

## FORTHCOMING PAPERS (CONT'D)

### Trapping and Storage of Atoms in a Laser Field

*V.S. Letokhov, V.G. Minogin (USSR)*

Analysis of the possibility of spatial trapping of cold atoms in a standing-wave laser field is presented. It is shown that cold atoms can be trapped for a long time in region  $\sim \lambda$  in a nonresonant standing-wave field. In a resonant standing-wave field cold atoms can be stored for a long time in the region determined by the cross-section of the laser beam. Trapping and storage together with cooling of atoms that has been suggested earlier allow us in specific cases to increase the sensitivity and the resolution of spectroscopic studies.

### Particle Densities in a Decaying SF<sub>6</sub> Plasma

*K.P. Brand, J. Kopainsky (Switzerland)*

Particle densities are determined for a decaying axially blown SF<sub>6</sub> arc between current zero and breakdown, some 100  $\mu$ s later. During the time of interest, primarily only atoms, diatomic molecules and ions can be built up by reactions. Therefore, in a first approach equilibrium densities are derived for SF<sub>6</sub> which has decomposed into its monoatomic and diatomic components. In a second approach reaction kinetics are considered. It turns out that the development of densities occurs in two steps. During the first approx. 100  $\mu$ s there is a strong deviation from equilibrium. Afterwards all particles tend towards their partial, diatomic equilibrium values. Near breakdown the degree of ionization is of the order of  $10^{13}$  cm<sup>-3</sup> with the most abundant ions being S<sub>2</sub><sup>+</sup> and F<sup>-</sup>. This density is sufficient to distort the applied electric field. Future theories of breakdown in hot gases must take into account this principal difference as compared with the conditions in cold gases.

### The Photovoltaic and Photorefractive Effects in KDP-Type Ferroelectrics.

*V.M. Fridkin, B.N. Popov, K.A. Verkhovskaya (USSR)*

By illuminating of KDP-type ferroelectrics (KH<sub>2</sub>PO<sub>4</sub>·K(D<sub>x</sub>H<sub>1-x</sub>)<sub>2</sub>PO<sub>4</sub>, x  $\cong$  0,7) in the region of the intrinsic optical absorption edge in the absence of an external field the steady state photocurrent and photo emf, being a few orders of magnitude higher than the energy gap, are observed. Under the same conditions the photorefractive effect ("optical damage") is observed.

## ERRATUM

### Nonlinear Optical Properties of Orthorhombic Barium Formate and Magnesium Barium Fluoride

*P.S. Bechthold and S. Haussühl*  
Appl. Phys. 14, 403 - 410 (1977)

Equation (8a) has to be corrected as follows:

$$I(2\omega) = \frac{16\pi c |P_1^{NL}|^2 \nu(2\omega)^2 \langle n(\omega) \rangle^2 \cos^2 \theta + \nu(2\omega)^2}{(\nu(2\omega) - \omega)^2 \langle n(\omega) \rangle^2 + \nu(2\omega)^2} \cdot \sin^2 \psi$$

# LASERS

## HIGH-POWER LASERS AND APPLICATIONS

Proceedings of the Fourth Colloquium on Electronic Transition Lasers at Munich, June 20-22, 1977

ed. by *K.-L. Kompa, H. Walther*  
Springer Series in Optical Sciences, Vol. 9  
(1978) Pp.IX+228, Price DM 48.--  
ISBN 3-540-08641-2

### Contents:

Excimer Lasers - Chemical Lasers - Other Laser Systems - Applications.

This volume is the proceedings of the Conference on High-Power Lasers and Applications which was held in Munich on June 20-22, 1977. The meeting represented the continuation of a series of colloquia on electronic transition lasers previously held in the United States. The main topics under discussion are high-power VUV, UV, visible and IR lasers, including analyses of laser systems and concepts. In addition, some applications to nonlinear optics, chemical kinetics and spectroscopy, particularly with respect to isotope separation, are discussed.

## OPTICS AND LASERS, an Engineering Physics Approach

*M. Young*

Springer Series in Optical Sciences, Vol. 5  
(1977) Pp.XII+207, Price DM 52.--  
ISBN 3-540-08126-7

## SOLID-STATE LASER ENGINEERING

*W. Koehner*

Springer Series in Optical Sciences, Vol. 1  
(1976) Pp.XI+620, Price DM 119.60  
ISBN 3-540-90167-1

## DYE LASERS

Paperback Edition

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Topics in Applied Physics, Vol. 1  
(1977) Pp.X+299, Price DM 43.--  
ISBN 3-540-08470-3

*F.P. Schäfer (MPI für Biophys. Chemie, Göttingen)*  
Principles of Dye Laser Operation

*B.B. Snavely (Eastman Kodak)*  
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*C.V. Shank, E.P. Ippen (Bell Labs.)*  
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