

# Announcements

- Separate disruption and R.E. meeting
  - Tuesday afternoon.....time and place? [12:30 – 4:00 free]
- SciDAC-3 OASCR solicitation in progress.
  - SciDAC Institutes proposals due May 2
    - Scalable ManyCore Performance Institute
    - FastMath center
  - SAPs to come?
  - OFES call ??
    - Materials modeling
    - Other?
- Fusion Simulation Project ?
- Center for Exascale Research in Fusion (CERF)
  - One of 5 SC proposals that passed initial downselection
  - Both NIMROD and M3D ( $-C^1$ ) are part of this
  - Final Presentation to Review Panel in DC May 23,24

# The CERF Team

**Advisory Board**  
David Keyes (KAUST/Columbia)  
Timothy Mattson (INTEL)  
Steve Scott (Cray)  
Phil Snyder (GA)  
Katherine Yelick (LLNL)  
Michael Zarnstorff (PPPL)

**CERF Center**  
Director: Alice Koniges (LLNL)  
Deputy Director: Dan Quinlan (LLNL)

**Exascale Co-Design Consortium**

**International Exascale Software Project**

**Computer Science**  
Lead: Curtis Janssen (SNL)  
Co-Lead: John Shalf (LLNL)  
H. Adalsteinsson (SNL)  
P. Beckman (ANL)  
D. Camp (LLNL)  
H. Childs (LLNL)  
R. Gupta (ANL)  
P. Hovland (ANL)  
C. Janssen (SNL)  
C. Liao (LLNL)  
V. Mlaker (LLNL)  
B. Norris (ANL)  
L. Oliker (LLNL)  
T. Pannas (LLNL)  
R. Preissl (LLNL)  
E. Strohmaier (LLNL)  
S. Williams (LLNL)  
J. Wu (LLNL)

**Applied Math**  
Lead: Lois McInnes (ANL)  
Co-Lead: X. (Sherry) Li (LLNL)  
S. Balay (ANL)  
E. Constantinescu (ANL)  
B. Smith (ANL)  
S. Wild (ANL)  
C. Woodward (LLNL)

**Plasma Physics**  
Lead: John Cary (Tech-X)  
Co-Lead: Steve Jardin (PPPL)  
E. Belli (GA)  
J. Candy (GA)  
J. Chen (PPPL)  
A. Collier (GA)  
R. Cohen (LLNL)  
S. Ethier (PPPL)  
S. Kruger (Tech-X)  
P. Messmer (Tech-X)  
D. Smithe (Tech-X)  
C. Sovinec (Wisconsin)  
M. Umansky (LLNL)  
W. Wang (PPPL)  
X. Xu (LLNL)

**Math and CS SciDACs  
Joint Math-CS Institutes**

**CoDEx Design Simulators**

**Vendors**

**Fusion Simulation Project Data  
Plasma SciDACs**



# CEMM Year 1 Milestones

- Modify velocity boundary conditions in M3D and redo previous ITER VDE
- Complete ITER simulation and C-Mod parameter scan with RE test-particle orbit model in NIMROD
- Include 2F and rotation effects in DIII-D ELM simulation at improved parameters
- Complete linear two-fluid ELM benchmark for NIMROD and M3D- $C^1$ .
- Verify continuum closure method on axisymmetric bootstrap currents (NEO) and TAE benchmarks.
- Complete linear study of the effects on growth rates due to energetic particles on the GS.
- Implement 2-field model in nonlinear M3D- $C^1$  and benchmark (including resistive wall)
- ✓ Link M3D- $C^1$  with the PETSc block tri-diagonal solver in an effective manner.
- Complete testing of spectral element multigrid on test problem.
- Define test problems for Year 3 kinetic-MHD workshop