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Single Null Negative Triangularity Tokamak for Power Handling MITSURU KIKUCHI, National Institutes for Quantum and Radiorogical Science and Technology(QST), S. MEDVEDEV, KIAM, T. TAKIZUKA, Osaka University, O. SAUTER, A. MERLE, S. CODA, SPC, EPFL, D. CHEN, INEST, J.X. LI, SWIP — Power and particle control in fusion reactor is challenge and we proposed the negative triangularity tokamak (NTT) to eliminate ELM by operating L-mode edge with improved core confinement [1-3]. The SN configuration has more flexibility in shaping by adopting rectangular-shaped TF coils. The limiting normalized beta is 3.56 with wall stabilization and 3.14 without wall [3]. The vertical stability is assured under a reasonable control system. The wetted area on the divertor plates becomes wider in proportion to the larger major radius at the divertor strike points due to the NT configuration. In addition to the major-radius effect, the "Flux Tune Expansion (FTE)" [4] is adopted to further reduce the heat load on the divertor plate by factor of ~ 2.6 with a coil current 3 MA. L-mode edge also allows further increase in wetted area. The fusion power of 3 GW is deliverable only at normalized beta 2.1. Therefore this reactor may be operable stably against the serious MHD activities. The CD power for SS operation is $^{-175}$ MW at Q = 17. AC operation is also possible option. A required HH factor is relatively modest H = 1.12. [1] M. Kikuchi et al., 1st Int. e-Conf. Energies 2014, e002, [2] S. Medvedev, M.Kikuchi, et al., Nucl. Fus. 55, 063013 (2015) [3] S. Medvedev, M. Kikuchi, et al., 26th IAEA-FEC, ICC/P3-47 (2016), [4] T. Takizuka, et al., J. Nucl. Mater. 463, 1229 (2015).

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