

Abstract Submitted  
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**Dispersion Enhanced Laser Frequency Sensitivity and Stability via Four-wave Mixing**<sup>1</sup> SAVANNAH CUOZZO, EUGENY MIKHAILOV, William Mary — We report on tuning the response of the laser wavelength via assistance of the intracavity highly dispersive medium in the four-wave mixing regime in Rb. By varying experimental parameters such as pump laser frequency, atomic density, and pump power, we can either increase the sensitivity of the lasing frequency to the cavity length change by at least a factor of  $10^8$ , compared to traditional lasers, or completely suppress such sensitivity. The former regime is useful for sensitive displacement tracking, temperature sensing and optical gyroscopes. The latter regime is useful for precision metrology where high stability frequency references are required.

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