

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Waiting times of entangled electrons in normal-superconducting junctions DENIS CHEVALLIER, Univ of Basel, MATHIAS ALBERT, Univ of Nice Sofia-Antipolis, INLN, PIERRE DEVILLARD, Centre de Physique Thorique, Marseille — We consider a normal-superconducting junction in order to investigate the effect of new physical ingredients on waiting times. First, we study the interplay between Andreev and specular scattering at the interface on the distribution of waiting times of electrons or holes separately. In that case the distribution is not altered dramatically compared to the case of a single quantum channel with a quantum point contact since the interface acts as an Andreev mirror for holes. We then consider a fully entangled state originating from splitting of Cooper pairs at the interface and demonstrate a significant enhancement of the probability to detect two consecutive electrons in a short time interval. Finally, we discuss the electronic waiting time distribution in the more realistic situation of partial entanglement.

Denis Chevallier
Univ of Basel

Date submitted: 22 Oct 2015

Electronic form version 1.4