TARGETED MODIFICATIONS OF MONOLITHIC MULTITERMINAL SUPERCONDUCTING WEAK-LINKS

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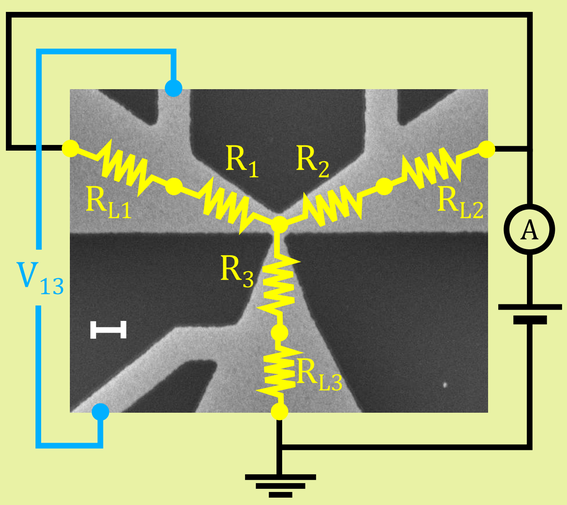
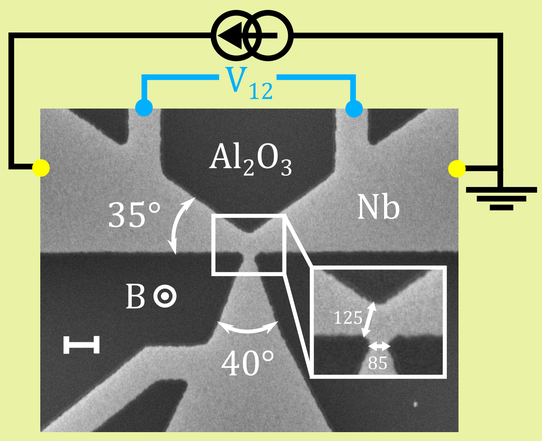
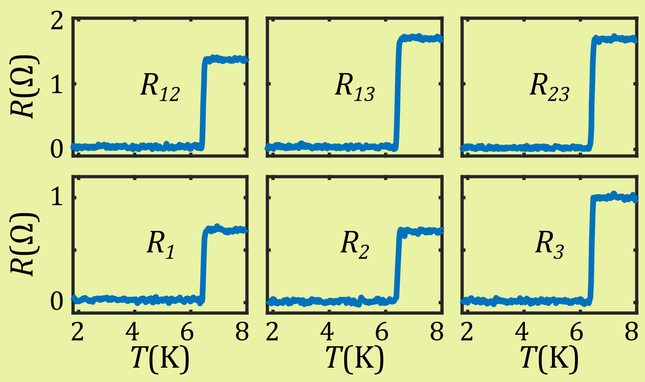
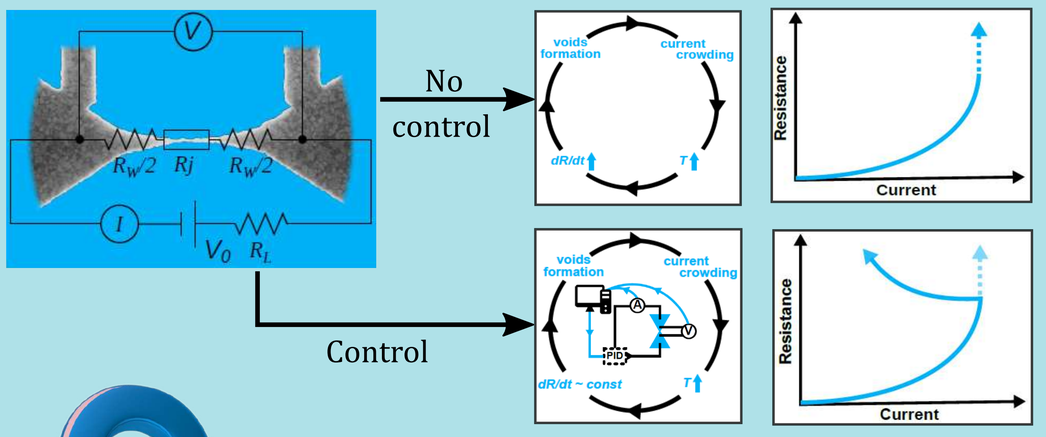
Layout and principle of measurement



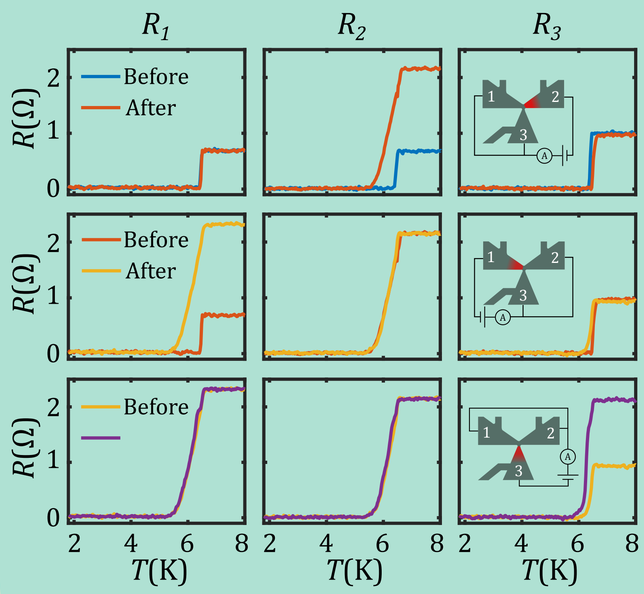




What is electroannealing (EA)?



Terminal selection



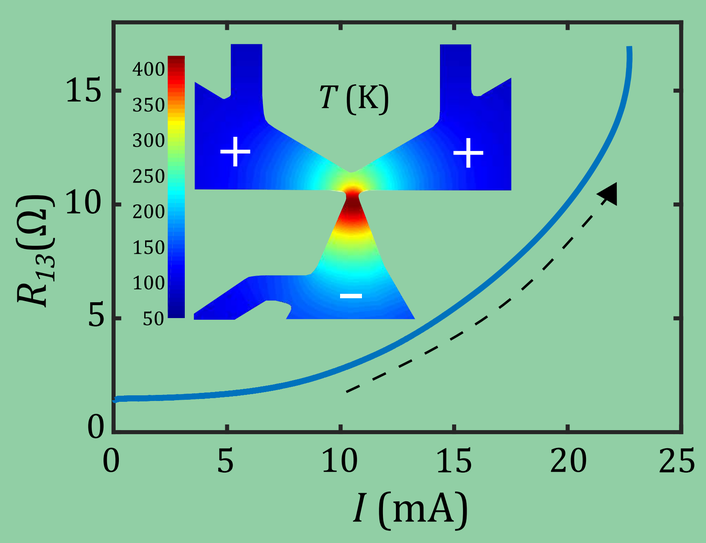
CONCLUSION

- EA is a simple technique adapted to control individually the junction properties of each branch in a multiterminal device
- Although we focus on three terminal devices, the method can be extended to N-terminal devices

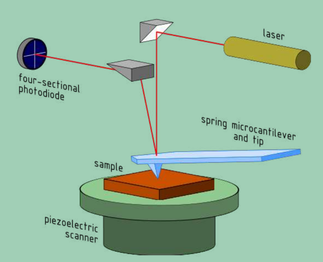
LAYOUT · EM · COMSOL · RESULTS · AFM

Finite elements simulations

- Heat and potential equations solved for real geometry
- Highest current density leads to highest

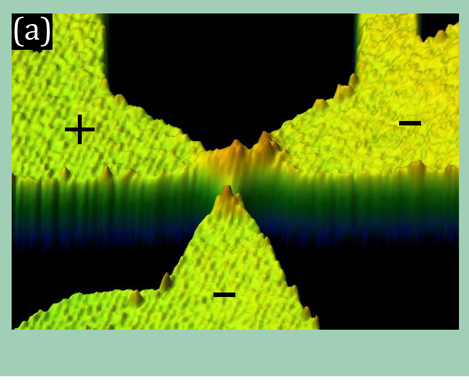


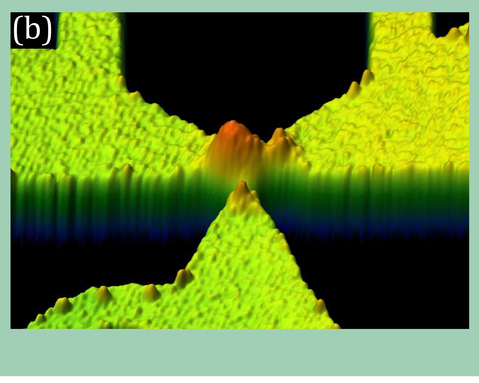
- TDGL equations?



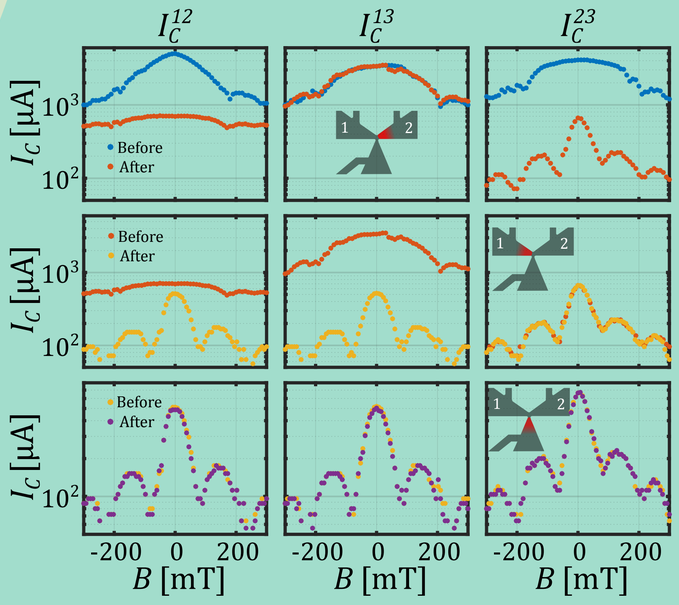
AFM

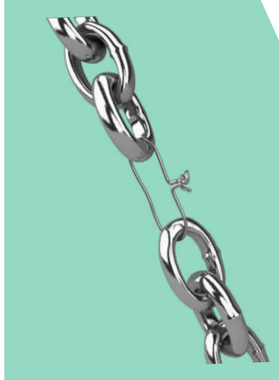
- Ambient temperature and pressure.
- EM create important atomic movements, creating hillocks at the junctions locations.



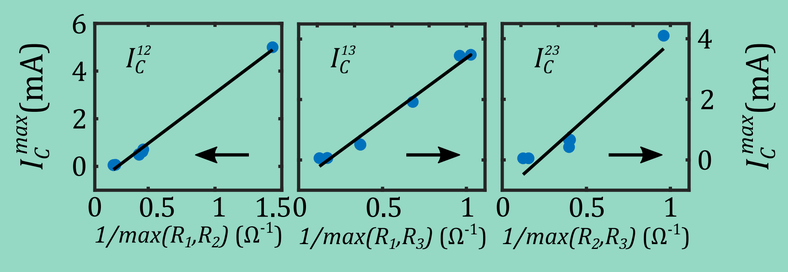


Weak links formation





The weakest link criterion



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