PHWR Channel Disassembly Study Setup

- In order to assess the channel disassembly failure criteria, scaled down experiments were planned. A 1:3 geometric scaling of PT and CT are adopted.
- The setup consists of a test section, steam generator, argon source, chiller, cooling unit and DC rectifier. The test setup is instrumented with flow meters, K and S-type thermocouples, pyrometers, laser sensors, hydrogen gas analyzer and load cells. Heat-up tests are conducted for single and multiple channels.
- Prolonged heatup under inert and steam conditions do not lead to disassembly (failure) of channels However prolonged heated PT(>1000˚C) with sufficient oxidation (> 1 mm thk) undercooling exhibits failure. The generated correlation will be used for all safety analysis code PRABHAVINI and other codes used in DAE

The schematic of the channel disassembly test facility

Heated condition

Cooled condition

Fuel channel condition under heat-up and cooled condition