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Engineering Of Majorana Modes In Carbon Nanotubes CONTAMIN LAURIANE, LPA Ecole Normale Suprieure — Engineering of majorana modes in condensed matter systems could allow one to study excitations with particle/antiparticle duality and non-abelian statistics. Most of the experimental setups using nanoscale circuit use semiconducting nanowire connected to superconductors under a finte magnetic field. Several theoretical proposals have suggested to use single wall carbon nanotubes coupled to a magnetic texture and to superconductors. One interest of single wall carbon nanotubes is that they naturally exhibit few conducting channels contrarily to nanowires. This work, we demonstrate such a platform. Single wall carbon nanotubes are stamped over a magnetically textured gate and coupled to two superconducting electrode. We observe in the conductance of such devices subgap states and perform a detailed study of their magnetic field evolution. The interpretation of these modes in the majorana fermion context will be discussed.

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