1 3D-neutronics

1.1 3D-unitcell

- Input file: *3D-unitcell.i*

- Mesh: *3D-unitcell.msh*

- Transient problem.

Figure 1 displays the geometry. Figure 2 shows the results.
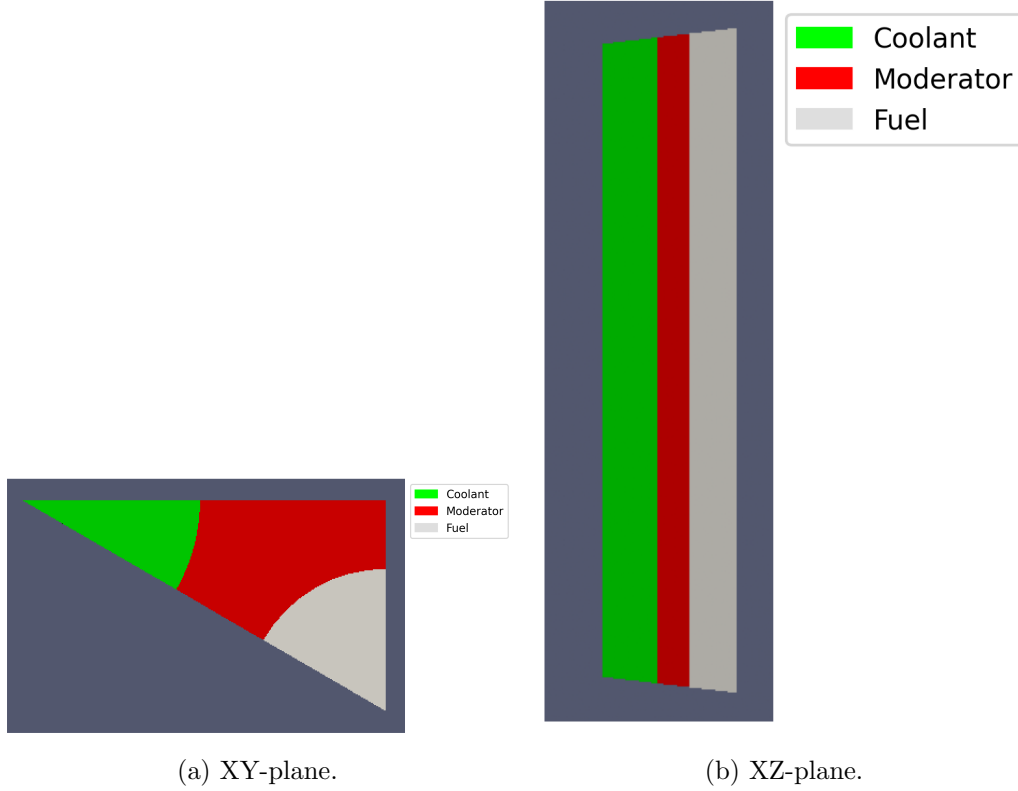

(a) XY-plane.   (b) XZ-plane.

Figure 1: *3D-unitcell* scaled down geometry.
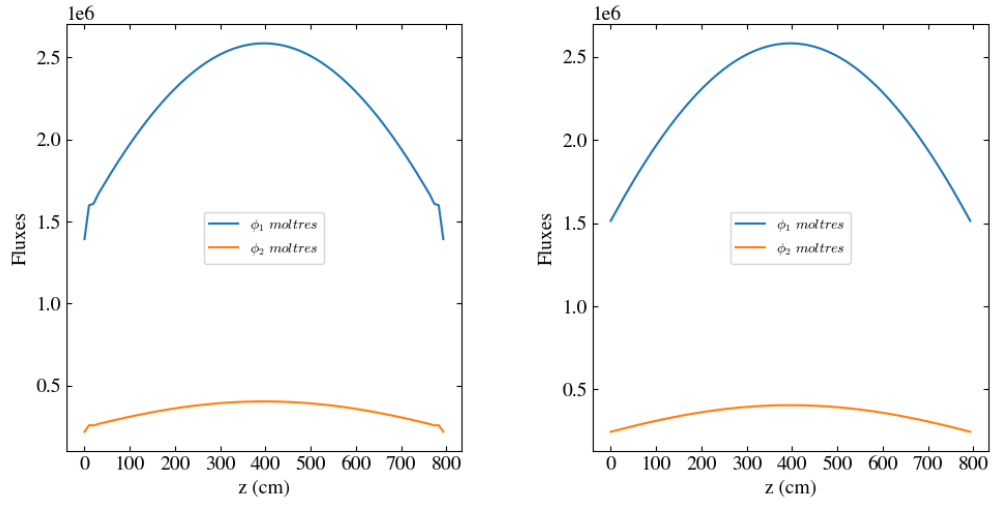
1.2 3D-unitcell-reflec

- Input file: *3D-unitcell-reflec.i*

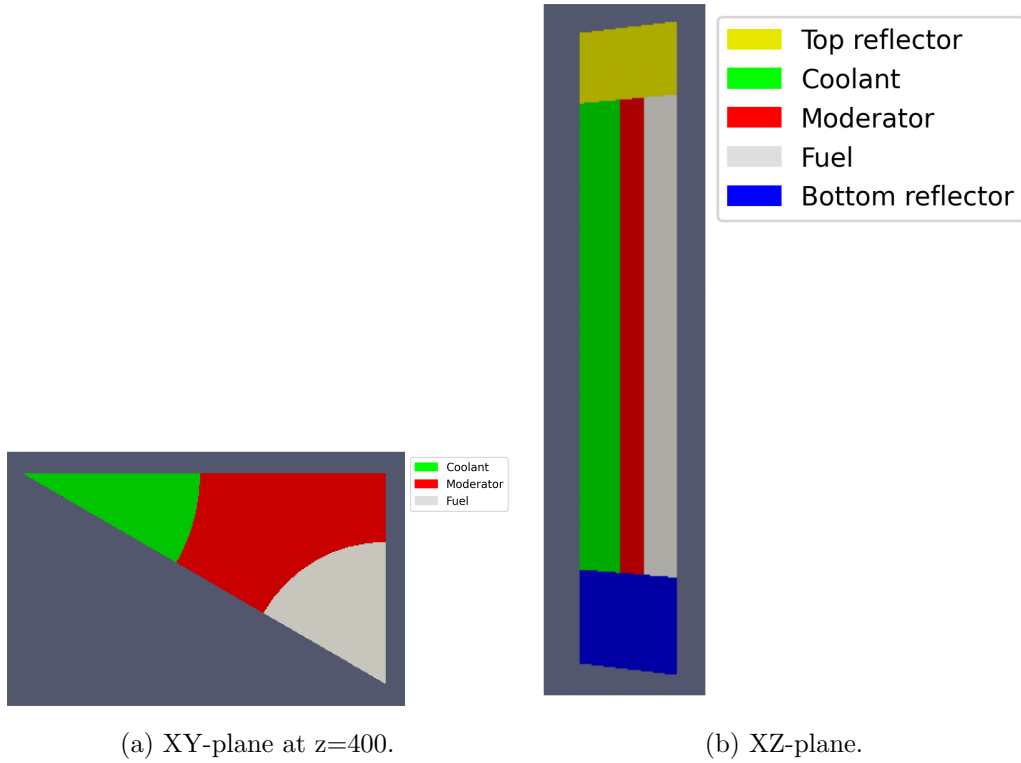- Mesh: *3D-unitcell-reflec.msh*

- Transient problem.

Figure 3 displays the geometry. Figure 4 shows the results.
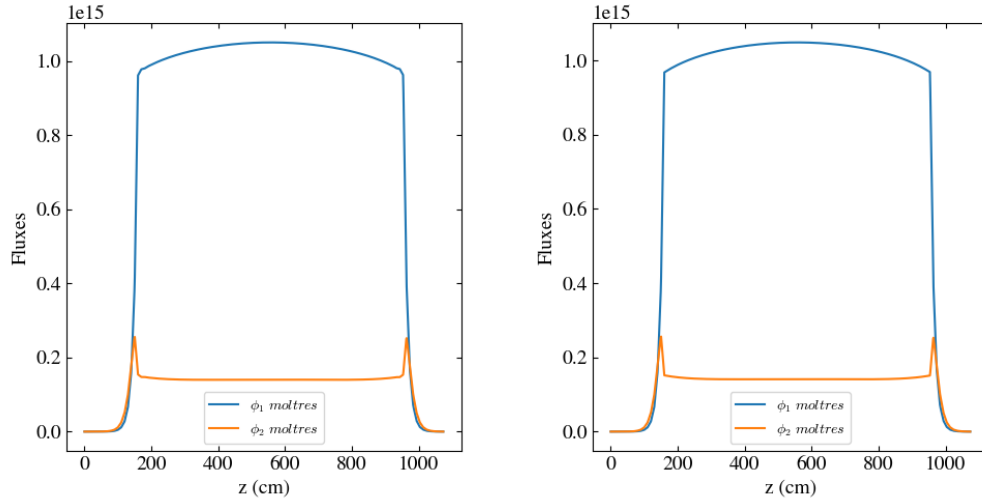
1.3 3D-unitcell-reflec-homo

- Input file: *3D-unitcell-reflec-homo.i*

- Mesh: *3D-unitcell-reflec.msh*

(a) Fuel centerline between points (1.628,-0.939,0) and (1.628,-0.939,793).

(b) Coolant centerline between points (0,0,0) and (0,0,793).

Figure 2: Group 1 and 2 axial fluxes in different locations of the unitcell at 10 msec.

(a) XY-plane at z=400.

(b) XZ-plane.

Figure 3: *3D-unitcell-reflec* scaled down geometry.

(a) Fuel centerline between points (1.628,-0.939,0) and (1.628,-0.939,1073).

(b) Coolant centerline between points (1.628,-0.939,0) and (1.628,-0.939,1073).

Figure 4: Group 1 and 2 axial fluxes in different locations of the unitcell at 10 msec.

- Transient problem.

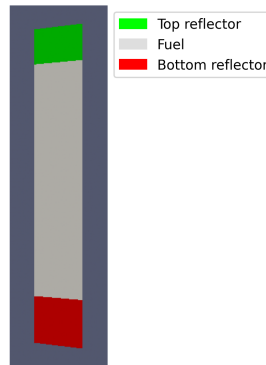Figure 5 displays the geometry. Figure 6 shows the results.

Figure 5: *3D-unitcell-reflec* scaled down geometry.

1.4 3D-assembly-action

- Input file: *3D-assembly-action.i*

- Mesh: *3D-assembly-30deg-reflec.msh*

- Transient problem.

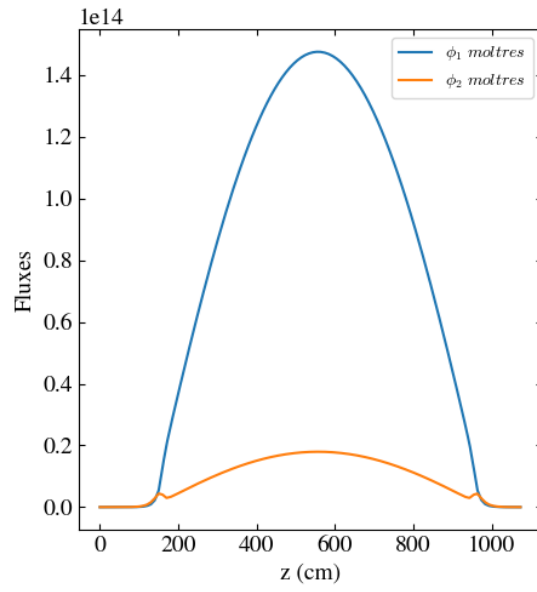Figure 7 displays the geometry. Figure 8 shows the detector positions. Figure 9 shows the results.
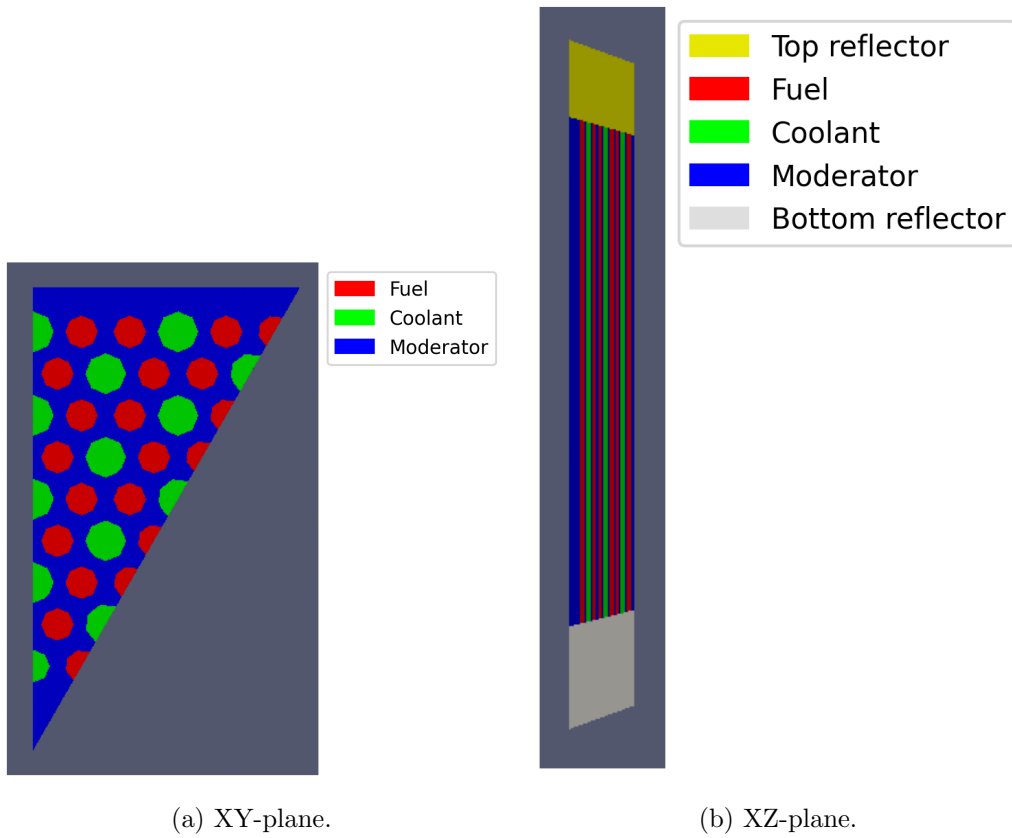
Figure 6: Group 1 and 2 fluxes at 10 msec.

(a) XY-plane.

(b) XZ-plane.

Figure 7: *3D-assembly-30deg-reflec* scaled down geometry.

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(a) Fuel.

(b) Coolant.

Figure 8: Detector positions.

(a) Fuel centerline between points (0.94,8.14,0) and (0.94,8.14,1073).
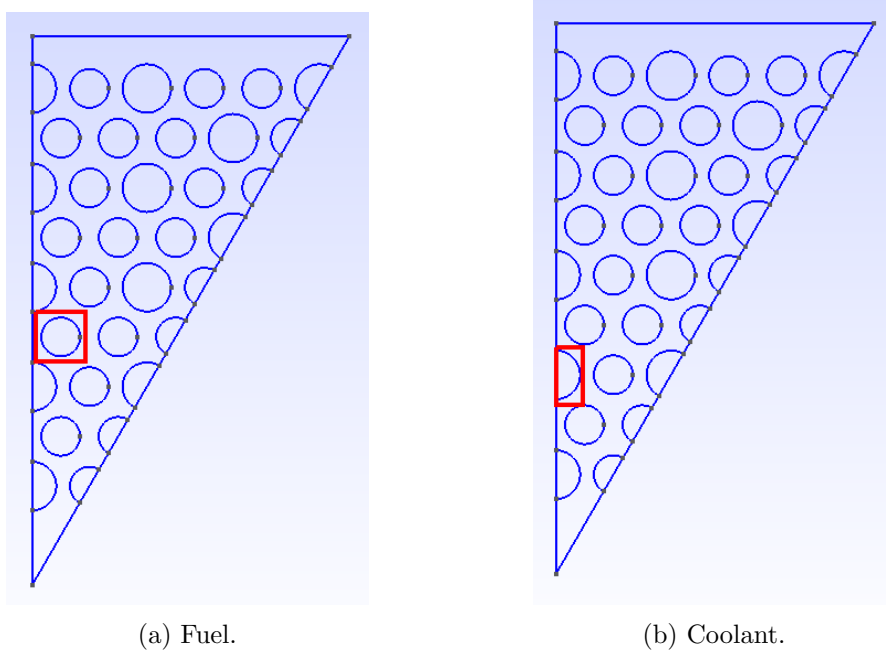
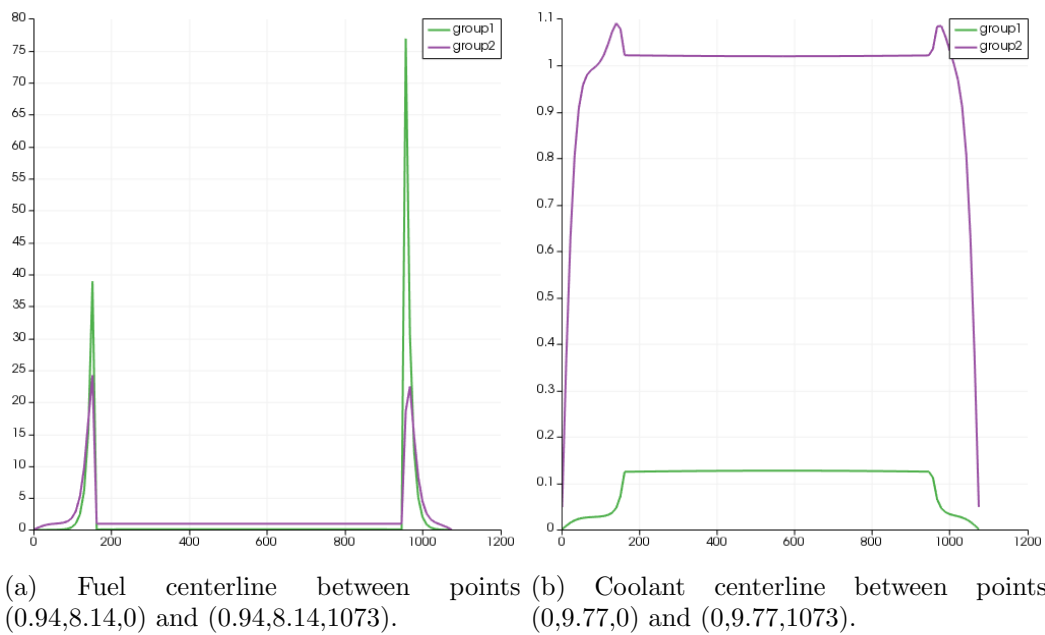(b) Coolant centerline between points (0,9.77,0) and (0,9.77,1073).

Figure 9: Group 1 and 2 axial fluxes in different locations of the fuel assembly at 1 msec.