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Peak Effect in Co_xNbSe_2 Single Crystals[1] MARIA IAVARONE, Argonne National Laboratory, R. DI CAPUA, Universita' degli Studi del Molise, Italy, G. KARAPETROV, Argonne National Laboratory, A. KOSHELEV, D. ROSENMANN, H. CLAUS, W.K. KWOK, Argonne National Laboratory — We report a pronounced peak effect in the magnetization of Co_xNbSe_2 single crystals having critical temperatures ranging between 7.1 K and 5.0 K. Magnetization studies reveal that the magnetic irreversibility below the peak effect regime is higher in samples with lower concentration of Co while exhibits a nearly reversible magnetization over a wide range of magnetic field for samples with higher concentration of Co. However, in the peak effect regime the situation is different. The irreversibility is a non-monotonic function of the Co content, and therefore of the critical temperature of the sample. This behavior cannot be explained as a crossover between collective to single pinning regimes as suggested for $NbSe_2$, since this should be a monotonic function of number of pinning centers. Furthermore, we investigated the peak effect regime with low temperature STM at 4.2 K and 1.8 K.

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