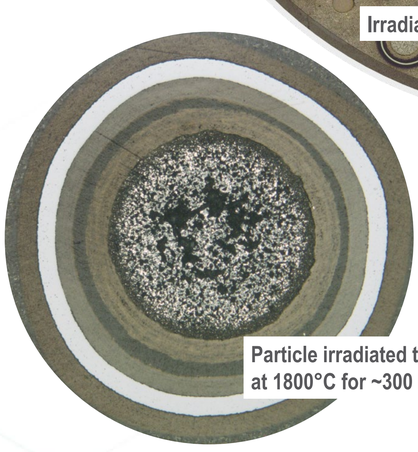
Compacts in prismatic graphite blocks

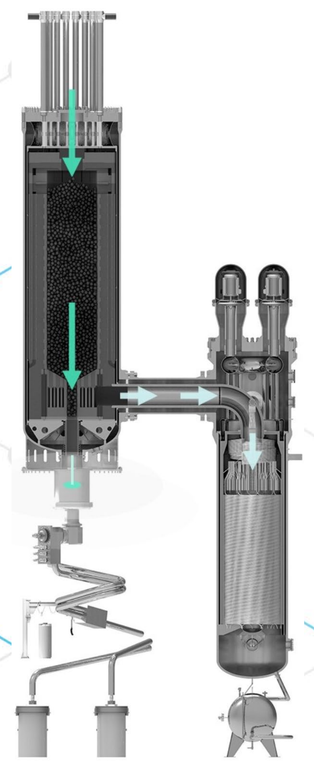
Pebble fuel

- Robust, high-temperature ceramic and graphite fuel form
- Developed for high-temperature gas-cooled reactors
- Retains fission products at their source in the fuel

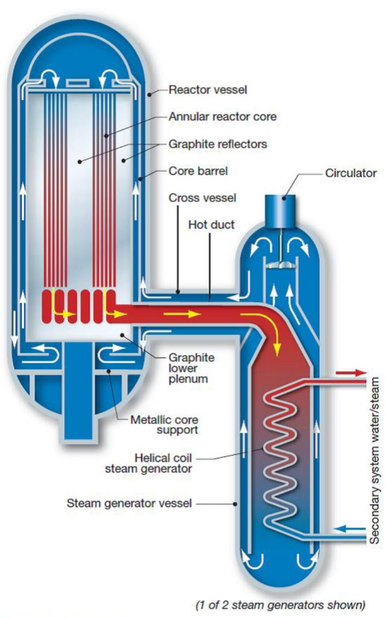
- Excellent long-term, high-temperature durability with low particle failure fractions during operation
- Irradiation temperatures of ~1200°C and burnup to 20% FIMA
- Withstands hundreds of hours at temperatures of 1600°C and beyond during accidents







- Conventional TRISO fuel is used in high-temperature gas cooled reactors
- Enabling technology for passive decay heat removal in HTRs, high thermal efficiencies, and coupling to industrial processes



framatome

energy

TRISO fuel also promises advantages for emerging, advanced small reactor designs:

Kairos Power

UBATTERY Local Modular Energy

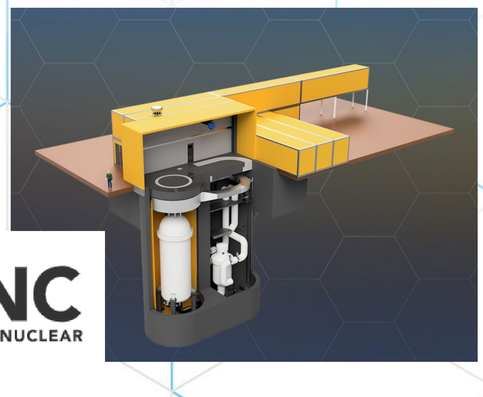
BWXT BWX Technologies, Inc.

RADIANT

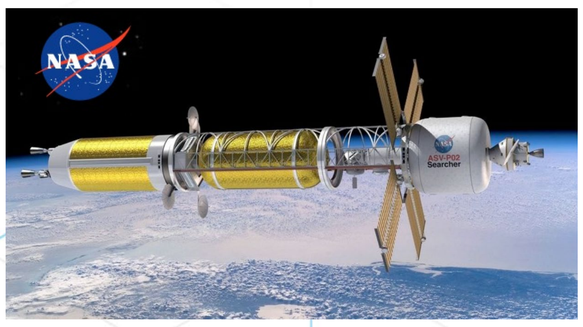
STARCORE NUCLEAR

USNC ULTRA SAFE NUCLEAR

Terrestrial microreactors



Space propulsion systems



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