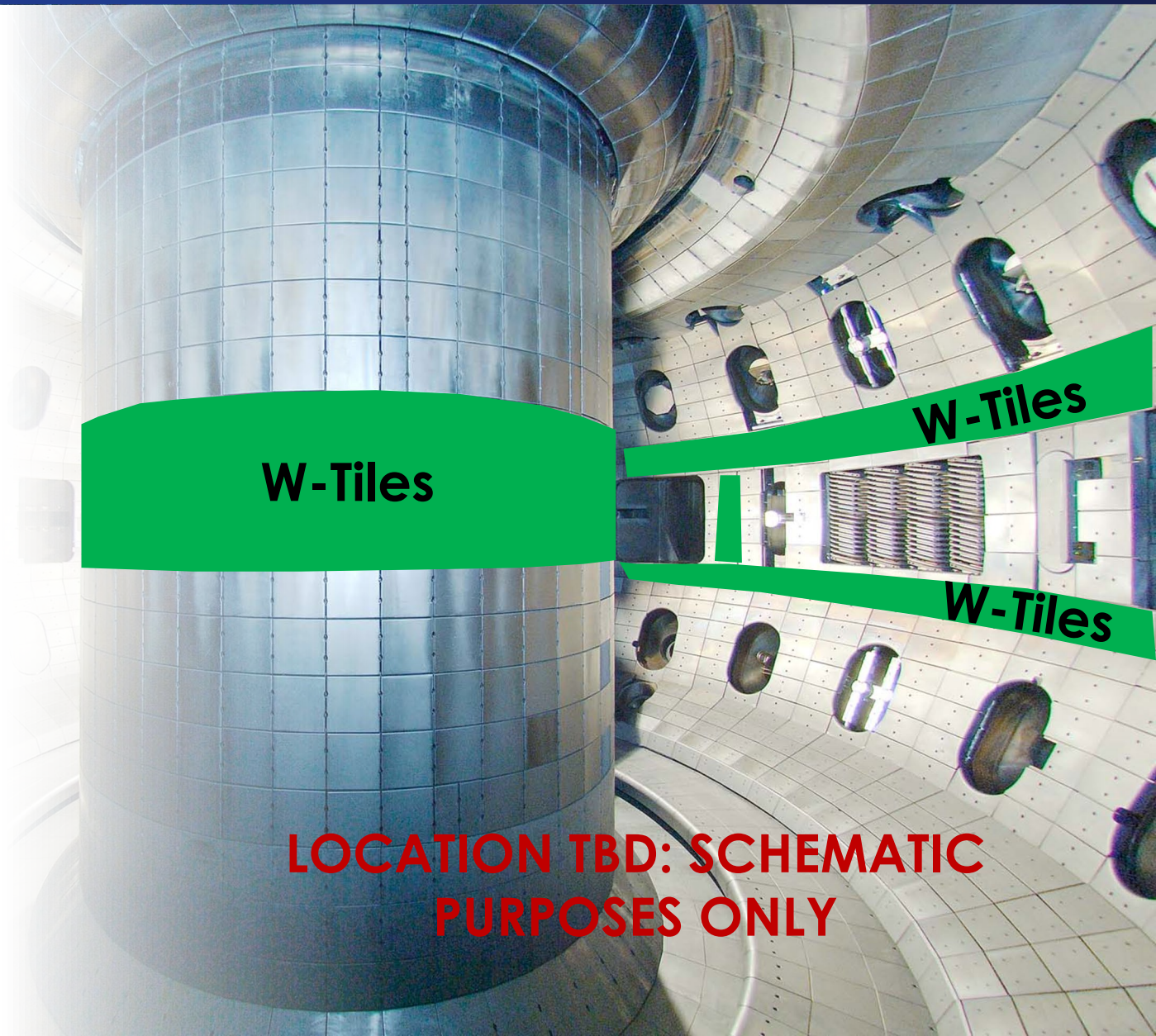


# Thrust: Survey the Effects of W in the Main Chamber

Presented at the Technology Strategic Workshop Planning Meeting

Sept. 14, 2023



W-Tiles

W-Tiles

W-Tiles

LOCATION TBD: SCHEMATIC PURPOSES ONLY

# Survey the Effects of Tungsten in the Main Chamber


- **Toroidally symmetric\* ring of W tiles on the main-chamber to study effect of W wall on ITER/FPP scenarios**
  - Urgent ITER/FPP need: How will W sourced from walls impact performance?
  - Unique DIII-D capability: Localized source of W from wall avoids divertor leakage complexities
  - Compare high-performance discharges with/without W ring
- **Develop controls on wall-to-core W transport pathway**
  - Parameter/geometry scans to identify critical “knobs”
  - Test and improve turbulent SOL impurity transport models
  - Synergistic with powder dropper (proxy divertor W source)
- **Two weeks, similar to 2016 W Rings Campaign**
  - Ex-situ tile/coupon analysis for global sourcing trends
  - SXR, BES, filterscopes, collector probes, RCP, DiMES, ...

Thrust spans all of  
EBP + PIT groups

# Directly addresses open ITER issues

## Key issues listed in ITER document,

Open issues in the new ITER baseline with a W wall for Q=10 operation that require experimental assessment

 <b>iter</b> <small>china eu india japan korea russia usa</small>	IDM UID <b>8YFSB3</b>
	VERSION CREATED ON / VERSION / STATUS <b>19 Jul 2023 / 1.1 / Approved</b>
	EXTERNAL REFERENCE / VERSION
<b>Memo</b>	
<b>Open issues in the new ITER baseline with a W wall for Q = 10 operation that require experimental assessment</b>	
Memo summarizing open issues related to W first wall to be addressed by experiments (and ITPA)	

“W wall source in diverted operation”

“Transport of W through the pedestal”

“Transport of W in the core H-mode plasma”

“Limiter operation with W first wall PFCs”

“Transport of W from the wall to the separatrix”

“Global impact of W wall on H-mode plasmas and its minimization”

**Thrust contributes to all key issues**