Propositions

accompanying the dissertation

ORDER FROM DISORDER:
CONTROL OF MULTI-QUBIT SPIN REGISTERS IN DIAMOND

by

Conor Eliot BRADLEY

1. Spins in diamond hold great promise for four branches of quantum technology: communication, computation, sensing, and simulation (Chapters 4, 5, 6, 7 of this thesis).
2. A critical requirement for quantum networks is that the inter-node entanglement generation rate greatly exceeds the qubit decoherence rates during network operation (Chapter 4 of this thesis).
3. Radio-frequency driving offers nuclear-spin control capabilities which are impractical using an electron-nuclear hyperfine interaction alone (Chapter 5 of this thesis).
4. Any large-scale defect-based quantum processor will utilise magnetic interactions between electron spin qubits.
5. Free cloud-access to quantum processors is necessary to reduce further technological inequality between nations.
6. There will be a 'quantum winter' by the end of the decade.
7. Funding bodies should mandate that every research article be uploaded to a centrally-funded open-access server both before and after peer review.
8. To facilitate open science, analysis code should be written with data-sharing in mind.
9. Taxation is the most effective means by which to reduce environmental damage.
10. A culture of tea-drinking improves productivity.

These propositions are regarded as opposable and defendable, and have been approved as such by the promotor Prof. dr. ir. R. Hanson.