Contribution ID : **49** Type : **Oral**

Robust engineering of universal Gaussian cluster states for continuous variable measurement-based quantum computation

martedì 12 ottobre 2021 11:20 (25)

We first show that any Gaussian cluster state of N bosonic modes can be generated by a multi-mode squeezing transformation. and provide the explicit recipe. We then use this result to show that a large class of pure entangled CV Gaussian states, including 2D-cluster states, can be robustly generated as a unique steady state of a dissipative dynamics employing minimal resources. In fact, this is achievable using only a single-site squeezed driving and passive bilinear interactions. We provide the explicit protocol which corresponds to the engineering of a suitable excitation number conserving Hamiltonian.This fact can be used for the implementation of universal continuous variable measurement-based-quantum computation on various platforms.

Primary author(s) : Prof. VITALI, David (Università di Camerino); Dr. ZIPPILLI, Stefano (Università di Camerino)

Presenter(s) : Prof. VITALI, David (Università di Camerino)

Session Classification : Session 4