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STM studies of Co_xNbSe_2 and Mn_xNbSe_2 MARIA IAVARONE, GORAN KARAPETROV, Materials Science Division, Argonne National Laboratory, ROBERTO DI CAPUA, Dipartimento S. pe. S., Universita degli Studi del Molise, Campobasso I-86100, Italy, ALEX KOSHELEV, DANIEL ROSENMANN, Materials Science Division, Argonne National Laboratory, TERUKAZU NISHIZAKI, NORIO KOBAYASHI, Institute for Materials Research, Tohoku University, Japan — The effect of the intercalation of Co and Mn into the 2H phase transition-metal dichalcogenide NbSe2 has been investigated with a low temperature scanning tunneling microscope (STM). The effect of individual atomic impurities on the superconduting state has been studied. Tunneling spectroscopy at 0.4 K reveals clear spectroscopic signature of the magnetic impurities at atomic scale. We find that Co is in the weak scattering limit and the tunneling spectra are homogeneous on the sample surface with sharp coherent superconducting peaks. Mn instead acts as a strong scatterer destroying superconductivity at atomic scale, even when the number of impurities is limited to just a few in a correlation volume. The effect of intercalation on the charge density waves will be discussed as well. This work was supported by UChicago Argonne, LLC, Operator of Argonne National Laboratory ("Argonne"). Argonne, a U.S. Department of Energy Office of Science laboratory, is operated under Contract No. DE-AC02-06CH11357.

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