

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Josephson and pancake vortices in Bi-2212 with anti-dots array** KAZUTO HIRATA, SHUICHI OOI, TAKASHI MOCHIKU, National Institute for Materials Science — Josephson and pancake vortices in Bi-2212 with anti-dots (holes) array have been studied with measuring the flow-resistance and the c-axis resistance. The samples for the measurements were prepared by a focused ion-beam milling with a diameter of 200 nm and 1000 nm pitch hole-array and in the in-line structure. Angular dependence of the flow-resistance does not show lock-in phenomenon as usually observed in the behaviors of Josephson vortices in Bi-2212. Instead, there are several peaks observed in the flow-resistance. A couple of peak can be explained with the matching field effect of pancake vortices to the array, but the others not. The c-axis transport measurements show characteristic transitions near the matching fields and between them in the c-axis resistance with the perpendicular field to the superconducting layers. This is related to the accommodation rate of pancake vortices into the holes and to the interaction between/among the vortices outside the holes and the trapped vortices.

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Date submitted: 10 Nov 2011

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