Abstract Submitted
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Toroidal rotation of localized dynamo event in a low-aspect-ratio RFP plasma[1] R. IKEZOE, T. ONCHI, K. OKI, Y. KONISHI, M. SUGIHARA, S. FUJITA, A. SANPEI, H. HIMURA, S. MASAMUNE, Kyoto Institute of Technology, RELAX TEAM — A burst of the edge magnetic fields has been observed in low density discharges in the low-aspect-(A) ratio RFP machine, RELAX. The burst occurs at a toroidally localized position, then rotating in the opposite direction to the plasma current at 10-20 km/s. The evolutions of the edge toroidal field and the toroidal flux in the toroidal section where the burst occurs show that the toroidal flux increases at the burst and the toroidal field profile is modified accordingly; the burst will be referred to as a localized dynamo event. The toroidal flux keeps rising between the bursts at much slower rate than at the burst. This indicates that the discrete dynamo event may be superimposed on the mild continuous dynamo in RELAX. The time evolution of soft-x-ray and H_α emissions, has indicated that the localized dynamo is closely related to particle and energy transport. We present the detailed characteristics of this burst phenomenon with emphasis on the effect of low aspect ratio.

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