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Pulse-Enhanced Two-Photon Interference with Solid State Quantum Emitters HERBERT F FOTSO, University at Albany, SUNY — The ability to generate distributed entanglement across distant quantum nodes is essential for the construction of scalable quantum networks and for various quantum information processing operations such as quantum teleportation and Bell inequality tests[1, 2]. For solid state spin qubits, entangling two qubits can be achieved through photon interference on a beam splitter. This operation operation can have its efficiency drastically reduced by fluctuations in the uncorrelated environments of the respective qubits. We simulate the two-photon interference operation in a Hong-Ou-Mandel-type experiment for two distant solid state quantum emitters that are driven by suitable pulse sequences. We find that besides their emission/absorption spectrum having little dependence on their environments[3, 4], photon indistinguishability can be restored to optimal values allowing for highly improved efficiency of photon-mediated QIP operations. [1]P. Humphreys et al, Nature **558**, 268 (2018); [2] D. D. Awschalom, Nat. Photonics **12**, 516 (2018); [3] H. F. Fotso et al, Phys. Rev. Lett. **116**, 033603 (2016); [4] H. F. Fotso, J. Phys, B **52**, 2 (2018).

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