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Fiske and size-independent resonances in $I-V$ characteristics of micron-sized $Bi_2Sr_2CaCu_2O_{8+\delta}$ single crystals ITSUHIRO KAKEYA, YUIMARU KUBO, MASASHI KOHRI, KAZUKI FUKUI, KOHEI KAWAMATA, TAKASHI YAMAMOTO, KAZUO KADOWAKI, Institute of Material Science, University of Tsukuba, 1-1-1, Ten-nodai, Tsukuba, 3058573, Japan — We have investigated the c-axis transport properties of micron-size $Bi_2Sr_2CaCu_2O_{8+\delta}$ (Bi2212) single crystals fabricated by the focused ion beam method under magnetic field parallel to the ab-plane. It was found that periodic current steps in current-voltage ($I-V$) characteristics, whose features are similar to the Fiske step known in a single Josephson junction. We also found another current step with non- oscillating field dependence in low voltage region. Since the voltage of this step does not depend on the sample size unlikely to the Fiske step, it is considered that the step is attributed to an intrinsic phase excitation of Bi2212.

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