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| 1. Record Nr. | UNINA9910789065803321 |
| Titolo | Spectroscopy, dynamics and molecular theory of carbon plasmas and vapors [[electronic resource]] : advances in the understanding of the most complex high-temperature elemental system // editors, Laszlo Nemes, Stephan Irle ; foreword by Harold Kroto |
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| ISBN | 1-283-43328-1 9786613433282 981-283-765-5 |
| Descrizione fisica | 1 online resource (536 p.) |
| Altri autori (Persone) | NemesL IrleStephan KrotoHarold |
| Disciplina | 530.443 541.28 |
| Soggetti | Plasma (Ionized gases) Nanostructured materials Vapors Carbon Quantum theory Molecular spectroscopy Atomic spectroscopy |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Foreword; Preface; Contents; Experimental; Chapter 1 Spectroscopy of Carbon Nanotube Production Processes; 1. Introduction; 2. Arc Discharge; 3. Laser Plumes; 4. Glow Discharge; 5. Flames; 6. Conclusions; References; Chapter 2 Spectroscopic Studies on Laser-Produced Carbon Vapor; 1. Introduction; 2. Experimental Apparatus; 2.1. Laser ablation system; 2.2. Optical emission spectroscopy; 2.3. Laser-induced fluorescence imaging spectroscopy; 3. Optical Emission from Laser-Produced Carbon Vapor [Sasaki et al. (2002)]; 3.1. Temporal variation of optical emission intensity |

3.2. Optical emission spectrum 3.3. Spatial distribution of delayed continuum emission; 4. Spatiotemporal Variations of C2 and C3 Radical Densities [Sasaki et al. (2002)]; 4.1. C2 and C3 radical densities in vacuum; 4.2. C2 and C3 radical densities in ambient He gas at 1 Torr; 4.3. C2 and C3 radical densities in ambient He gas at 5 Torr; 5. Temporal Change in the Total Numbers of C2 and C3; 6. Spatiotemporal Variation of Plume Temperature [Sasaki and Aoki (2008)]; 6.1. Evaluation of plume temperature; 6.2. Spatial distribution of plume temperature; 6.3. Temporal variation of plume temperature 7. A Scenario for the Growth of Carbon Clusters 8. Conclusions; References; Chapter 3 Kinetic and Diagnostic Studies of Carbon Containing Plasmas and Vapors Using Laser Absorption Techniques; 1. Introduction; 2. Plasma Chemistry and Reaction Kinetics; 2.1. General considerations; 2.2. Molecular microwave plasmas containing hydrocarbons; 3. Gas-Phase Characterization in Diamond Hot-Filament CVD; 4. Kinetic Studies and Molecular Spectroscopy of Radicals; 4.1. Line strengths and transition dipole moment of CH₃; 4.2. Molecular spectroscopy of the CN radical 5. Quantum Cascade Laser Absorption Spectroscopy for Plasmas Diagnostics and Control 5.1. General considerations; 5.2. Trace gas measurements using optically resonant cavities; 5.3. In situ monitoring of plasma etch processes with a QCL arrangement in semiconductor industrial environment; 6. Summary and Conclusions; Acknowledgements; References; Chapter 4 Spectroscopy of Carbon Containing Diatomic Molecules; 1. Introduction; 1.1. Differences between atomic and diatomic spectra; 1.2. The line strength; 2. Diatomic Quantum Theory; 2.1. Diatomic eigenfunctions; 2.2. Diatomic parity 2.3. Homonuclear diatomics 2.4. Born-Oppenheimer approximation; 2.5. Hund's angular momentum coupling cases; 3. The Diatomic Hamiltonian; 3.1. The rotational Hamiltonian; 3.2. The fine structure Hamiltonian; 3.3. Hamiltonian matrix elements in Hund's case (a); 3.4. Centrifugal corrections to molecular parameters; 4. Finding the Molecular Parameters by Fitting a Measured Spectrum; 4.1. Example of a spectrum fit; 5. Diatomic Line Strengths in the Case (a) Basis; 5.1. RKR potentials and vibrational eigenfunctions; 5.2. Computation of the diatomic line strength 6. Example Applications of Line Strengths

Sommario/riassunto

This book is a stop-gap contribution to the science and technology of carbon plasmas and carbon vapors. It strives to cover two strongly related fields: the molecular quantum theory of carbon plasmas and carbon nanostructures; and the molecular and atomic spectroscopy of such plasmas and vapors. These two fields of research are strongly intertwined and thus reinforce one another. Even though the use of carbon nanostructures is increasing by the day and their practical uses are emerging, there is no modern review on carbon plasmas, especially from molecular theoretical and spectroscopic viewpoint

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| Titolo | Computer Aided Verification : 13th International Conference, CAV 2001, Paris, France, July 18-22, 2001. Proceedings // edited by Gerard Berry, Hubert Comon, Alain Finkel |
| Pubbl/distr/stampa | Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2001 |
| ISBN | 3-540-44585-4 |
| Edizione | [1st ed. 2001.] |
| Descrizione fisica | 1 online resource (XIII, 522 p.) |
| Collana | Lecture Notes in Computer Science, , 0302-9743 ; ; 2102 |
| Disciplina | 005.74 |
| Soggetti | Database management Computers Software engineering Computer logic Logic, Symbolic and mathematical Artificial intelligence Database Management Theory of Computation Software Engineering/Programming and Operating Systems Logics and Meanings of Programs Mathematical Logic and Formal Languages Artificial Intelligence |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Bibliographic Level Mode of Issuance: Monograph |
| Nota di bibliografia | Includes bibliographical references at the end of each chapters and index. |
| Nota di contenuto | Invited Talk -- Software Documentation and the Verification Process -- Model Checking and Theorem Proving -- Certifying Model Checkers -- Formalizing a JVMML Verifier for Initialization in a Theorem Prover -- Automated Inductive Verification of Parameterized Protocols? -- Automata Techniques -- Efficient Model Checking Via Büchi Tableau Automata? -- Fast LTL to Büchi Automata Translation -- A Practical Approach to Coverage in Model Checking -- Verification Core Technology -- A Fast Bisimulation Algorithm -- Symmetry and Reduced Symmetry in Model Checking? -- Transformation-Based Verification |

Using Generalized Retiming -- BDD and Decision Procedures -- Meta-BDDs: A Decomposed Representation for Layered Symbolic Manipulation of Boolean Functions -- CLEVER: Divide and Conquer Combinational Logic Equivalence VERification with False Negative Elimination -- Finite Instantiations in Equivalence Logic with Uninterpreted Functions -- Abstraction and Refinement -- Model Checking with Formula-Dependent Abstract Models -- Verifying Network Protocol Implementations by Symbolic Refinement Checking -- Automatic Abstraction for Verification of Timed Circuits and Systems? -- Combinations -- Automated Verification of a Randomized Distributed Consensus Protocol Using Cadence SMV and PRISM? -- Analysis of Recursive State Machines -- Parameterized Verification with Automatically Computed Inductive Assertions? -- Tool Presentations: Rewriting and Theorem-Proving Techniques -- EVC: A Validity Checker for the Logic of Equality with Uninterpreted Functions and Memories, Exploiting Positive Equality, and Conservative Transformations -- AGVI — Automatic Generation, Verification, and Implementation of Security Protocols -- ICS: Integrated Canonizer and Solver? -- μ CRL: A Toolset for Analysing Algebraic Specifications -- Truth/SLC — A Parallel Verification Platform for Concurrent Systems -- The SLAM Toolkit -- Invited Talk -- Java Bytecode Verification: An Overview -- Infinite State Systems -- Iterating Transducers -- Attacking Symbolic State Explosion -- A Unifying Model Checking Approach for Safety Properties of Parameterized Systems -- A BDD-Based Model Checker for Recursive Programs -- Temporal Logics and Verification -- Model Checking the World Wide Web? -- Distributed Symbolic Model Checking for λ -Calculus -- Tool Presentations: Model-Checking and Automata Techniques -- The Temporal Logic Sugar -- TReX: A Tool for Reachability Analysis of Complex Systems -- BOOSTER: Speeding Up RTL Property Checking of Digital Designs by Word-Level Abstraction -- SDLcheck: A Model Checking Tool -- EASN: Integrating ASN.1 and Model Checking -- Rtdt: A Front-End for Efficient Model Checking of Synchronous Timing Diagrams -- TAXYS: A Tool for the Development and Verification of Real-Time Embedded Systems? -- Microprocessor Verification, Cache Coherence -- Microarchitecture Verification by Compositional Model Checking -- Rewriting for Symbolic Execution of State Machine Models -- Using Timestamping and History Variables to Verify Sequential Consistency -- SAT, BDDs, and Applications -- Benefits of Bounded Model Checking at an Industrial Setting -- Finding Bugs in an Alpha Microprocessor Using Satisfiability Solvers -- Towards Efficient Verification of Arithmetic Algorithms over Galois Fields $GF(2^m)$ -- Timed Automata -- Job-Shop Scheduling Using Timed Automata? -- As Cheap as Possible: Efficient Cost-Optimal Reachability for Priced Timed Automata -- Binary Reachability Analysis of Pushdown Timed Automata with Dense Clocks.

Sommario/riassunto

This volume contains the proceedings of the conference on Computer-Aided Verification (CAV 2001), held in Paris, Palais de la Mutualité, July 18-22, 2001. CAV 2001 was the 13th in a series of conferences dedicated to the advancement of the theory and practice of computer-assisted formal analysis methods for software and hardware systems. The CAV conference covers the spectrum from theoretical results to concrete applications, with an emphasis on practical verification tools and algorithms and techniques needed for their implementation.

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