This file contains the experimental data shown in the figures of Zhang, et.al., Nature 556, 74 (2018).

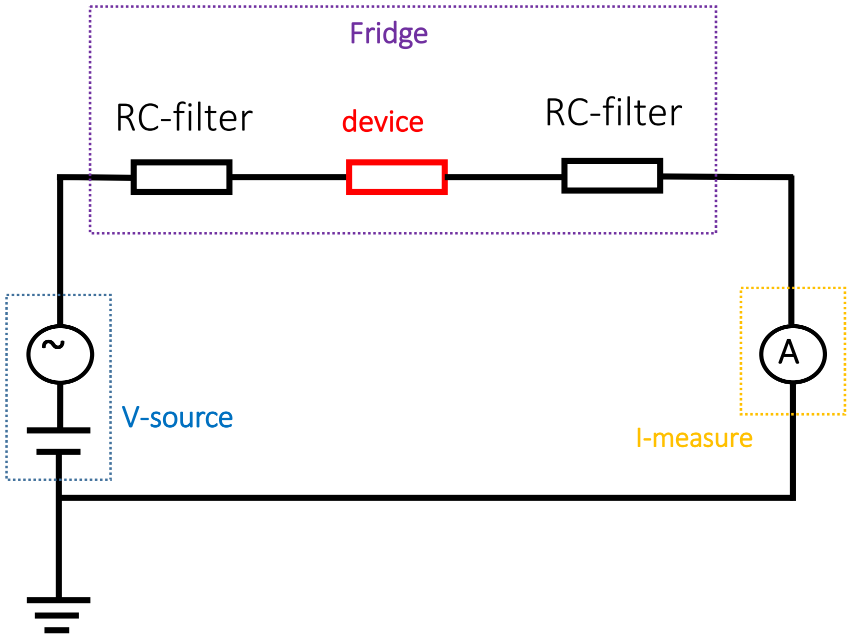
The file contains two folders:

- Raw_data: The data directly as it was measured. See 'Note_for_raw_data.xlsx' for the labels of each column in the data file and the conversions required to process the data.
- Processed_data: The data processed from the raw data files, which produces the figures in the paper. The methods used to obtain the processed data are discussed in the next slides.

Data processing applicable to all data files

A small bias voltage offset (58uV or 60 uV) of V-source is corrected in all data. The offset number is extracted based on test measurements, and the particle-hole symmetry of the superconducting gap and sub-gap states.

A series resistance (R-series) purely from the measurement circuit (right figure) is subtracted (so no device specific contact resistance). R-series is 17.8 K Ohm for all the devices, based on the output resistance of V-source (10 Ohm), the two RC-filters (5.788 K Ohm in total), and the input resistance of I-measure (12 K Ohm), except for Extended Data Fig.2 where a different setting was used for the I-measure equipment, resulting in an input resistance of 3 K Ohm and a total R-series of 8.8 K Ohm.



The subtracted series resistance is based on the documented values of each component, which are confirmed by direct characterization of the measurement equipment, and other independent cross-checks, which all show consistency.

The actual bias voltage over the device is calibrated by subtracting the bias voltage drop over R-series from the applied bias voltage:
V_device = V-source - I-measure * R-series
**For the calculation of V_device, noise in I-measure is lowpass filtered with a width of 3 data points along the bias axis (note that this does <u>not</u> affect the values of dI/dV).*

The differential conductance measured using lock-in techniques is corrected for this same R-series:
dI/dV = 1/(v_lockin_excitation/i_measure_lockin – R-series)

As a result of the required correction of the bias voltage for the voltage drop over R-series, the spacing between bias points becomes irregular. To plot the colormaps within the paper on a rectangular grid, V_device-vs-dI/dV traces are interpolated onto a regular grid.

Data processing Figure 4d,e

Due to noise, the dI/dV shape is irregular after calibrating the bias voltage, therefore, a minimal moving average filter of 3 adjacent points is applied to the dI/dV traces. We note that this smoothing procedure brings a maximum conductance difference of ~3% 2e^2/h, smaller than the plateau fluctuation and the uncertainty in the conductance of ~5%.

Data processing Extended Data Figure 4d,e

To obtain G_s the horizontal linetraces within a window of |V|<=0.1mV were averaged.

To obtain G_N the horizontal linetraces at |V|>=0.45V were averaged.

Correction of charge jumps

For Figure 2a, a charge jump below the plateau corresponding to four curves of non-quantized-split peaks were cropped. This charge jump is not reproducible with a repeated measurement (data not shown in the paper) and therefore corrected by cropping.

Several line-traces in Extended Data Fig.4b were cropped for the same reason as above: a charge jump which is not reproducible after re-measuring twice.

Electrostatic gates device B

In Extended Data Fig. 3a, the lower red-gate leaks to the left electrical contact and was kept floated during measurement, while the upper red-gate leaks to the back-gate. Therefore, the tunnel-barrier coupling (above-gap conductance) in Fig. 4b (x-axis) was gated by the purple gates in Extended Data Fig. 3a with a fixed back-gate voltage of -1.23V. The purple gates, though not labeled in the Extended Data Fig.3a, were named ‘super-gate’ by convention throughout the paper. Therefore the labeling for x-axis in Fig. 4b will be corrected to ‘super-gate’.