

Measurement of the Diameter of a Laser Beam

C. Courtney, W.M. Steen (England)

A new and simple technique for measuring the effective diameter of a laser beam used in material processing is described. The time for the temperature of a spot heated by the laser beam to rise to 90% of equilibrium is compared with that predicted theoretically for a Gaussian TEM<sub>00</sub> laser beam. A Gaussian beam diameter equivalent is thus deduced. This calculated diameter is of particular relevance to applications where the laser is used as a heat source.

Saturation Spectroscopy of SF<sub>6</sub> by the Polarization

V. Stert, R. Fischer (DDR)

Lines of the Q-branch of vibrational rotational spectra are distinguished from P (R)-lines by light induced anisotropy in absorbing gases. We report, for the first time, on experiments using a linearly polarized saturation beam. A CO<sub>2</sub>-laser was employed to investigate the molecule SF<sub>6</sub>.

Four-Photon Progresses Stimulated by a Fluctuating Pump

L.I. Pavlov (Bulgaria)

Four-photon parametric light amplification stimulated by noisy pump in a dispersive medium, is theoretically analyzed. The model of the fluctuating phase is used. The increments in case of temporal as well as of spatial laser pump modulation are considered. It is shown that the efficiency of the four-photon process due to a broad-band pump is comparable to that of monochromatic pump. Quantitative estimate for the medium of metal vapor are given, too.

ERRATUM

Saturation Dips in Optical Transient Signals

M.D. Levenson

Appl. Phys. 15, 13 - 19 (1978)

Equation (13) should read correctly:

$$\tilde{E}(L, t, \Delta) = -\frac{\pi^{3/2}}{2} kLN_{12}\delta_0^{-1}\chi^2 + \chi^{-2} e^{-(\Delta^2 + T^{-2})^{-1}} \left\{ 1 + [\cos\Delta t - (\Delta T)^{-1} \sin\Delta t - 1] e^{-t/T} - e^{-2t/T} + \frac{[3T^{-2}\cos 2\Delta t + (\Delta^{-1}T^{-3} - 2\Delta T^{-1}) \sin 2\Delta t] e^{-2t/T} - 3T^{-2} e^{-t/T}}{(4\Delta^2 + T^{-2})} \right\}$$

(13)

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Volume 1

Structural Pattern Recognition

T. Pavlidis

(1977) Pp.ca.290, Price DM 43.-- ISBN 3-540-08463-0

The book deals primarily with the encoding of pictures into mathematical structures which can be handled by classical pattern recognition techniques. It emphasizes methodology and shows the connection between various approaches. It is the first book that gives such a systematic description for the process of obtaining measurements from pictorial data. The book is intended as a text for an one-semester advanced course in pattern recognition and it is based on class notes for such a course given at Princeton University.

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