Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Bacon-Shor code with continuous measurement of non-commuting operators ALEXANDER N. KOROTKOV, JUAN ATALAYA, MOHAMMAD BAHRAMI, LEONID P. PRYADKO, University of California, Riverside — We analyze the four-qubit Bacon-Shor code with simultaneous continuous measurement of non-commuting gauge operators. Error syndrome in this case is monitored via time-averaged cross-correlators of the output signals. We find the logical error rate and the termination rate for this quantum error detecting code for several models of decoherence. The code operation is comparable to that of the four-qubit Bacon-Shor code using conventional projective measurements. An advantage of the continuous-measurement implementation is the absence of time dependence in the code operation, with passive continuous monitoring of the error syndrome.

Alexander Korotkov
University of California, Riverside

Date submitted: 10 Nov 2016 Electronic form version 1.4