Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Self and Cross Kerr effects in a Josephson junction chain. WIEBKE GUICHARD, YURIY KRUPKO, VAN DUY NGUYEN, ETIENNE DUMUR, University Grenoble Alpes, Neel Institute, THOMAS WEISSL, Kungl Tekniska Hgskolan, JAVIER PUERTAS-MARTINEZ, REMY DASSONNEVILLE, LUCA PLANAT, University Grenoble Alpes, Neel Institute, DENIS BASKO, FRANK HEKKING, University Grenoble Alpes, LPMMC, CECILE NAUD, OLIVIER BUISSON, NICOLAS ROCH, University Grenoble Alpes, Neel Institute, SUPERCONDUCTING QUANTUM CIRCUITS TEAM COLLABORATION, LABORATOIRE DE PHYSIQUE ET MODLISATION DES MILIEUX CONDENSS COLLABORATION — We have performed microwave transmission measurements on propagation modes in Josephson junction chains containing several hundreds of junctions. After some preliminary measurements [1] we have done a more systematic measurement in an improved measurement-set-up. Some of the chains have been embedded into a microwave strip line, while others have been coupled capacitively to it. The latter configuration enables a study of the internal quality factor of the chain while the first one is more suited to study quantitatively the Kerr effects occurring between different modes in the chain. The experimental dispersion curve fits well the theoretical prediction. We measured the Self- and Cross Kerr effects by two-tone spectroscopy measurements. We deduce from our measurements the Self- and Cross Kerr coefficients for the first 8 modes and compare them to theory. [1] T. Weissl, B. Kueng, E. Dumur, A. K. Feofanov, I. Matei, C. Naud, O. Buisson, F. W. J. Hekking, and W. Guichard Phys. Rev. B 92, 104508 (2015)

Wiebke Guichard
University Grenoble Alpes, Neel Institute

Date submitted: 14 Nov 2016 Electronic form version 1.4