Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

N multipartite GHZ states in quantum networks[1] VALENTINA CAPRARA VIVOLI, STEPHANIE WEHNER, QuTech, Delft University of Technology — Nowadays progress in experimental quantum physics has brought to a significant control on systems like nitrogen-vacancy centres, ion traps, and superconducting qubit clusters. These systems can constitute the key cells of future quantum networks, where tasks like quantum communication at large scale and quantum cryptography can be achieved. It is, though, still not clear which approaches can be used to generate such entanglement at large distances using only local operations on or between at most two adjacent nodes. Here, we analyse three protocols that are able to generate genuine multipartite entanglement between an arbitrary large number of parties. In particular, we focus on the generation of the Greenberger-Horne-Zeilinger state. Moreover, the performances of the three methods are numerically compared in the scenario of a decoherence model both in terms of fidelity and entanglement generation rate.

[1]V.C.V. is founded by a NWO Vidi grant, and S.W. is founded by STW Netherlands

Valentina Caprara Vivoli
QuTech, Delft University of Technology

Date submitted: 11 Nov 2016 Electronic form version 1.4