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Observation of non-locality of parametric decay during rf injection experiments on TST-2¹ YOSHIHIKO NAGASHIMA, TAKUYA OOSAKO, YUICHI TAKASE, AKIRA EJIRI, OSAMU WATANABE, HIROAKI KOBAYASHI, TAKASHI YAMAGUCHI, BYUNG IL AN, HIROKI KURASHINA, KOTARO YAMADA, HIROYUKI HAYASHI, HADUKI MATSUZAWA, KENTARO HANASHIMA, JUNICHI HIRATSUKA, HIDETOSHI KAKUDA, TAKUYA SAKAMOTO, TAKUMA WAKATSUKI, The University of Tokyo — Investigation of linear/nonlinear wave energy transfer in spectral and real spaces of plasma is important for understanding complex plasma structural formation. We present an experimental observation of non-locality of parametric decay instability (PDI) during rf injection experiments in the TST-2 spherical tokamak. The PDI is considered to be mainly associated with pump wave (high harmonic fast wave, HHFW), lower-sideband (HHFW or ion Bernstein wave), and ion cyclotron quasi-mode (ICQM). PDI is a nonlinear and local phenomenon. However, the PDI is widely observed in various locations inside the vessel, and the same frequency matching condition is satisfied beyond difference of local ion cyclotron frequencies at observation locations. We discuss origin of the non-locality in term of wave propagation and coupling phase.

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