

Check-in

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1 Updates on previous goals

There were a bunch of goals set up from last check-in.

- new/more reasonable designs of classes/namespaces during restart
- adding pin-resolved mesh functionality.
- helping figure out Marissa's code bugs

2 Progress up to now

2.1 Introduction slides

I've been trying to create an introduction slides. A draft without in-detail testing section has been created but still needs a lot of re-reading and revisions.

2.2 Continuous progress on restarting

The new design mainly involves better using namespaces to contain free functions (rather than using static member method) and more importantly, a global `dealii::ParameterHandler` object. Current implementation for every class has an argument as `dealii::ParameterHandler &prm`. From Josh's idea, I implemented a global object in the `bparams` namespace (`dealii::ParameterHandler bparams::GlobPrm`). Modifying class constructors to use this global object is trivial, however, all the testings needs to be modified accordingly. So the plan is to get Alex coding with me on this part to finish it.

Just as planned and doing it continuously. Yet, there's a big trunk of testing code that needs to be modified accordingly with the design in restart

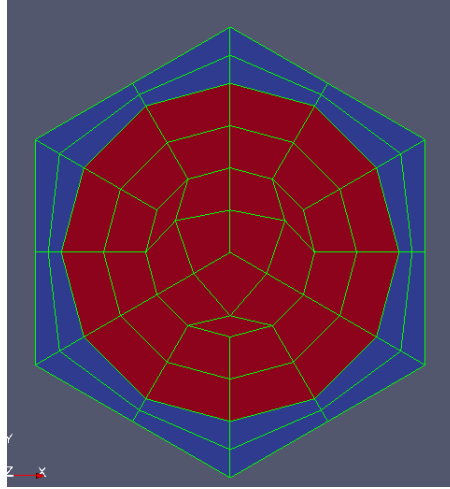


Figure 1: Hexagonal pins

2.3 Last experiment on pin-resolved mesh

After merging rectangle pin meshing, the last experiment was performed to generate hexagonal pin. Added three trivial PRs to deal.II so in the future we can use them directly from deal.II instead of keeping BART unnecessarily bulky.

Thereafter, another experiment was performed on making hexagonal pin, which is useful when simulating fast reactors. See the demo in Figure 1.

The hex-related things could be a interesting directions for future development and research on fast reactors.

2.4 Students

Marissa seems to get things work after our hours of struggle. We finally realized that she had fixed the bug at some point but we kept thinking the implementation was wrong. It turned out to be the plotting functionality flaws of Python functions (or how Marissa used it).

I got a talk with Alex and assigned a task moving `MaterialProperties` class to `restart` branch.

3 Things you need from Rachel

4 Goals/Things will be going on

I will just keep moving on as planned so we can finish restarting soon. Also, I may set up a para-coding with Alex if necessary to help him get things moving on.