



# VHTR Fuel and Fuel Cycle Project Management Board Overview

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*Changing the World's Energy Future*

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# GIF VHTR Fuel and Fuel Cycle (FFC) Project Management Board (PMB)

## *Members*

<b>China</b>	<b>EU</b>	<b>Korea</b>
<b>France</b>	<b>Japan</b>	<b>USA</b>

## *Observers*

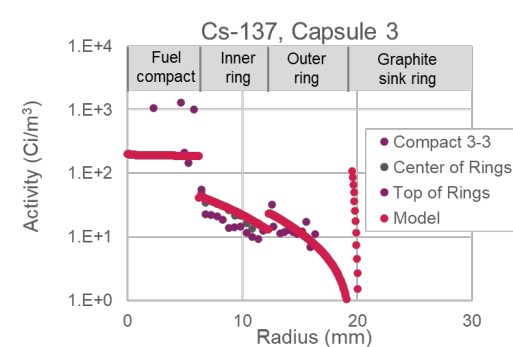
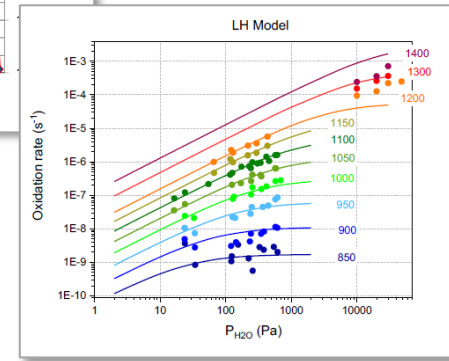
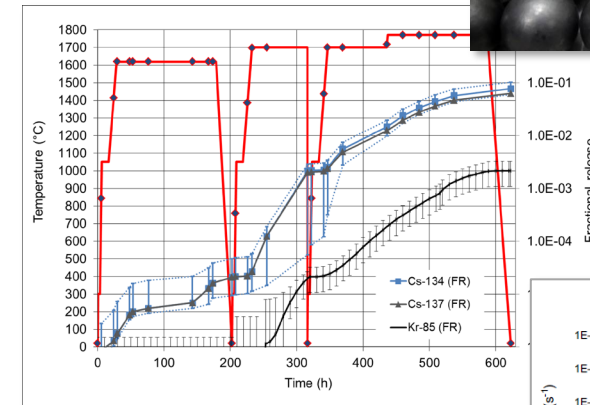
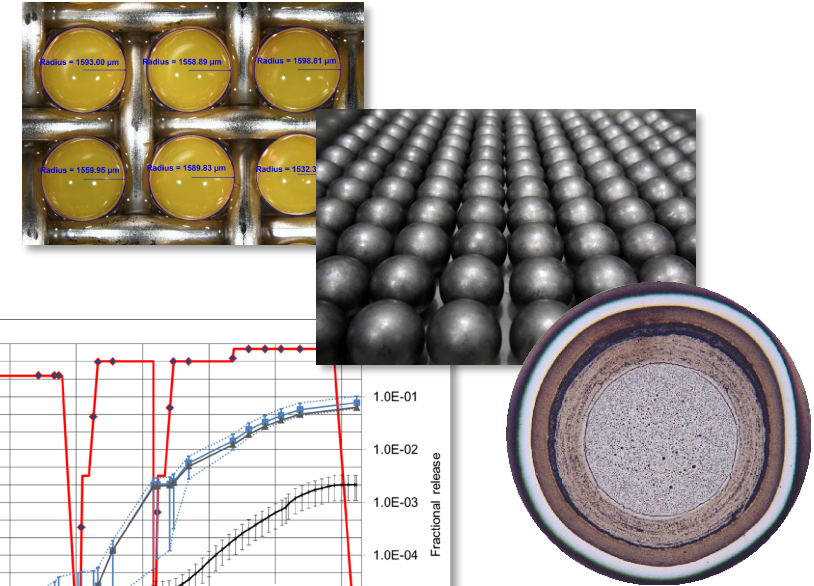
**UK**  
**Canada**

- Support deployment of HTRs through design, fabrication, and testing of TRISO fuel
- Extend the TRISO performance envelope by developing advanced TRISO fuels
- Develop solutions for back-end management of TRISO fuel

# FFC PMB Activities

**Fuel and Fuel Cycle PMB participants perform a wide variety of activities to support development and qualification of TRISO fuel:**

- TRISO fuel fabrication
- Fuel characterization and quality control methods
- Fuel irradiation testing
- Post-irradiation examination and high-temperature accident testing
- Oxidation effects testing
- Novel coated particle development
- Fuel performance and fission product transport modeling
- Fuel cycle back-end and waste management issues



# Past and Current FFC PMB Collaborative Activities

<p><b>PYCASSO irradiations</b>  <i>(PYrocarbon irradiation for Creep and Swelling/Shrinkage of Objects)</i></p>	<ul style="list-style-type: none"> <li>• Coating layer irradiation performance tests in HFR-Petten (PYCASSO-I, PYCASSO-II) using non-fueled coated particles</li> <li>• Specimens contributed by France-CEA, Korea-KAERI, Japan-JAEA</li> </ul>
<p><b>AGR-2 irradiation</b></p>	<ul style="list-style-type: none"> <li>• TRISO fuel irradiation in Advanced Test Reactor (INL)</li> <li>• Included US UO<sub>2</sub> and UCO TRISO fuel and UO<sub>2</sub> TRISO fuel from France-CEA and South Africa-PBMR.</li> </ul>
<p><b>Accident Test Computational Benchmark</b></p>	<ul style="list-style-type: none"> <li>• Comparison of current fuel performance modeling codes with experimental data from post-irradiation accident tests</li> <li>• Participants: US-DOE, Japan-JAEA, Korea-KAERI</li> </ul>
<p><b>LBL Round Robin Experiment</b></p>	<ul style="list-style-type: none"> <li>• Compare leach-burn-leach fuel QC methods and results</li> <li>• Use fabricated particle defects and high-quality, intact particles to assess method efficacy</li> <li>• Participants: US-DOE, China-INET, Korea-KAERI</li> </ul>
<p><b>TRISO Fuel Material Properties Workshop</b></p>	<ul style="list-style-type: none"> <li>• Technical workshop focused on materials used in TRISO fuel (SiC, pyrocarbon, etc.) held biennially</li> </ul>

# Areas for Potential Collaboration

- Code comparison and benchmarking to experimental data
  - TRISO particle performance
  - Fission product transport
- Fuel QC method development and benchmarking
- Addressing spent fuel storage and disposal issues
  - TRISO behavior in long-term storage
  - Graphite waste treatment

# Thank you for your attention

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