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Modification of far-SOL flow by substantial gas injection in the inboard poloidal field null configuration on QUEST[1] T. ONCHI, H. ZUSHI, Y. OYAMA, K. MISHRA, Y. NAGASHIMA, K. HANADA, H. IDEI, M. HASEGAWA, A. KUZMIN, K. NAKAMURA, A. FUJISAWA, Kyushu Univ, K. NAGAOKA, NIFS, QUEST TEAM — Spontaneous plasma flow is generated in the inboard poloidal field null (IPN) configuration on QUEST spherical tokamak. Previous research has found that there is a significant relationship between plasma current and far-SOL flow. Consequently, the SOL flow is influenced by global modification of IPN plasma. For further understanding of the far-SOL flow, a hybrid probe measuring plasma flow, electron density n_e, and temperature T_e, was installed in the far-SOL. Using the hybrid probe and divertor probe array, two-point observation on an open flux surface was performed to study the SOL-divertor relationship and the particle transport. Substantial gas injection (GI) from private region of the IPN configuration leads to high core density but I_p-drop by 50 %. n_e and T_e in the far-SOL and divertor region are modified appreciably due to the GI. Poloidal flow reversal occurs and toroidal velocity drops by about 50 % in the far-SOL. We investigate modifications of pressure gradient, electric field and particle transport, and study complex structure of the far-SOL flow.

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