1157-12-539 **Francisco Revson Fernandes Pereira*** (revson.ee@gmail.com), School of Science and Technology, Physics Division, Via Madonna delle Carceri 9, 62032 Camerino, Macerata, Italy.
Entanglement-assisted Quantum Codes from Euclidean and Hermitian Cyclic Codes. Preliminary report.

Entanglement-assisted quantum (QUENTA) codes are a subclass of quantum error-correcting codes that use entanglement as a resource. These codes can provide error correction capability higher than the codes derived from the traditional stabilizer formalism. In the first part of the talk, it is shown a general method to construct QUENTA codes from cyclic codes. Afterward, the method is applied to Reed-Solomon codes, BCH codes, and general cyclic codes. We use the Euclidean and Hermitian construction of QUENTA codes. Two families of QUENTA codes are maximal distance separable (MDS), and one is almost MDS or almost near MDS. The comparison of the codes in this paper is mostly based on the quantum Singleton bound. In the second part of the talk, an algorithm for computing intersection of vector spaces derived from cyclic codes is presented. Using this algorithm, we are able to construct new QUENTA codes from Euclidian and Hermitian cyclic codes. (Received February 04, 2020)