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MARLOW(10) **Pub. No.: US 2023/0231353 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **LOW-POWER SOURCE OF SQUEEZED LIGHT****H01S 3/227** (2006.01)**G02F 1/35** (2006.01)(71) Applicant: **The MITRE Corporation**, McLean,
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ABSTRACT

A degenerate four-wave mixing (DFWM) squeezed light apparatus includes one or more pump beams, a probe beam, a vapor cell, a repump beam, and a detector. The one or more pump beams includes an input power of no greater than about 150 mW. The vapor cell includes an atomic vapor configured to interact with overlapped pump and probe beams to generate an amplified probe beam and a conjugate beam. The repump beam is configured to optically pump the atomic vapor to a ground state and decrease atomic decoherence of the atomic vapor. The detector is configured to measure squeezing due to quantum correlations between the amplified probe beam and the conjugate beam. The one or more pump beams, the probe beam, and the repump beam are configured to generate two-mode squeezed light by DFWM with squeezing of at least 3 dB below shot noise.

