Mechanical Engineering and Manufacturing Technology

Development of Continuous 100% Ozone Generator

- A key technology to the continuous 100% ozone supply process -

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AIST Today Vol. 3, No.10 (2003) 21

In order to bring out the maximum advantages of ozone for applications to the advanced industries, we have developed a continuous 100% ozone generator. The generator consists of four liquid ozone vessels and each vessel repeats the cooling down, accumulation of liquid ozone, ozone gas supply, and evacuation of residual ozone modes. By computer-controlling the modes of the vessels so as to keep the generator ready for continuous ozone supply, 100% ozone of maximum flow rate of 60 sccm at maximum pressure of 2,000 Pa can be supplied within ±1.1 % flow stability through at least 1 week without stopping.

Continuous 100% ozone generator

Standards and Measurement Technology

Development of Optical Frequency Synthesizer

- Fine control of optical frequency and phase -

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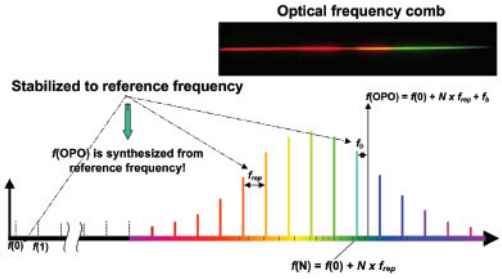
AIST Today Vol. 3, No.10 (2003) 12

The National Metrology Institute of Japan (NMIJ) at the National Institute of Advanced Industrial Science and Technology (AIST) is investigating a continuous-wave optical frequency synthesizer by using a femtosecond mode-locked laser and a continuous-wave optical parametric oscillator (OPO). The frequency of the optical output is synthesized from an accurate microwave frequency generated by an atomic clock.

We succeeded in phase locking an OPO to an optical frequency comb generated by a femtosecond mode-locked laser in the 830 nm region. We expect this synthesizer to become an important tool for optical frequency measurement, accurate spectroscopy, high-density wavelength division multiplexing and optical frequency standardization.



The scheme employed for phase locking the OPO to the optical comb