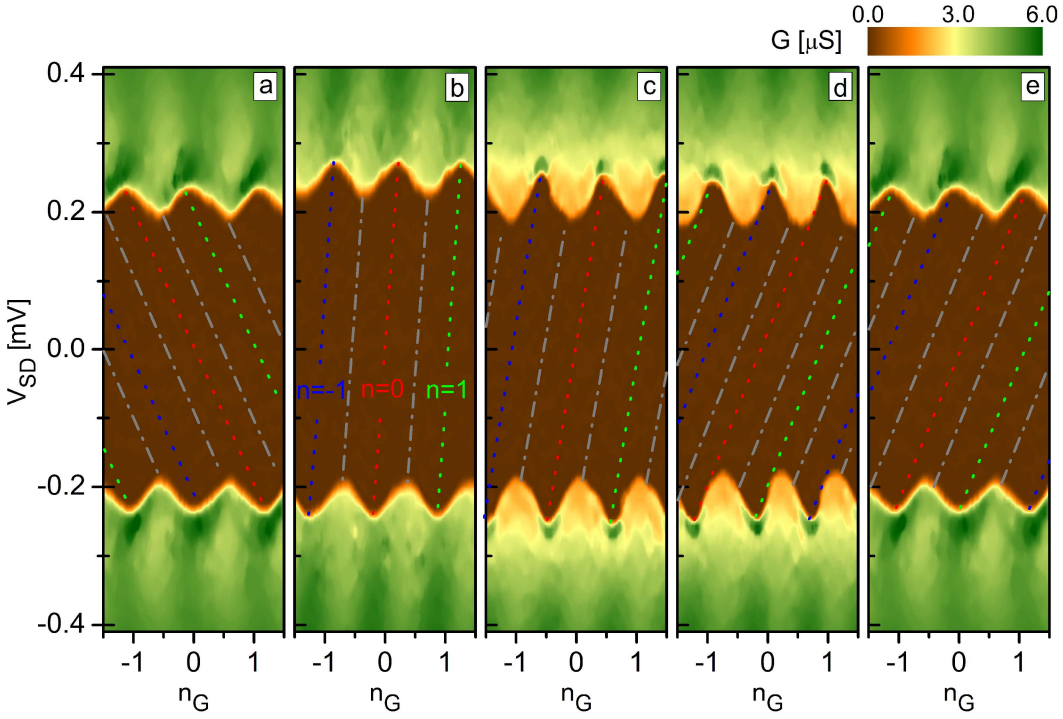
Supplementary Information

Phase-driven charge manipulation in Hybrid Single-Electron Transistor

Emanuele Enrico, Elia Strambini, Francesco Giazotto



Supplementary Figure S1. Stability diagrams under turnstile behavior

a-e, stability diagrams showing the measured differential conductance ($\boldsymbol{G = {\partial I_{SD}}/{\partial V_{SD}}}$). Gray dash-dotted lines correspond to blockaded regions having fixed island charge configuration ($\boldsymbol{n}$ in **b**). RGB lines (corresponding to energy configurations in Fig.3 **a-c** of the manuscript) are guidelines for different charge states (expanded diamonds). **a-e** have been measured for $\boldsymbol{\Phi_B = 0.359\,\Phi_0}$, $\boldsymbol{\Phi_B = 0.393\,\Phi_0}$, $\boldsymbol{\Phi_B = 0.428\,\Phi_0}$, $\boldsymbol{\Phi_B = 0.463\,\Phi_0}$ and $\boldsymbol{\Phi_B = 0.5\,\Phi_0}$ respectively. In **b** the superconducting gaps of both source and drain electrodes are almost fully open while in **a** (and **e**) they are in the antiphase case being the first open and the second closed (vice versa in **e**). All measurements were taken at 21 mK of bath temperature.