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**Collapse of peak effect by alternating current and its frequency dependence in MgCNi<sub>3</sub> single crystal** DONG-JIN JANG, Department of Physics, Pohang University of Science and Technology, Pohang, 790-784, Republic of Korea., HYUN-SOOK LEE, Department of Physics, Pohang University of Science and Technology, Pohang, 790-784, Republic of Korea, H-G LEE, National Creative Research Initiative Center for Superconductivity and Department of Physics, Sogang University, Seoul 121-742, Republic of Korea, M-H CHO, Department of Physics, Pohang University of Science and Technology, Pohang, 790-784, Republic of Korea, SUNG-IK LEE, National Creative Research Initiative Center for Superconductivity and Department of Physics, Sogang University, Seoul 121-742, Republic of Korea — The peak effect, which appears as sharp rise in critical current near superconductor-normal transition of a superconductor, is first order phase transition. However, if vortices happen to move across sample by direct current (DC), sharp transition nature becomes blunted by edge contamination as intensively studied in NbSe<sub>2</sub>. This edge contamination has been shown to be removed by alternating current (AC) or by using edgeless Corbino geometry. Among few superconducting materials showing peak effect, MgCNi<sub>3</sub> exhibits fairly sharp peak effect even in DC strip geometry. And remarkably, critical current measured by using AC is greatly suppressed as frequency of AC increases.

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