Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Enhancement of KSTAR plasma control for expanding operational space SANG-HEE HAHN, Y.M. JEON, H. HAN, H.S. AHN, J. KIM, Y.J. KIM, M. JOUNG, M.H. WOO, National Fusion Research Institute, D. MUELLER, Princeton Plasma Physics Laboratory, N.W. EIDIETIS, M. LANCTOT, D.A. HUMPHREYS, A.W. HYATT, A.S. WELANDER, M.L. WALKER, General Atomics, E. KOLEMEN, Princeton University, Y.S. PARK, S.A. SABBAGH, Columbia University — In order to expand the operational space with stationary high performances, new approaches on the magnetic control design are necessary. A few examples on recent achievements at KSTAr are presented here: The Introduction of the in-vessel radial control (IRC) provides a fundamental change on baseline axisymmetric magnetic controls. Analysis on dedicated simulations/experiments for the vertical stabilization control margin gave an insight for improvement of the vertical position control. In order to enhance flexibility on the non-axisymmetric 3D field physics studies, the KSTAR RMP coil systems have been upgraded in 2015 provide more variety on the available 3D field profile. Integration of real-time heating device control enabled more elaborate kinetic controls since 2013. Real-time TM suppression is introduced as an example of the integrated control, which will be linked to stability control in the high-beta regime relevant to ITER success.

Sang-hee Hahn
National Fusion Research Institute

Date submitted: 24 Jul 2015 Electronic form version 1.4