

C-Mod/NSTX Pedestal Workshop
Site: Princeton Plasma Physics Laboratory
Revised dates: Sept 7-8, 2010

The purpose of this meeting will be to gather testable ideas from interested experimentalists, theorists and modelers for research that can advance the predictive capability for the H-mode pedestal, in the FY11 experimental campaign at C-Mod and NSTX. The test of H-mode pedestal models is the subject of the FY2011 Joint Facilities Research Target, which has both experimental and theoretical components. The draft wording of the milestone is given below.

We intend to review and build upon the results of the February 2010 “DIII-D Pedestal Transport Workshop”, hosted by J. Callen and R. Groebner. The Agenda and Summary talks from Callen and Groebner at that workshop are available at: http://nstx.pppl.gov/DragNDrop/Scientific_Conferences/FY11_JRT_Planning/. The aim here is to encourage proposals of (1) specific experimental tests of theory and modeling predictions of pedestal transport and structure, and (2) extended experiments and modeling to enhance the understanding of prior experimental results. Ideas for novel experimental techniques and uses of diagnostics are encouraged. Our preliminary estimate is that this meeting will last about 1.5 days.

Please inform Jerry Hughes and Rajesh Maingi (see email addresses below) of your intent to participate, and the title of a talk you would like to present by 9/1/10.

Here is background information on the capabilities of C-Mod and NSTX in this area:

C-Mod: <http://www.psf.mit.edu/~jwhughes/pedws10/facility.html>

NSTX: Maingi_NSTX_FY11JRT_Mar10.pdf - located in

http://nstx.pppl.gov/DragNDrop/Scientific_Conferences/FY11_JRT_Planning/

The meeting will be held in room B318 at PPPL. Several connection methods are possible:

H323: 8877775

Real player: <rtsp://http://webmedia.pppl.gov/broadcast/b318.rm>

Toll free phone link: 877-336-1839 Participant Access Code: 1388819#

For additional information, please contact

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PPPL Audio Visual Support: vcs@pppl.gov

The wording of the FY2011 Joint Facilities Research Target is:

“Improve the understanding of the physics mechanisms responsible for the structure of the pedestal and compare with the predictive models described in the companion theory milestone. Perform experiments to test theoretical physics models in the pedestal region on multiple devices over a broad range of plasma parameters (e.g., collisionality, beta, and aspect ratio). Detailed measurements of the height and width of the pedestal will be performed augmented by measurements of the radial electric field. The evolution of these parameters during the discharge will be studied. Initial measurements of the turbulence in the pedestal region will also be performed to improve understanding of the relationship between edge turbulent transport and pedestal structure.

A focused analytic theory and computational effort, including large-scale simulations, will be used to identify and quantify relevant physics mechanisms controlling the structure of the pedestal. The performance of future burning plasmas is strongly correlated with the pressure at the top of the edge transport barrier (or pedestal height). Predicting the pedestal height has proved challenging due to a wide and overlapping range of relevant spatiotemporal scales, geometrical complexity, and a variety of potentially important physics mechanisms. Predictive models will be developed and key features of each model will be tested against observations, to clarify the relative importance of various physics mechanisms, and to make progress in developing a validated physics model for the pedestal height.”