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Vortex Pinning in Superconducting MoGe Films Containing Conformal Arrays of Nanoscale Holes and Magnetic Dots Y.L. WANG, MSD, Argonne National Lab, IL, USA, M.L. LATIMER, Z.L. XIAO, MSD, Argonne National Lab and Department of Physics, Northern Illinois University, L.E. OCOLA, R. DIVAN, CNM, Argonne National Lab, IL, USA, U. WELP, G.W. CRABTREE, W.K. KWOK, MSD, Argonne National Lab, IL, USA — Recent numerical simulations by Ray et al. predict that a conformal pinning array can produce stronger vortex pinning effect than other pinning structures with an equivalent density of pinning sites [1]. Here we present experimental investigations on conformal pinning structures. Direct and conformal pinning arrays of triangular and square lattices were introduced into MoGe superconducting films using focused-ion-beam milling or electron-beam lithography. Transport measurements on critical currents and magnetoresistances were carried out on these samples to reveal the advantages of conformal pinnings. Effects of random pinnings with the same average density were also studied for comparison. Details on sample fabrications and effects of pinning types (holes versus magnetic dots) will be presented. Reference: [1] D. Ray, C.J. Olson Reichhardt, B. Janko, C. Reichhardt, arXiv:1210.1229 (2012) Work supported by the US DoE-BES funded Energy Frontier Research Center (YLV), and by Department of Energy, Office of Science, Office of Basic Energy Sciences (MLL, ZLX, LEO, RD, UW, WKK), under Contract No. DE-AC02-06CH11357

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