

Abstract Submitted
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2-Dimensional Imaging Measurement for Pressure-Driven Instability in High Beta Spherical Tokamak HEIZO IMANAKA, YOSHINORI HAYASHI, The University of Tokyo, EIITIRO KAWAMORI, National Cheng Kung University, YASUSHI ONO, The University of Tokyo — We have been forming ultra-high-beta Spherical Tokamaks (ST) using reconnection heating of their axial merging in the TS-4 experiment, University of Tokyo. The produced ST was observed to have the maximum beta 50-60% right after the reconnection. An question is whether the pressure-driven instability dangerous for high-beta STs appears or not. Using two dimensions image camera, we detected line-shaped emission parallel to magnetic line at the plasma surface. These results agree with a characteristic of the ballooning instability that grows up locally with magnetic line. The two dimensions magnetic probe measurement enabled us to study s-alpha diagrams for the produced ST plasmas using the ballooning stability code. The line-shaped emission was found to appear only when its s-alpha parameters is located in unstable region for ideal ballooning mode. No line-shaped emission was detected when its s-alpha parameters is located in the stable regime. Further magnetic measurement will be made to clarify the localized mode in the high-beta state in addition to the imaging camera measurement.

Yasushi Ono
The University of Tokyo

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