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Quantum Superconductor-Insulator transition and Nernst effect in NbxSi1-x HERVE AUBIN, ALEXANDRE POURRET, KAMRAN BEHNIA, JEROME LESUEUR, CNRS-ESPCI; 10 rue Vauquelin, Paris, France, CLAIRE MARRACHE-KIKUCHI, LAURENT BERGÉ, LOUIS DUMOULIN, CSNSM-IN2P3, Orsay, France — We show that the nature of magnetic-field tuned superconductor- insulator transitions in amorphous $Nb_{0.15}Si_{0.85}$ thin films depends on the orientation of the magnetic with respect to the film. In perperndicular magnetic field, the transition is driven by quantum fluctuations, characterized by an isobestic point (Bc,Rc) in the resistance measurements, and a kink in the temperature profile of the critical magnetic field – that indicates a temperature scale below which quantum fluctuations control the dynamics of the system. The isobestic point and the kink are not found when the magnetic field is applied parallel to the films, where the transition is classical, driven by the breaking of Cooper pairs at the temperature dependent critical field H_{c2}. In addition, we will present the first study of Nernst coefficient in such a disordered superconductor. As previous studies on the cuprates have suggested, we show that the Nernst signal is particularly sensitive to superconducting fluctuations, where a sizable signal is observed in a large temperature(T¿Tc) and magnetic field range.

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