January 30, 2002

Status of Energetic Particle Working Group for the 2002 Snowmass Summer Study

TASK	KEY PERSON(S) *	STATUS
Analyze effect of multi-mode dynamics and EPM behavior on confinement		
Kinetic analysis of the three burning plasma options and key alpha physics parameters using TRANSP code	R. Budny (PPPL)	Draft paper already in circulation.
Simulation of multi-mode interaction and fast ion avalanche threshold condition using NOVA-K and ORBIT codes	G. Kramer (PPPL), R. White (PPPL)	Not yet begun. Earliest results expected by the end of April.
Simulation of EPM-induced redistribution of fast ions in the three proposed burning plasma experiments	G. Fu (PPPL), M. Chu (GA)	Yet to begin. The needed modification of M3D code to adaptive mesh is now underway.
Nonlinear physics issues in fast ion research and broader implications to other fields	B. Breizman and H. Berk (IFS)	In preparation.
Perform linear stability analysis with energetic particles		
Linear local high-n stability analysis of TAE, RTAE, and EPM modes in the three devices	N. Gorelenkov (PPPL)	Draft paper in preparation. To be presented at the TTF Meeting in April.
Global linear eigenmode analysis of the three devices using NOVAS-K and NOVA-2 codes	G. Kramer (PPPL)	Just begun. Will report on progress at the TTF Meeting.
Relation of fast ion physics in tokamaks to stelllarators	D. Spong (ORNL)	Drat paper in preparation. To be presented at the TTF Meeting.
Assess alpha measurement and modeling needs and adequacy, with relation to current experiments		
Fast ion physics issues in burning tokamak plasmas	W. Heidbrink (UCI)	Draft paper already exists (related to his invited talk on this subject at 2001 DPP/APP Meeting). To be discussed at the TTF Meeting.
Physics requirements for a burning plasma experiment to address generic fast ion physics issues and relevance of a burning plasma experiment to ICCs	R. Nazikian (PPPL) and J. Van Dam (IFS)	Nazikian gave a presentation at the ICC Meeting last week (this can be posted on the Snowmass web page). Next step is to build on this, using input from the ICC community. Working with B. Hooper to set up a team of ICC principals to work on this with us.
Connection between tokamak fast ion physics and astrophysics and space plasmas	C. Z. Cheng (PPPL)	In preparation.

* ***NOTE***: Anyone interested in being involved in any of these tasks is heartily encouraged to contact the working group coordinators: Raffi Nazikian <rnazikian@pppl.gov> or Jim Van Dam <vandam@physics.utexas.edu>.