

MOOSE Project

- Three-part project
- Will upload input and output files to Moodle
- Will upload a final written report, 5-10 pages (including figures), times new roman, 12pt, 1.5 space, pdf
- Due April 26 – Tuesday before Finals week
- This is an individual project, but some collaboration is encouraged

MOOSE Project Part 1

- Fuel pin dimensions listed
- This is a 1-D problem, but I want your geometry to be set up in 2-D RZ
- Assume reasonable values for thermal conductivities, can assume constant k
- Outer cladding temperature: 500 K
- Mesh: something sufficiently converged
- Solve temperature profile for:
 - Steady-state: $\text{LHR} = 150 \text{ W/cm}^2$
 - Compare against analytical solution
- Solve for centerline temperature vs time
 - Transient: $\text{LHR} = 150 \cdot (1 - \exp(-0.05 \cdot \text{time})) + 150$ for up to $t=100$

