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The Status of KSTAR and Research Plan¹ H.K. PARK, National Fusion Research Institute, Ulsan National Institute of Science and Technology, Y.K. OH, S.W. YOON, National Fusion Research Institute, KSTAR TEAM — The Korean Superconducting Tokamak Advanced Research (KSTAR) capable of steady state operation of high beta plasmas, has achieved a significant progress in operation such as the longest (~ 55 s) H-mode operation as well as newly discovered MHD and transport physics issues such as the interaction between ELMs and turbulence under RMP. The KSTAR is equipped with unique features for potentially unexplored tokamak physics and advanced control; 1) Lowest error field and magnetic ripple ideal for study of the influence of the tokamak plasma symmetry on stability and confinement study 2) Versatile magnetic perturbation tool with $n = 1, 2$ IVCC coils for harmful MHD control including the ELMs and rotation control through NTV 3) Advanced 2D/3D imaging diagnostics for undisputed measurements for theory and modeling. In this talk, advances in research and vision toward the high beta long pulse operation in KSTAR will be addressed.

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Jaehyun Lee
UNIST

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