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Perspectives of extremely low q operation with internal transport barrier in KSTAR JAYHYUN KIM, National Fusion Research Institute, H.K. PARK, Ulsan National Institute of Science and Technology, J. CHUNG, M.J. CHOI, H.S. KIM, Y,M. JEON, J.S. KO, H.H. LEE, K.D. LEE, National Fusion Research Institute, THE KSTAR TEAM — For an ideal fusion reactor, discharges with internal transport barrier (ITB) can be the most attractive operation mode due to high core temperature and low transient heat flux. However, the ITB mode inherently has problems such as collapse by MHD instability. Recently, it has been proved in KSTAR that stable operation of more than several seconds is possible even in the ITB mode due to the existence of benign bursting mode which prevents the formation of steep pressure gradient [1]. On the other hand, KSTAR also demonstrated the stabilization of potentially dangerous instabilities of low mode numbers through low q (~2) operation [2]. In this study, we will discuss the perspectives of low q operation with ITB mainly considering their MHD characteristics. During a preliminary attempt in 2017 campaign, transient ITB of H_{89L}~1.9 was obtained in NBI heated L-mode discharge after entering relatively low q (<3) regime by late additional NB heating. [1] J. Chung *et al.*, submitted to Nucl. Fusion. [2] T. Suzuki et al., IAEA FEC (2004) EX/1-3.

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