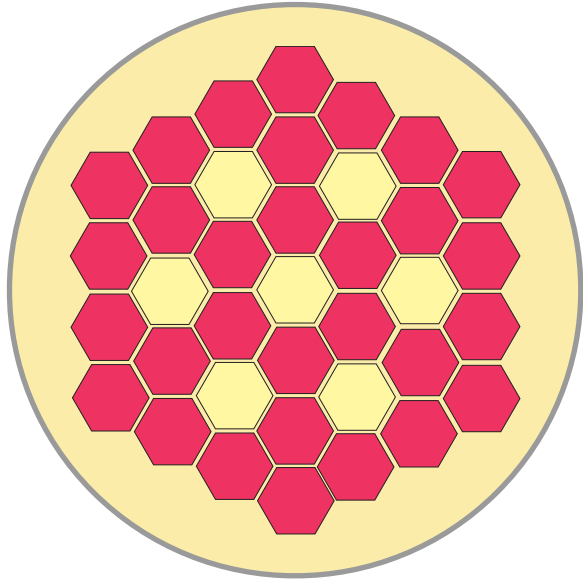


Small reactors:

Home assignment on control rod worth



- Use Serpent to calculate control rod worth for a small HTR (U-Battery), using natural and 90% enriched boron in the rods.
- Total bank worth $\approx 10\,000$ pcm
- How many control rods are necessary to respect $\Delta\rho_{CR} < 0.5$ \$ for a single control rod ?
- Place control rods in
 1. radial graphite reflector blocks.
 2. internal graphite reflector blocks.
- Sample Serpent input file is available on Canvas
- Read and refer to Ding 2011 - Neutronics design of U-Battery
- Prepare five slide presentation for Monday 13/2.
- Expected amount of work: ≈ 8 hours