

PROGRESS IN MEXICAN ATOMIC FOUNTAIN USING AN ULTRA-STABLE LASER

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Abstract

The Ramsey spectrum obtained with ultra high-resolution microwave spectroscopy of ^{133}Cs using the CENAM's Cs fountain clock (CsF1) is reported in this work. In addition, the renewed optical system is presented briefly. Ramsey fringes with an FWHM of 2.1 Hz were generated from the induced decay between two hyperfine levels of ^{133}Cs ground state. These preliminary results were obtained as an effort to test the functionality of all systems involved in the CsF1 operation, specially an ultra-stable laser that operates as a master oscillator referenced to the D2 line of ^{133}Cs using modulation transfer (MT) spectroscopy. The CsF1 is now able to operate for extended periods (weeks) without making major adjustments. Evaluation of systematic effects is currently under way.

Index Terms

Microwave standards; Modulation transfer spectroscopy; Ramsey fringes; Ultra-stable laser.