Title:	Studying the effect of a fluctuating environment on intra-atomic frequency comb based quantum memory.
Authors:	Teja, G. P. (/jspui/browse?type=author&value=Teja%2C+G.+P.) Goyal, Sandeep K (/jspui/browse?type=author&value=Goyal%2C+Sandeep+K)
Keywords:	quantum memory intra-atomic frequency comb
Issue Date:	2021
Publisher:	Springer Nature
Citation:	Scientific Reports, 11(1).
Abstract:	In this article, we study the effect of various environmental factors on intra-atomic frequency comb (I-AFC) based quantum memory. The effect of the environment is incorporated as random fluctuations and non-uniformity in the parameters such as comb spacing and the optical depth, of the frequency comb. We found that the I-AFC is viable for photon storage even for very large fluctuations in the parameters of the frequency comb, which makes I-AFC a robust platform for photon storage. Furthermore, we show that the non-uniform frequency combs without any fluctuations in the comb parameters can also yield efficient quantum memory. Since the intra-atomic frequency combs found in natural atomic systems are often non-uniform, our results suggest that a large class of these systems can be used for I-AFC based efficient quantum memory.
Description:	Only IISERM authors are available in the record
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