Stellingen
behorende bij het proefschrift
*Effects of Spin-Orbit Coupling on Quantum Transport*

- Spin-orbit coupling splits the trajectory of an electron reflected by a hard wall, thereby producing shot noise.
  Chapter 3

- The degree of entanglement of a conductor with an isotropic spin density matrix can be obtained from the power spectrum of spin currents.
  Chapter 4

- The sample-to-sample fluctuations of spin currents in mesoscopic systems are universal.
  Chapter 5

- Smooth disorder increases the conductivity of graphene.
  Chapter 6

- A zigzag graphene ribbon in an electric field is metallic or insulating for an even or odd number of atomic rows, respectively.


- Kramers degeneracy does not forbid the splitting of Andreev doublets in a Josephson junction.

• The mapping of the single-valley Dirac equation to the Chalker-Coddington network model breaks symplectic symmetry.


• The antisymmetry of the scattering matrix of a disordered photonic crystal with a Dirac spectrum implies that a plane wave incident near the Dirac point has a dark spot in its angular reflection profile.

• Humanity currently faces two serious problems: Climate change and a growth based economy that is over-exploiting the world's resources. The sets of solutions to the two problems intersect and therefore it is most natural for the international community to focus only on their intersection.

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