

Size effect on vortex avalanche in superconducting MgB₂ thin films

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Vortex avalanche appears in c-oriented MgB₂ thin films. To understand the origin of this phenomenon, we varied the size of MgB₂ thin film and measured the magneto optical images (MOI) and M-H loops by MPMS (SQUID). Critical current densities are calculated for both cases. It was found that vortex avalanches are strongly affected by the size of thin films. When sample size becomes narrower, the appearance of dendrites is diminishing. The origin of this size effect will be explained by the recent development of the thermo-magnetic effect of the vortex avalanche