

# laser

- Light Amplification by Stimulated Emission of Radiation. Optical electronic device that generates an intense (very narrow) beam of single color (monochromatic) light by pumping (amplifying) photons with more energy through collisions with other photons. Laser beams can travel vast distances without dispersion and can carry enormous amounts of energy (100 million watts per square centimeter, and more).
- Lasers are sources of light with a very special properties.

# Collisions And Halfcollisions With Lasers

**United States. National Bureau of  
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## **Collisions And Halfcollisions With Lasers:**

**Collisions and Half-collisions with Lasers** Naseem K. Rahman, C. Guidotti, 1984      **Collision- and Interaction-Induced Spectroscopy** G.C. Tabisz, Murray N. Neuman, 2012-12-06 Collision or interaction induced spectroscopy refers to radiative transitions which are forbidden in free atoms or molecules but which occur in clusters of interacting atoms or molecules The most common phenomena are induced absorption in the infrared region and induced light scattering which involves inelastic scattering of visible laser light The particle interactions giving rise to the necessary induced dipole moments and polarizabilities are modelled at long range by multipole expansions at short range electron overlap and exchange mechanisms come into play Information on atomic and molecular interactions and dynamics in dense media on a picosecond timescale may be drawn from the spectra Collision induced absorption in the infrared was discovered at the University of Toronto in 1949 by Crawford Welsh and Locke who studied liquid O and N Through the 1950s and 1960s experimental elucidation of the phenomenon particularly in gases continued and theoretical underpinnings were established In the late 1960s the related phenomenon of collision induced light scattering was first observed in compressed inert gases In 1978 an Enrico Fermi Summer School was held at Varenna Italy under the directorship of J Van Kranendonk The lectures there reviewed activity from the previous two decades during which the approach to the subject had not changed greatly In 1983 a highly successful NATO Advanced Research Workshop was held at Bonas France under the directorship of G Birnbaum An important outcome of that meeting was the demonstration of the maturity and sophistication of current experimental and theoretical techniques      *Photonic, Electronic And Atomic Collisions, Invited Papers Of The Twentieth International Conference On The Physics* Friedrich Aumayr, Hannspeter Winter, 1998-05-30 This important book contains the invited papers plenary and review lectures progress and special reports presented at XX ICPEAC the Twentieth International Conference on the Physics of Electronic and Atomic Collisions It highlights the current status of research in photonic electronic and atomic collision physics for which experimental studies increasingly rely on laser and synchrotron radiation and are more and more interrelated with other fields such as molecular and chemical physics surface science quantum optics and spectroscopy and formation of exotic atoms      *Proceedings of the International Conference on Lasers*, 1998      *Advances in Chemical Physics, Volume 75* Ilya Prigogine, Stuart A. Rice, 2009-09-08 The Advances in Chemical Physics series provides the chemical physics and physical chemistry fields with a forum for critical authoritative evaluations of advances in every area of the discipline Filled with cutting edge research reported in a cohesive manner not found elsewhere in the literature each volume of the Advances in Chemical Physics series serves as the perfect supplement to any advanced graduate class devoted to the study of chemical physics      *Verein für hamburgische Geschichte*,      **Publications of the National Institute of Standards and Technology ... Catalog** National Institute of Standards and Technology (U.S.), 1991      *Laser Spectroscopy 2* Wolfgang Demtröder, 2015-01-07 Keeping abreast of the latest techniques and

applications this new edition of the standard reference and graduate text on laser spectroscopy has been completely revised and expanded While the general concept is unchanged the new edition features a broad array of new material e g ultrafast lasers atto and femto second lasers coherent matter waves Doppler free Fourier spectroscopy interference spectroscopy quantum optics and gravitational waves and still more applications in chemical analysis medical diagnostics and engineering

**Electronic and Atomic Collisions** J. Geddes,1988 **Publications** United States. National Bureau of Standards,1991

**Energy Research Abstracts** ,1986 **Government Reports Announcements & Index** ,1988 **Fundamentals of**

**Laser Interactions II** Fritz Ehlotzky,1989-08-23 At this Obergurgl seminar theoreticians and experimentalists discussed recent developments in laser interactions This volume contains the texts of invited lectures and abstracts of contributed papers The main topics discussed are multiphoton ionization above threshold ionization collisions in strong fields atoms in intense fields chaos in radiative interactions electron correlations in multiphoton processes Rydberg atoms in external fields other laser interactions Thus a broad and up to date account of laser interactions is given which will be of interest to scientists engineers and graduate students **INIS Atomindex** ,1987 **Physics Briefs** ,1993 *State-resolved*

*Differential Cross Sections for Inelastic Collisions Between Argon and Nitric Oxide by Ion Imaging* Lizla Soco Bontuyan,1993

**High Resolution Laser Photoionization and Photoelectron Studies** Ivan Powis,Tomas Baer,Cheuk-Yiu

Ng,1995-08-29 Recent advances in both experimental techniques and theoretical methodologies have meant that increasingly sophisticated studies concerning the formation structures energetics and reaction dynamics of state or energy selected molecular ions can now be performed In order to better serve the ion chemistry and physics community each volume of this series will be dedicated to reviewing a specific topic emphasizing new experimental and theoretical developments in the study of ions The Wiley Series in Ion Chemistry and Physics will help stimulate new research directions and point to future opportunities in the field of ion chemistry and physics This fourth volume is devoted to developments associated with the high resolution study of molecular photoionization presented from both experimental and theoretical viewpoints This field has been revolutionized in recent years through the rapid development of zero kinetic energy ZEKE photoelectron spectroscopy which is featured prominently within this volume These advances have expanded the researcher s ability to probe not just structural features but also the detailed dynamics of a system resulting in the interest and applicability of the technique being broadened to areas of chemical physics extending beyond the traditional study of photoionization per se Each of the twelve chapters making up this volume is written by leading researchers in their respective fields

**International Conference on the Physics of Electronic and Atomic Collisions** , *Laser Techniques in Extreme Ultraviolet* Stephen Ernest Harris,Lucatero,1984 Papers presented at the Second Topical Meeting on Laser Techniques in the Extreme Ultraviolet Mar 5 7 1984 Boulder Colo **Summaries of Papers Presented at the Conference on Lasers and Electro-optics** ,1990

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