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Angular dependence of magneto-transport properties in $Ba_{1-x}K_x(FeAs)_2$ and Ba $(Fe_{1-x}Co_x)_2As_2$single crystals GOUTAM SHEET, ULRICH WELP, YING JIA, WAI-KWONG KWOK, Materials Science Division, Argonne National Laboratory, Argonne, USA, E.C. BLOMBERG, M.A. TANATAR, N. NI, S.L. BUD'KO, P.C. CANFIELD, R. PROZOROV, Iowa State University, Ames, Iowa, USA, H.H. WEN, University of Nanjing, Nanjing, China — We find unexpectedly sharp minima in the angular dependence of the flux-flow resistance of a series of $Ba_{1-x}K_x(FeAs)_2$ and $Ba(Fe_{1-x}Co_x)_2As_2$crystals when the magnetic field is applied parallel to the FeAs-planes. These minima are too sharp to be accounted for by effective mass anisotropy. Furthermore, since the c-axis coherence length is substantially larger than the FeAs layer spacing, intrinsic pinning mechanisms are ruled out. However, high-resolution cross-sectional SEM reveal the presence of plate-like inclusions of 50 - 100 nm thickness, which in a natural way can account for the enhanced pinning for H || ab. On crystals that have been irradiated with heavy ions along the c-axis we observe additional resistance minima for H || c, indicating the correlated nature of the irradiation induced defects.

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