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Influence of disorder on the vortex pinning and cutting of $YBa_2Cu_3O_7$ films B. MAIOROV, L. CIVALE, Q.X. JIA, H. ZHOU, S.R. FOLTYN, T.G. HOLESINGER, Superconductivity Technology Center, LANL, Los Alamos, NM , S. BAILY, Superconductivity Technology Center and National High Magnetic Field Laboratory, LANL, Los Alamos, NM , H. WANG, Texas A & M University, College Station, TX, J.L. MACMANUS-DRISCOLL, Dept. of Materials Science, University of Cambridge, UK, T.N. HAUGAN, P.N. BARNES, Air Force Research Laboratory, Wright-Patterson Air Force Base, OH — Flux cutting and recombination has been used to explain high critical current densities (J_c) observed in experiments done in Force-Free (FF) and Variable Lorentz Force(VLF) configurations *i.e.*, when the current I is totally or partially aligned to the applied magnetic field H. However, the effect of different pinning centers has not been studied. We present angular and field J_c studies in FF and VLF configurations and study the effects of random, correlated and extended defects on the J_c of $YBa_2Cu_3O_7$ films. Results are analyzed in terms of vortex pinning at different defects and vortex cutting mechanism. We show that pinning greatly influences J_c in FF and VLF, up to the point of obtaining J_c higher than $J_c(H = 0)$ up to magnetic fields as high as 3T

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