Abstract Submitted
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Towards Superfluorescence in Cesium Vapor[1] GOMBOJAV O. ARIUNBOLD[2], DMITRY PESTOV, HEBIN LI, VLADIMIR A. SAUTENKOV, XI WANG, MIAOCHAN ZHI, ALEXEI V. SOKOLOV, YURI V. ROSTOVTSEV, MARLAN O. SCULLY, TAMU TEAM — Cesium atoms have been excited by two photon process into coherent superpostion of the excited $8S_{1/2}$ and ground $6S_{1/2}$ states via ultrashort laser pulse (∼50fs). A superfluorescent blue light (456nm) at the lower transtion of $7P_{3/2}$– $6S_{1/2}$ has been studied. By the use of high resolution (2.5ps) streak camera (Hamamatsu) the delay of the blue pulse has been measured as a function of the input IR beam power. In cases of the different vapor temperature, it has been shown that, this dependence can be scaled by the ratio of the number of interacting Cs atoms. The delayed ultrashort pulses provide temporal characteristics of the superfluorescence. In doing so, we have observed the autocorrelation of the superlfuorescent light which shows interference much later, eventhough, there no interference exhibits between two input pulses.

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