**Statement on collaborative work**

The work in chapter “Rapid and Robust Spin Amplification” was developed in collaboration with Brendon Lovett, Femi Fadugba and Joe Fitzsimons. I contributed all the analytical work and simulations in Sections 5.3-5.6. I developed the theory in Section 5.7 in discussion with Joe Fitzsimons and he performed the simulation for the initialisation threshold.

The work in the chapter “A reliable, efficient source for indistinguishable photons” was developed in collaboration with Brendon Lovett and Erik Gauger. I contributed most of the analytical work and wrote all of the simulation code.

The work in the chapter “The Power of Small Toric Codes” was done in collaboration with Simon Benjamin. I contributed all of the analytical work and simulations.