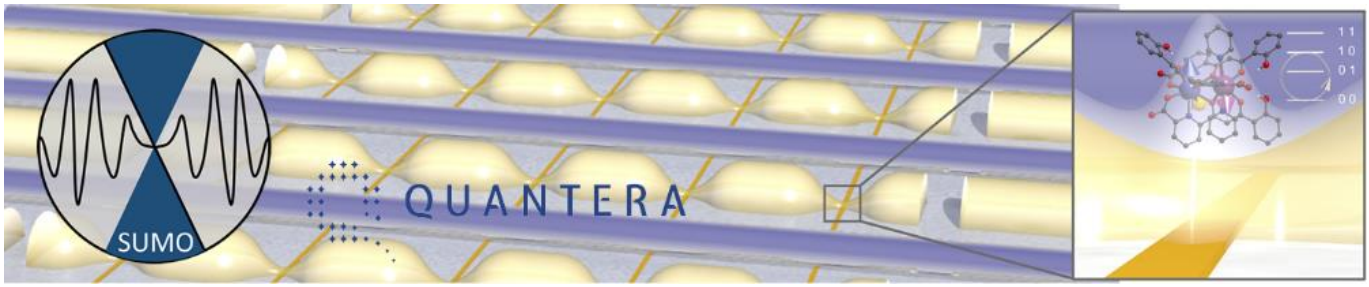

Open data management. Description of available data and metadata related to a publication	
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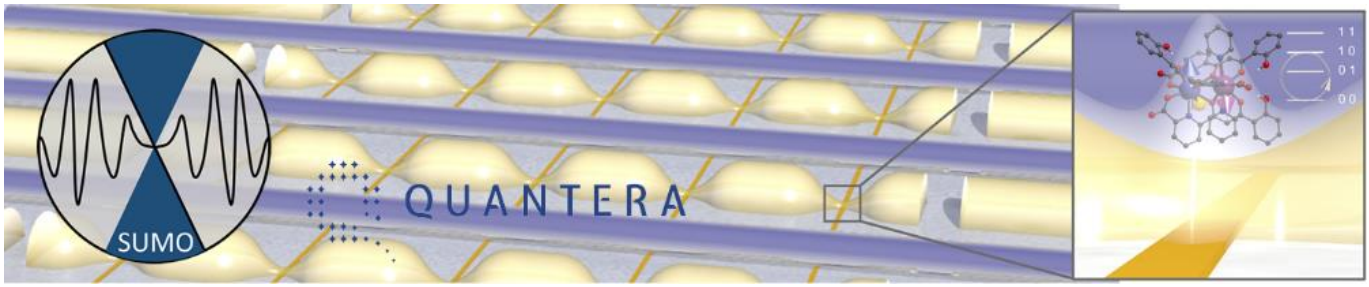
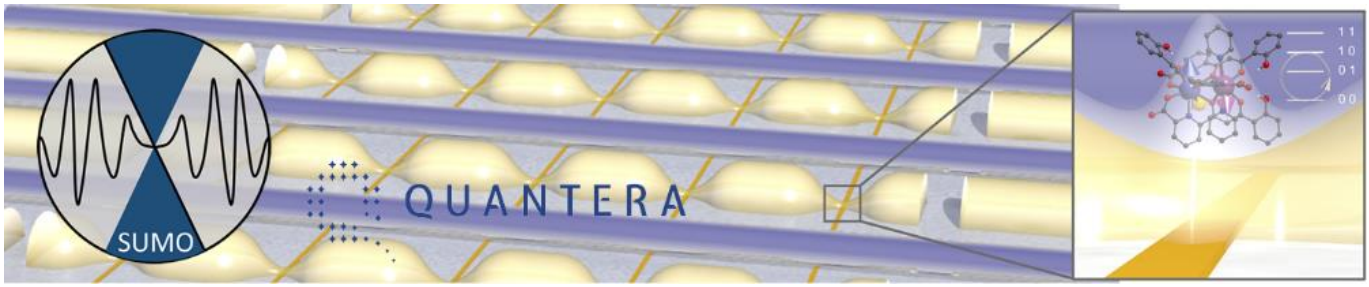
Language	English
Dataset ID	SUMO_FMQ1_Malavolti_NanoLetters2018.zip
List of data files available	STM_image_Fig1b.gwy STM_image_Fig1b_inset.gwy XMCD.dat Magnetization_curves.dat STM_image_Fig2a.gwy dIdV_Fig2d.dat dIdV_Fig2e.dat dIdV_Fig3a.dat dIdV_Fig3b.dat dIdV_Fig3c.dat dIdV_Fig3d.dat V_pDOS_Fig4d.dat
Methodology	STM data were acquired using an ultra-low temperature Unisoku STM with a vector magnet field. Silicon substrate was prepared by flash annealing the sample up to 1473 K. After inspection of the Si(111)7x7 reconstruction by STM at 2 K, the sample was rapidly moved to the evaporation chamber (base pressure below $5x10^{-10}$ mbar) where the Pb evaporation



	was carried out. The thin film was then annealed at 300 K for 10 minutes. This procedure leads to the formation of superconducting Pb nano-islands with heights between 5 ML and 8 ML, separated by a superconducting wetting layer of Pb on the silicon surface. The sample was cooled to below 10 K. Then it was quickly moved into a molecular beam of VOPc, generated by a Knudsen cell evaporator heated to 643 K, for about 10 minutes of deposition. After the evaporation the sample was reinserted into the STM and cooled down to 0.5 K. XMCD experiments carried out at the DEIMOS beamline (SOLEIL synchrotron, France). The Pb(111) single crystal substrate used for the synchrotron characterization was prepared by several cycles of Ar sputtering (1keV energy) and annealing at 470K. The VOPc sublimation was carried out using the same home-made evaporator used for the deposition of the VOPc on Pb(111) islands grown on Si(111). The powder of purified VOPc molecules was heated at 630K in a 10^{-8} mbar environment while the Pb(111) substrate was maintained at room temperature. The VOPc coverage was estimated by calibrating the deposition rate using XPS and STM measurements. The STM characterization was carried out using an Omicron VT-STM with chemically-etched W tips annealed in vacuum before the measurements All the periodic density functional theory calculations (pDFT) were performed with CP2K quantum chemistry software, which employs the Gaussian plane waves formalism (GPW) to solve the eigenvalue problem.
Data processing and software needed	1. dIdV(V) data: These data were processed and analyzed using MATLAB, plotted using Origin 2018. 2. XMCD data: These data were processed and plotted using Origin 2018. 3. STM images: the data were processed with Gwyddion in some cases a plane subtraction was applied. 4. Sketches: were made using PowerPoint 2010 and GIMP2.
Access to the data	Contact: office@fmq.uni-stuttgart.de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