Variance Reduction for Multiphysics Analysis of Moving Systems

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Shutdown Dose Rate Analysis

- Fusion Energy Systems (FES)
  - Burning plasma, D-T fusion
  - $^2H +^3 H \rightarrow^4_2 He + n$
- Neutrons penetrate deeply into system components, causing activation
- Radioisotopes persist long after shutdown
- Important to quantify the dose caused by decay photons

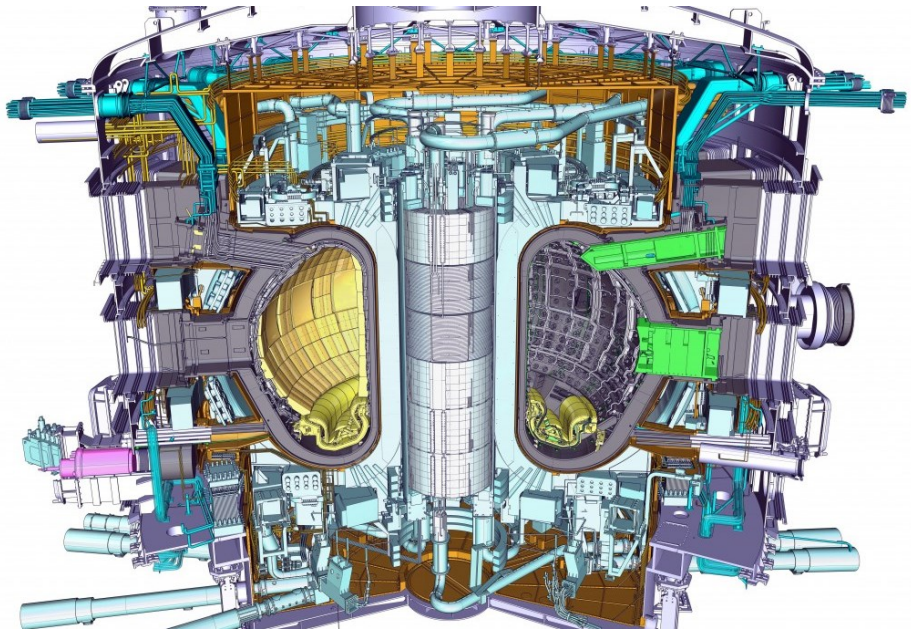

Figure : Cutaway view of ITER drawing.

SDR Analysis: Maintenance Operations

- During a maintenance procedure:
  - Need to move component(s) around facility
  - Interested in SDR at a particular location
  - SDR will change as a function of the activated component's position over time