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Signature of Aslamazov-Larkin fluctuation Hall conductivity in Tantalum Nitride films above their superconducting transition temperature NICHOLAS BREZNAY, MIHIR TENDULKAR, AHARON KAPITULNIK, Stanford University, KAREN MICHAELI, ALEXANDER FINKELSTEIN, Weizmann Institute of Science — We have studied the Hall effect in superconducting Tantalum Nitride films. We find a large contribution to the Hall conductivity near the superconducting transition, which we can track to temperatures well above Tc and magnetic fields well above the upper critical field, Hc2(0). This contribution arises from Aslamazov-Larkin type superconducting fluctuations, and we find quantitative agreement between our data and theoretical analysis based on time dependent Ginzburg-Landau theory.

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