Locally structured, overset meshes, as used in the Centers principal code PlasComCM, provide a useful compromise between meshing flexibility and stencil-based efficiency. They also offer logical simulation units for high-order/high-resolution discretizations, decomposing data in memory, representing disparate physics, and transformations to realize performance. This Deep Dive will provide a detailed look at our overset mesh implementation in codelet-OM, a model for PlasComCM. Participants will examine the code structure, construct their own meshes, run it on a platform of interest, or analyze it with tools designed to facilitate performance at scale. In addition, codelet-OM will be analyzed by VectorSeeker, an XPACC vectorization analysis tool used within the Center. Tasks will be designed to facilitate the hands-on experience of the participants. Center code docents will provide support and guidance.

**Wednesday, March 4**

8:30   Welcome and Introductions (Olson)
9:00   XPACC Overview (Freund)
9:30   Overset meshes and our implementation (Bodony)
10:15  Break (NCSA Lobby)
10:30  Hands on: Dive into codelet-OM (Bodony and code docents)
        • obtaining, building, verifying, etc.
12:00  Lunch: Discussion of progress and questions
1:00   VectorSeeker: a vectorization analysis tool (Evans)
1:30   Hands on: Diving Deeper with more detailed tasks, e.g.:
        • Interpolation stencils, numerical properties, etc.
        • Create meshes and run
        • Overset mesh tools
        • Analyzing codelet-OM with VectorSeeker
        • etc.
3:45   Break (NCSA Lobby)
4:00   Regroup and cross-pollinate: 2-minute synopsis by each participant
6:00   Dinner: Self organized suggested restaurants
Thursday, March 5

8:30 **Hands on:** Deepest Diving based on participant interests

- other and/or more advanced tasks, discussions with center personnel

10:45 **Break** (NCSA Lobby)

11:00 **Summary:** 2-minute synopsis and observations by each participant

12:00 **Lunch and follow-on discussion**