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Experimental Investigation of Four-Wave Mixing in Hot Sodium Vapor Cells QIMIN ZHANG, SAESUN KIM, MATTHEW PETERS, ALBERTO M. MARINO, ARNE SCHWETTMANN, University of Oklahoma — Non-degenerate four-wave mixing (4WM) in a hot atomic vapor cell has been shown to be an effective method to produce quantum squeezed states of light. These quantum states have important applications in quantum technologies, such as quantum-enhanced sensing and quantum information processing. Most of the recent work on squeezed light has focused on Rb and Cs in the infrared regime. Generating squeezed light near the Na resonance at 589 nm is challenging but beneficial for interfacing with cold gases and atomic sensors based on Na. We experimentally investigate 4WM in a double- Λ configuration on the Doppler-broadened D1 line of ^{23}Na . We present our work on the characterization of the 4WM gain and noise properties of the intensity difference between the generated beams of light.

Qimin Zhang
University of Oklahoma

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