

Gate-tunable kinetic inductances for superconducting circuits

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Propositions

accompanying the dissertation

Gate-tunable kinetic inductances for superconducting circuits

by

Lukas Johannes SPLITTHOFF

1. Superconducting resonators efficiently probe the gate-controlled induced superconducting gap and superfluid density in proximitized nanowires, eventually enabling practical hybrid devices. (Pertains to chapter III.)
2. The integration of electrostatic control in superconducting circuits is indispensable for advancing the large-scale deployment of quantum processors. (Pertains to chapter III, IV, V.)
3. Every experimental research group aiming to unlock the full potential of superconducting quantum processors crucially needs an expert working on their readout. (Pertains to chapter IV.)
4. Isolated quantum systems do not exist in experimental settings. The disregard of their interaction with the surrounding environment is misleading and restrains the development of quantum processors. (Pertains to chapter IV, V.)
5. Insufficient recognition of material development and fabrication by the scientific community thwarts its own advances.
6. Universities and European funding agencies must ensure continuous funding for in-house technicians, permanent researchers, and support staff to break the 4-year knowledge life cycle within research groups.
7. The human need for esteem inevitably fuels conflicts, incites wars and hastens climate change - more than physiological needs do.
8. To stay within the guardrails and mitigate the perils of climate change, the most effective measure is the implementation of a tradable CO₂ budget per capita.
9. Exceeding a 40-hour work week is not just unhealthy, but also adversely affects the productivity of PhD students.
10. A day without sport is a lost day.

These propositions are regarded as opposable and defensible, and have been approved as such by the promoters prof. dr. L.P. Kouwenhoven and Dr. C.K. Andersen.