

Nanoparticle Deposition for Pinning Centers

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We have investigated nanoparticle deposition for pinning centers. We have attempted two methods using cluster beam and using nanopowder in plasma. In cluster beam method, MgO or WO₃ was evaporated, and the vapor passed through the hole above the evaporation source forming clusters. The cluster beam source was installed in an Evaporation using Drum in Dual Chamber(EDDC) system, and the clusters were deposited on single- or bicrystalline substrates while on SmBCO deposition. In the nanopowder-in-plasma method, we made an experiment using a dusty plasma system with CeO₂ nanopowder. The nanoparticles are charged and trapped in plasma, and then they will be accelerated by an applied electric field and deposited. The samples prepared by these methods were observed by AFM or SEM.

Keywords : pinning center, nanoparticle