

0.1 Full-core

In this section, we compare the results from Serpent and Moltres for a full-core simulation.

We conducted two analyses. First, we varied the number of energy groups. Second, we tried different energy group structures for the same number of groups. To reduce the computational expense we narrowed down our focus to a fuel column of the MHTGR, Figure ?? . The fuel column includes the bottom and top reflectors. Tables ?? and ?? specify the model input parameters.

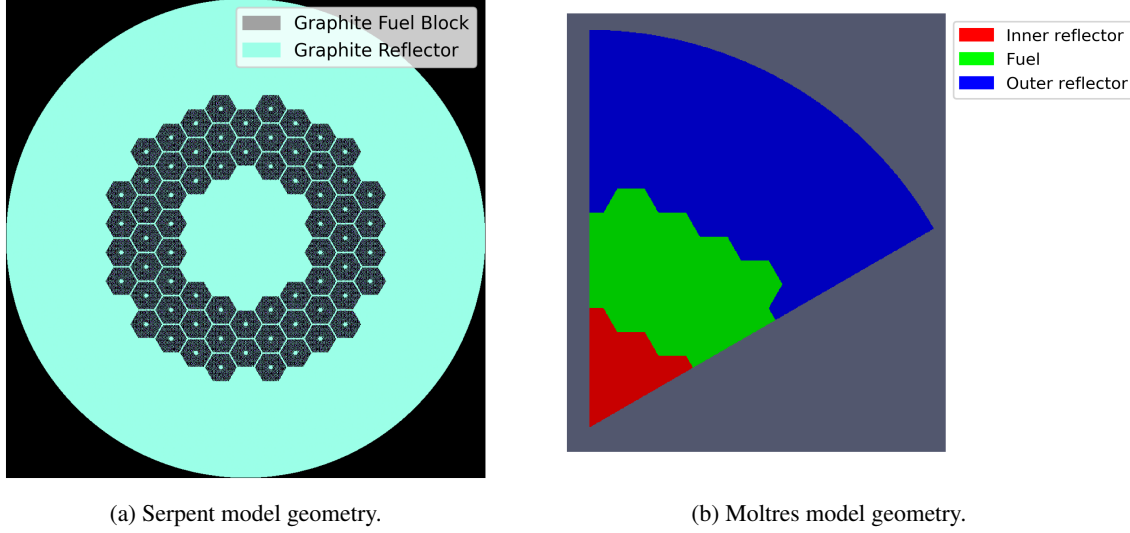


Figure 1: MHTGR-350 full-core models.

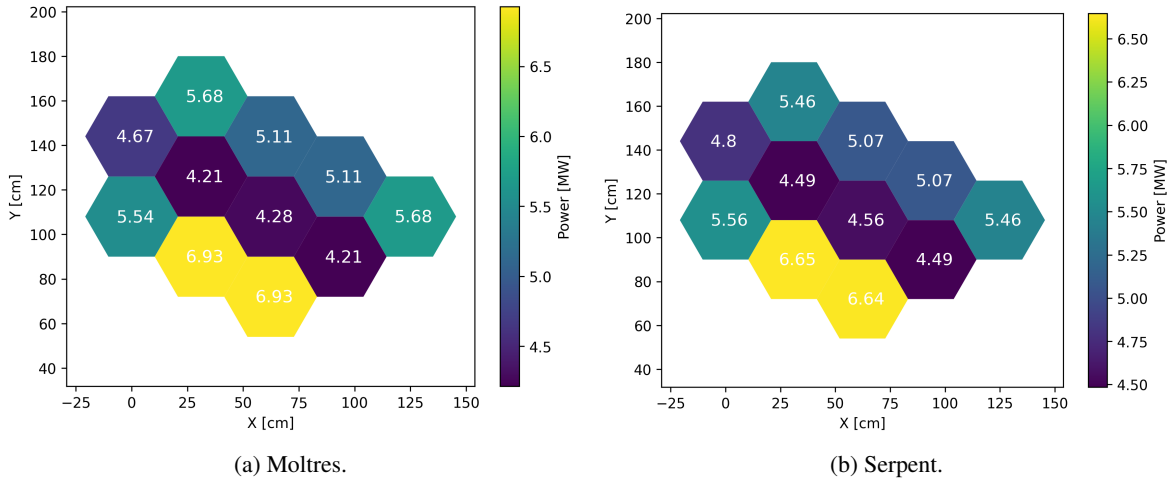


Figure 2: Radial power distribution at 600 K.

1 OECD/NEA Benchmark

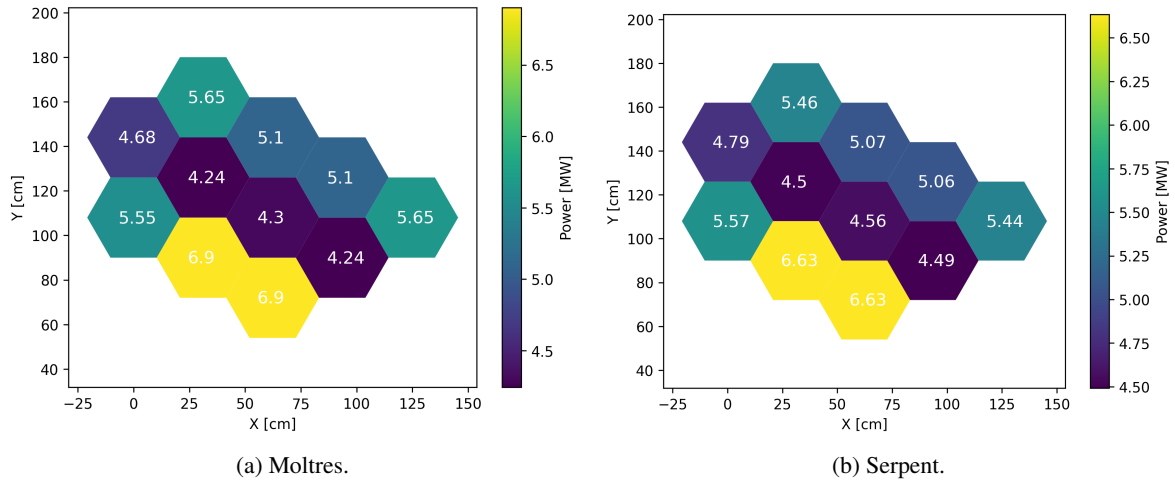


Figure 3: Radial power distribution at 1200 K.

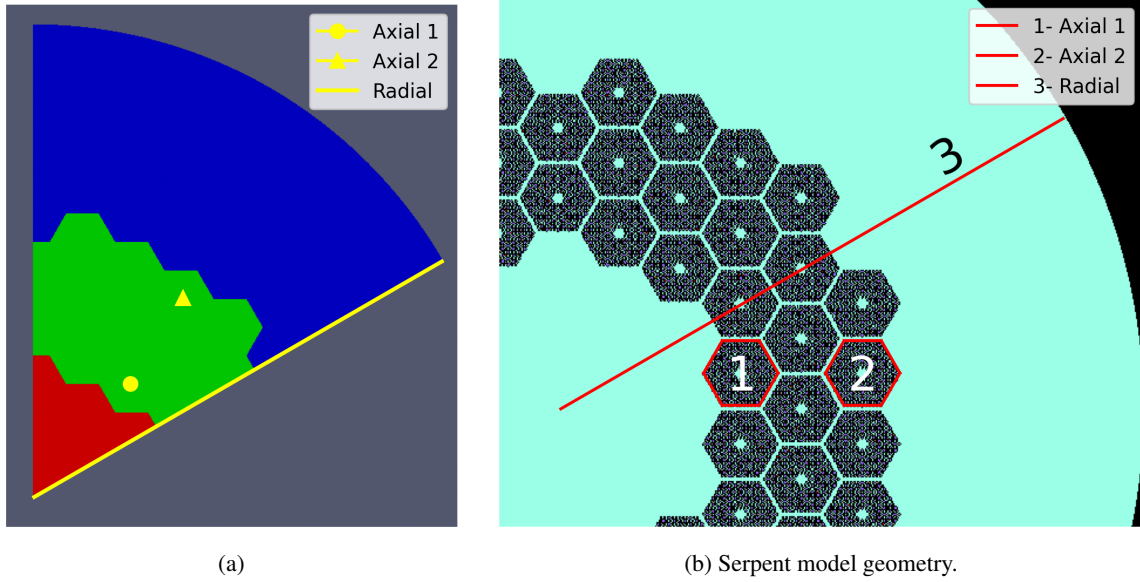
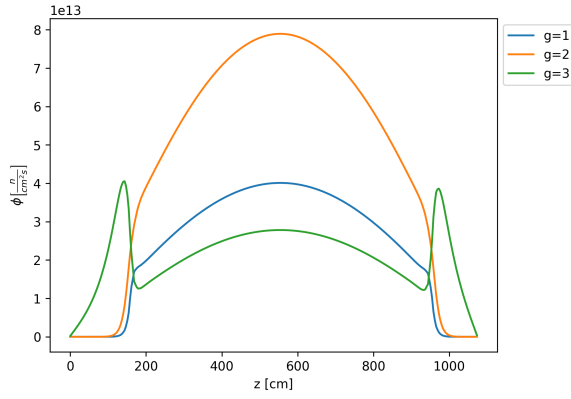
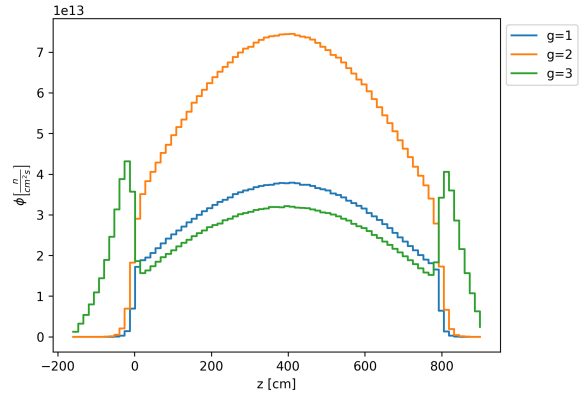


Figure 4: Flux detector locations.

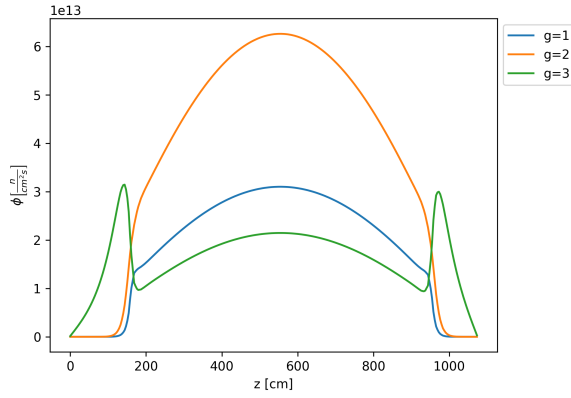


(a)

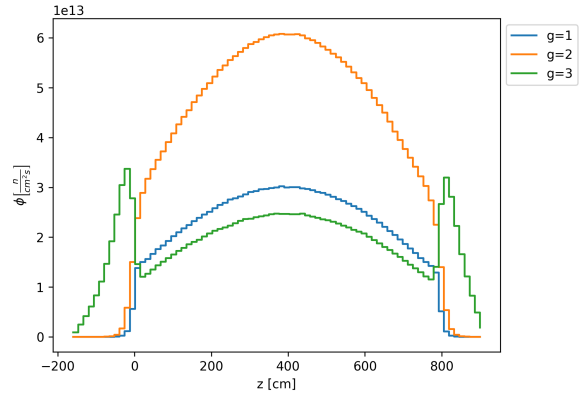


(b) Serpent model geometry.

Figure 5: Flux in axial detector 1 at 600 K.

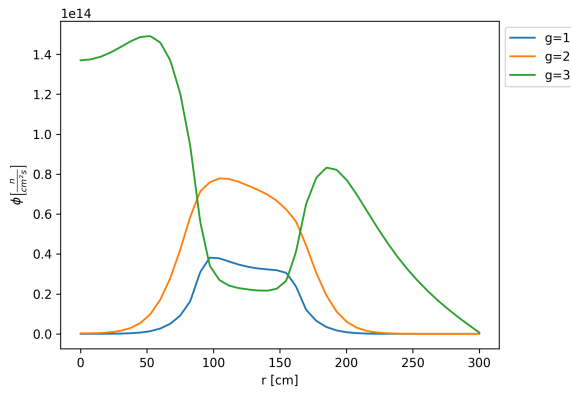


(a) Moltres.

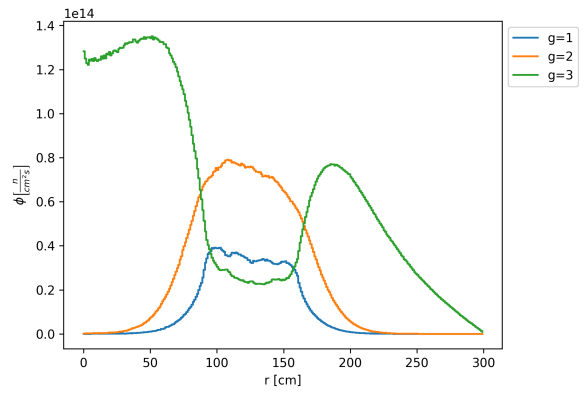


(b) Serpent.

Figure 6: Flux in axial detector 2 at 600 K.



(a) Moltres.



(b) Serpent.

Figure 7: Radial flux at 600 K.

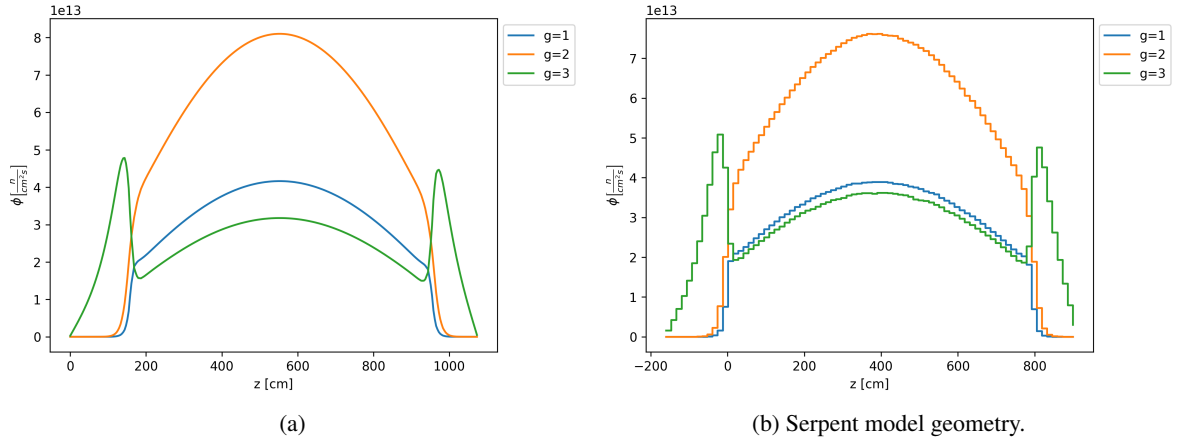


Figure 8: Flux in axial detector 1 at 1200 K.

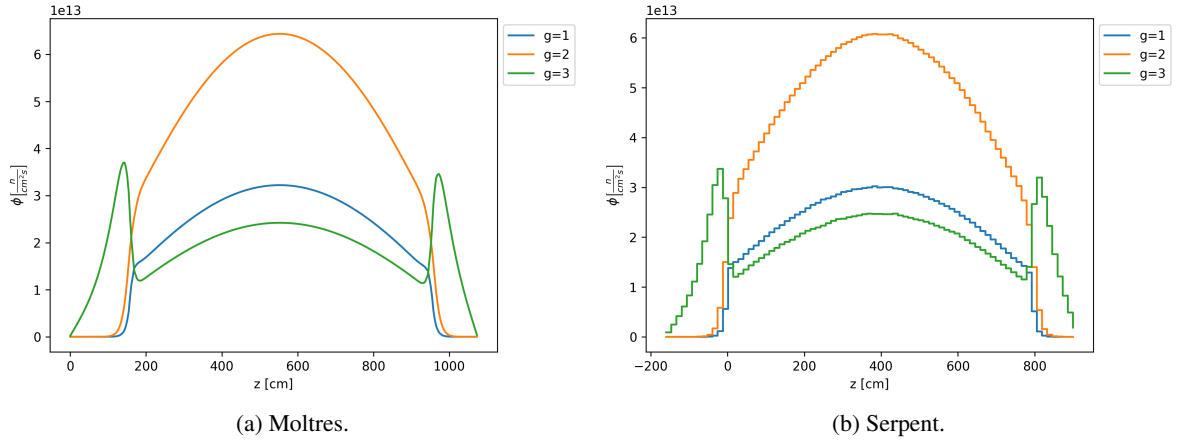


Figure 9: Flux in axial detector 2 at 1200 K.

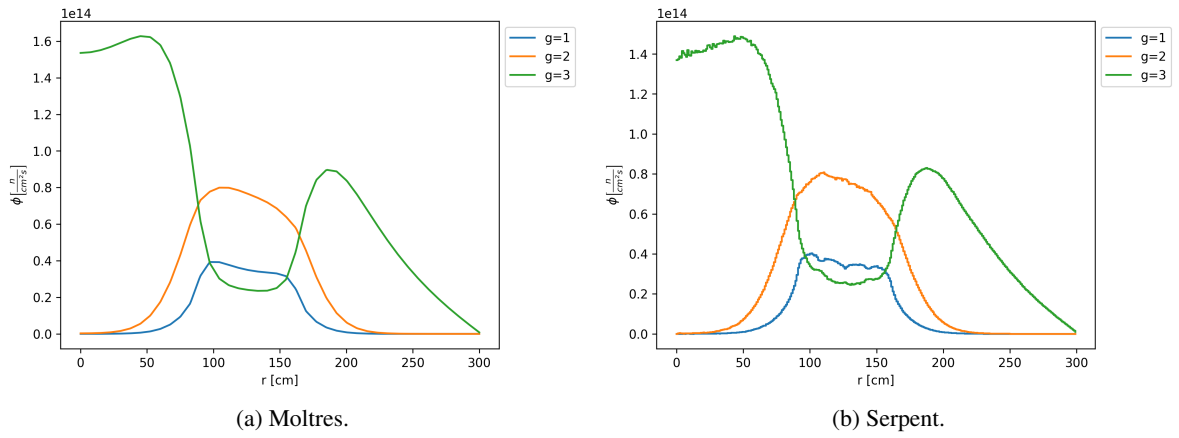


Figure 10: Radial flux at 1200 K.

References