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Finite-size Intrinsic Josephson Junctions under Layer Parallel Magnetic Field TAKESHI HATANO, SHINYA URAYAMA, SUNMI KIM, HUABING WANG, MASANORI NAGAO, KUNIHIRO INOMATA, YOSHIHIKO TAKANO, TSUTOMU YAMASHITA, MASASHI TACHIKI, National Institute for Materials Science, MASAHIKO MACHIDA, Japan Atomic Energy Research Institute — Oscillations of Josephson vortex flow resistance have been studied in finite-size Bi-2212 intrinsic Josephson junctions as a function of magnetic field applied parallel to the junctions. The lengths of junctions fabricated are around one micrometer so as to enhance pinning effects of the Josephson vortex lattice to the junction edges and thus to enhance the formation of rectangular vortex lattice which would lead an *in-phase* mode of the junctions as a possible candidate for the THz generator application. The observed Josephson vortex flow resistance showed a periodic oscillation with a period (H_P) corresponding to one flux quantum enters per junction, namely, corresponding to the rectangular vortex lattice. The peaks in the oscillations were found at the fields H=nH_P, here n shows an integer number. Therefore, the Josephson vortex lattice flow speed is maximum when the outermost vortex rows geometrically match to the edges of the junction. Contrary to this, minimum of flow speed, namely pinning of the vortex lattice, was observed at H=$(n$+1/2$)H_P$. The pinning configuration will be discussed based on the strong edge effects in finite-size intrinsic Josephson junctions.

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