Fast Polarization Manipulation

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Research Proposal

Under the supervision of

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1 The Proposal

1.1 Definition of the problem and ways to solve it (Roni paper).

1.2 Theoretical formulation (exciton).

1.3 Theoretical formulation (biexciton-exciton)

1.4 Rotation of the exciton's polarization.

1.5 Restore entangled in biexciton-exciton.

1.6 Restoring the entanglement between the photons in the biexciton-exciton radiative cascade.

$$|\Psi(t)\rangle = \alpha(|H_{XX} \otimes H_X\rangle * e^{-i(E_H * t)/\hbar} + |V_{XX} \otimes V_X\rangle * e^{-i(E_V * t)/\hbar}) \quad (1)$$

$$|\Psi(t)\rangle = \alpha(|H_{XX} \otimes H_X\rangle + |V_{XX} \otimes V_X\rangle * e^{-i(\triangle E * t_x)/\hbar}) \quad (2)$$

$$\begin{gathered} \Phi_{H_{XX}}(t) = k_{H_{XX}} * t + \Phi^0_{H_{XX}} \qquad \Phi_{V_{XX}}(t) = k_{V_{XX}} * t + \Phi^0_{V_{XX}} \\ \Phi_{H_X}(t) = k_{H_X} * t + \Phi^0_{H_X} \qquad \Phi_{V_X}(t) = k_{V_X} * t + \Phi^0_{V_X} \end{gathered} \quad (3)$$

$$|\Psi(t)\rangle = \alpha(\left|H_{XX} * e^{i * \Phi_{H_{XX}}(t_{XX} - t^{xx}_{start})}\right\rangle + \left|H_X * e^{i * \Phi_{H_X}(t_{XX} - t^{xx}_{s} tart)}\right\rangle) \quad (4)$$

1.

2. Two

3. Three

1.7 Additional proposed advances

1.7.1 Combining the radiative cascade into the knitting machine.

1.7.2 Using the experimental system for feed forward operations in 1D cluster states.

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Appendices

Appendix I

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Appendix 2

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