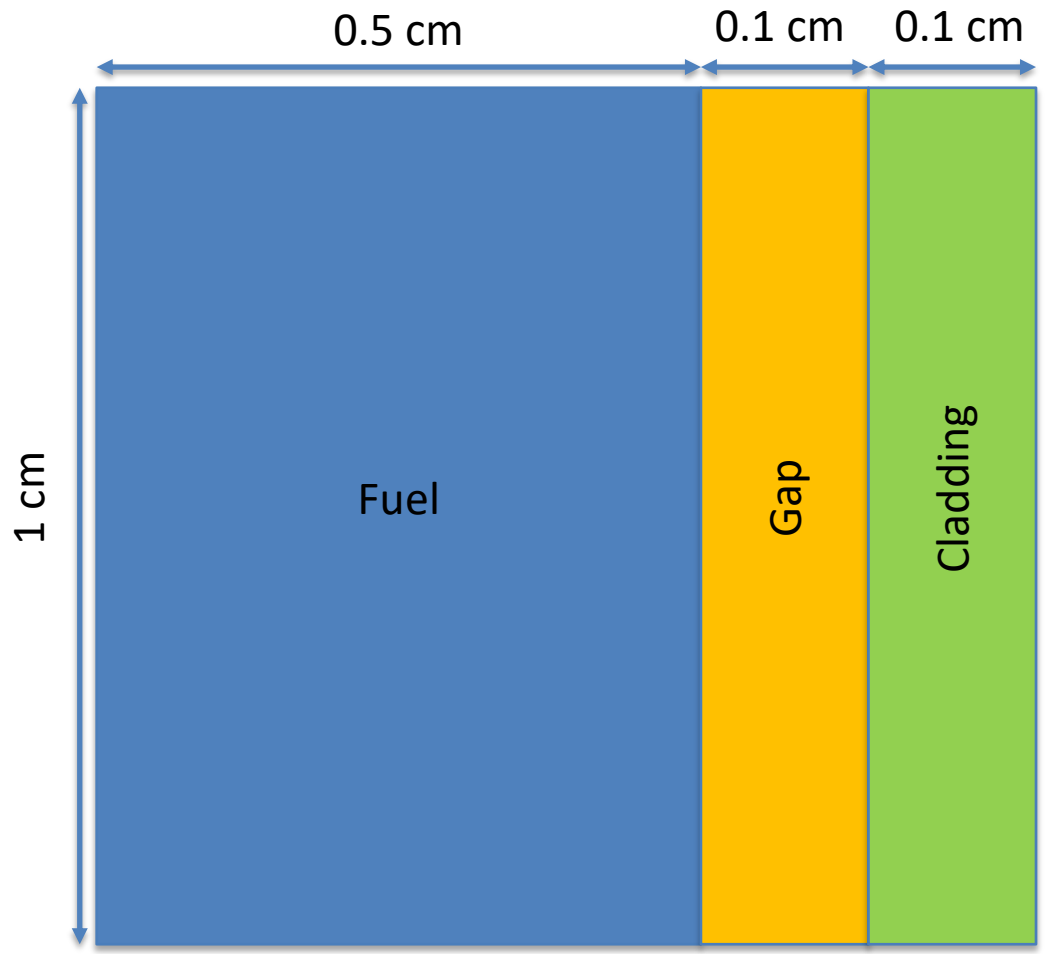
"1-D" MOOSE Project

- Fuel pin dimensions listed
- Assume reasonable values for thermal conductivities
  - Can assume constant k
- Outer cladding: 500 K
- Mesh: 100x100

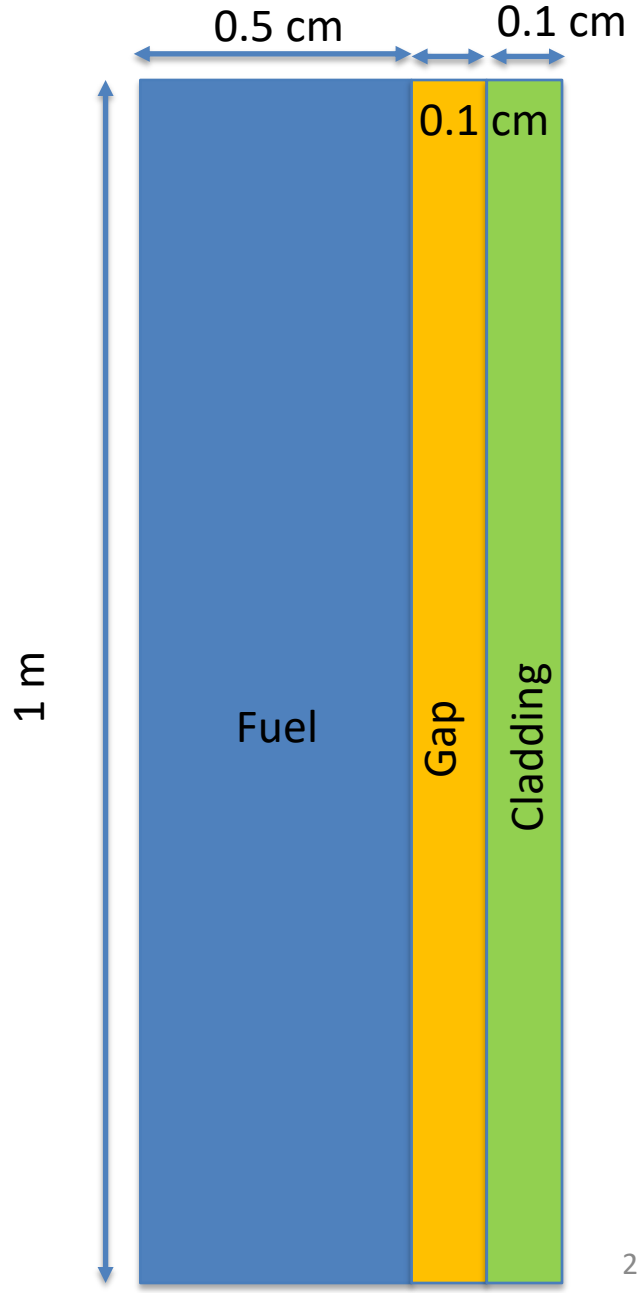
- Solve temperature profile for:
  - Steady-state: Volumetric/Areal heating rate:
    Q = 250 W/cm^2
- Solve for centerline temperature vs time
  - Transient: Volumetric/Areal heating rate
    Q = 150*(1-EXP(-0.01*time))+250 for up to t=200



2-D MOOSE Project

- Fuel pin dimensions listed
- Assume reasonable values for thermal conductivities
  - Can assume constant k
- Utilize azial T_{CO}, with reasonable flow rate, heat capacity, etc.

- Solve temperature profile for:
  - Steady-state: Volumetric/Areal heating rate: Q = 250 W/cm^2
  - @ z=0.25, z=0.5, z=1
- Solve for centerline temperature vs time
  - Transient: Volumetric/Areal heating rate
    Q = 150*(1-EXP(-0.01*time))+250 for up to t=200
  - @ z=0.25, z=0.5, z=1
- Find location of peak centerline temperature at SS, and at t=200 in transient



Submission

- Will upload four input and four output files
  - "1D" SS, "1-D" transient, 2-D SS, 2-D transient
- Will upload a written report, 5-10 pages (including figures), times new roman, 12pt, 1.5 space
- Due April 30 (last day of classes)
- This is an individual project, but some collaboration is encouraged