Dr. Martin Haas

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Research Interests

- Parallel RF transmission (PEX): techniques and applications

Projects

- Algorithm development for PEX pulse design
- Relaxation compensation in PEX
- Preclinical applications of PEX

Publications

- M. Haas and C. H. Keitel: Low group velocity of light without an extra driving laser field, Opt. Commun., 216, 385 (2003).
- U. D. Jentschura, J. Evers, M. Haas and C. H. Keitel: Lamb Shift of Laser-Dressed Atomic States, Phys. Rev. Lett. 91, 253601 (2003).
- M. Fischer, N. Kolachevsky, M. Zimmermann, R. Holzwarth, Th. Udem and T. W. Hänsch; M. Abgrall, J. Grünert, I. Maksimovic, S. Bize, H. Marion, F. Pereira Dos Santos, P. Lemonde, G. Santarelli, P. Laurent, A. Clairon and C. Salomon; M. Haas, U. D. Jentschura and C. H. Keitel: New Limits on the Drift of Fundamental Constants from Laboratory Measurements, Phys. Rev. Lett. 92, 230802 (2004).
- M. Haas, U. D. Jentschura and C. H. Keitel: Dynamischer Stark-Effekt in der Hochpräzisionsspektroskopie, Conference Proceedings Riezlern (2005).
- M. Haas, U. D. Jentschura and C. H. Keitel: QED Corrections to the Dynamic Polarizability, AIP Conference Proceedings (LEAP'05) 796, 317 (2005).
- M. Haas, U. D. Jentschura and C. H. Keitel: Comparison of Classical and Second Quantized Description of the Dynamic Stark Shift, Am. J. Phys. 74 77 (2006).
- M. Haas, U. D. Jentschura and C. H. Keitel; N. Kolachevsky, M. Herrmann, P. Fendel, M. Fischer, R. Holzwarth, Th. Udem and T. W. Hänsch; M. O Scully; G. A. Agarwal: Two-photon Excitation Dynamics in Bound Two-body Coulomb Systems Including AC Stark Shift and Ionization, Phys. Rev. A 73, 052501 (2006).
- N. Kolachevsky, M. Haas, U. D. Jentschura, M. Herrmann, P. Fendel, M. Fischer, R. Holzwarth, Th. Udem, C. H. Keitel and T. W. Hänsch: Photoionization Broadening of the 1S-2S Transition in a Beam of Atomic Hydrogen, Phys. Rev. A 74, 052504 (2006).
- U. D. Jentschura and M. Haas: Two-Loop Effects and Current Status of the 4He+ Lamb Shift, Can. J. Phys. 85, 531 (2007).
- U. D. Jentschura and M. Haas: Reexamining blackbody shifts for hydrogenlike ions, Phys. Rev. A 78, 042504 (2008).
- M. Herrmann, M. Haas, U. D. Jentschura, F. Kottmann, D. Leibfried, G. Saathoff, C. Gohle, A. Ozawa, V. Batteiger, S. Knünz, N. Kolachevsky, H. A. Schüssler, T. W. Hänsch, and Th. Udem: Feasibility of coherent xuv spectroscopy on the 1S-2S transition in singly ionized helium Phys. Rev. A 79, 052505 (2009).

PhD thesis

- Theory Advances in High-Precision Two-Photon Spectroscopy

Scientific CV

10/1996-11/2001	Physics undergraduate studies, Albert-Ludwigs-University Freiburg
10/1999-09/2000	Academic year at Imperial College of Science and Technology, London (Socrates/Erasmus exchange stipend)

11/2000	Imperial College International Diploma
12/2001-12/2002	Diploma thesis in the group of PD Dr. Christoph H. Keitel, University of Freiburg, on "Gruppengeschwindigkeit von Licht in dispersiven Medien lasergetriebener Mehrniveau-Atome"
02/2003	Physik Diploma, University of Freiburg
03/2003-07/2006	PhD research in the group of Prof Dr. Christoph H. Keitel, under the co-supervision of PD Dr. Ulrich D. Jentschura, at the Max-Planck-Institut für Kernphysik, Heidelberg, on"Theory Advances in High-Precision Two-Photon Spectroscopy"
7/2006	PhD Defense, Ruprecht-Karls-Universität Heidelberg
07/2006-12/2006	Post-Doc in the group of Prof. Dr. Christoph H. Keitel, in the QED subgroup led by PD Dr. Ulrich D. Jentschura, at the Max-Planck-Institut für Kernphysik, Heidelberg
since 01/2007	Post-Doc in the group of Prof. Dr. Jürgen Hennig, Department of Radiology, Medical Physics of the University Hospital Freiburg