

Description of Additional Supplementary Files

Title: Supplementary Movie 1

Description: Evolution of the charge stability diagrams (SET current vs. SET top gate and right donor gate) while sweeping the left donor gate. The charge transition corresponding to the target qubit (diagonal break in the pattern of SET current peaks) shifts from higher to lower right-donor gate voltages upon increasing the left donor gate voltage, crossing through the control qubit charge transition. This enables us to choose which qubit is read out first.