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Towards a quantum network of room temperature quantum devices BERTUS JORDAAN, REIHANEH SHAHROKHSHAHI, MEHDI NAMAZI, CONNOR GOHAM, EDEN FIGUEROA, stony brook university — Progressing quantum technologies to room temperature operation is key to unlock the potential and economical viability of novel many-device architectures. Along these lines, warm vapor alleviates the need for laser trapping and cooling in vacuum or cooling to cryogenic temperatures. Here we report our progress towards building a prototypical quantum network, containing several high duty cycle room-temperature quantum memories interconnected using high rate single photon sources [1,2]. We have already demonstrated important capabilities, such as memory-built photon-shaping techniques [3], compatibility with BB84-like quantum communication links [4], and the possibility of interfacing with low bandwidth (MHz range), cavity enhanced, SPDC-based photon source tuned to the Rb transitions. This body of works suggest that an elementary quantum network of room temperature devices is already within experimental reach. [1] M. Namazi, arXiv:1512.07374 (2015). [2] C. Kupchak, , Scientific Reports 5, 7658 (2015). [3] M. Namazi, Phys. Rev. A 92, 033846 (2015). [4] M. Namazi, arXiv 1609.08676 (2016).

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