

DOE Workshop on Integrated Simulations for Magnetic Fusion Energy Sciences

Paul Bonoli (MIT) and Lois Curfman McInnes (ANL)

Fusion Energy Sciences Advisory Committee Meeting

March 12-13, 2015

Gaithersburg, MD

<https://www.burningplasma.org/activities/IntegratedSimulations2015>

Highlights from DOE Charge for Integrated Simulation Workshop

- Workshop Goals:

- “Review recent progress and identify gaps and challenges in fusion theory and computation directly relevant to the topic of disruption prevention, avoidance, and mitigation and that of plasma boundary physics, **with whole device modeling as the long-term goal.**”
- “**Reassess these opportunities and adjust or broaden them appropriately,** taking into consideration recent progress and using the criteria of urgency, leadership computing benefit and readiness for progress within a ten-year time frame, and world-leading potential.”
- **Produce a Workshop Report by late June / early July, 2015.**

Workshop on Integrated Simulations for Magnetic Fusion Energy Sciences

Chair: Paul Bonoli (MIT) / Co-chair: Lois Curfman McInnes (ANL)

Physics Panels

A. Disruption Physics

Chair: Carl Sovinec (UW)

Co-chair: Dylan Brennan (Princeton)

B. Boundary Physics (Ped. & SOL)

Chair: Tom Rognlien (LLNL)

Co-chair: Phil Snyder (GA)

C. Whole Device Modeling

Chair: Jeff Candy (GA)

Co-chair: Chuck Kessel (PPPL)

Cross-cutting ASCR Panels

D. Multiphysics and Multiscale Coupling

Chair: Jeff Hittinger (LLNL)

Co-chair: Luis Chacon (LANL)

E. Beyond Interpretive Simulations

Chair: Donald Estep (Colorado State U.)

Co-chair: Todd Munson (ANL)

F. Data Management, Analysis, and Assimilation

Chair: Wes Bethel (LBNL)

Co-chair: Martin Greenwald (MIT)

G. Software Integration and Performance

Chair: David Bernholdt (ORNL)

Co-chair: Bob Lucas (USC/ISI)

Timeline: Workshop on Integrated Simulations for Magnetic Fusion Sciences

Date	Activity	Participants
March – early April	Gather community input via 2-page whitepapers	FES and ASCR community
March, April, May	Panel communication as needed	Panel leads, co-leads, and members
May 18-19	Virtual presentations of selected whitepapers	FES and ASCR community
May	Write draft sections of report	Panel leads, co-leads, and panel members
June 2-4	Workshop on Integrated Simulation for Magnetic Fusion Sciences in Rockville, MD	Leaders and panel members invited by the Chair and Co-chair; (attendance will be limited to keep the overall cost of the workshop below a certain threshold)
June 30	Submit completed report to FES and ASCR	Panel leads, co-leads, and selected panelists (“writers”)