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Low Cost Nonlinear Atomic System for Studying Correlated Beams

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We describe a low cost, simplified setup for creating a large-gain four wave mixing system in atomic Rubidium. By utilizing recent low cost, high power laser diodes and in-house construction, we have developed a system for producing narrowband, states of light in a high optical gain system.

Such systems have previously demonstrated intensity squeezing, EPR entanglement, and high purity Fock states, albeit at much higher cost.

This work can help open the door to smaller budget experimental groups as well as undergraduate teaching labs.

Keyword-1

Four Wave Mixing

Keyword-2

Squeezing

Keyword-3

Low Cost Experiments

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