

*Curriculum Vitae: (December 2022)***Klaus R.W. Bartschat**

Department of Physics and Astronomy
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**Personal Data**

Date and Place of Birth: June 17, 1956 in Burgsteinfurt (now Steinfurt), Germany
 Nationality: US Citizen (naturalized in 2002)
 Family Status: Married to Teresa E. Bartschat; two children (Nicholas Ian Richard, Erika Elisabeth)

Education

June 1989: *Habilitation and Venia Legendi for Physics*
 (Special German degree based on self-directed research)
 Westfälische-Wilhelms-Universität Münster (Germany)
 Thesis: *Excitation and Ionization of Atoms by Interaction with Electrons, Positrons, Protons, and Photons*
 June 1984: *Ph.D. (Dr. rer. nat.), Theoretical Atomic Physics*
 Westfälische-Wilhelms-Universität Münster (Germany)
 Thesis: *Spindependent Effects in Low-Energy Electron Scattering from Heavy Atoms*
 (Advisor: Prof. Dr. K. Blum)
 September 1981: *Diploma (Master degree), Experimental Atomic Physics*
 Westfälische-Wilhelms-Universität Münster (Germany)
 Thesis: *Excitation of Atoms by Spin-Polarized Electrons with Subsequent Observation of the Emitted Radiation*
 (Advisor: Prof. Dr. J. Keßler)

Professional Experience**Present Position:**

Ellis & Nelle Levitt Distinguished Professor of Physics
Department of Physics and Astronomy
Drake University
Des Moines, Iowa 50311, USA

Previous Positions:

Sept. 1994–August 2000: Professor of Physics
 Department of Physics and Astronomy, Drake University, Des Moines (Iowa, USA)
 Sept. 1991–August 1994: Associate Professor of Physics
 Department of Physics and Astronomy, Drake University, Des Moines (Iowa, USA)
 Sept. 1992–June 1993: Visiting Fellow
 (on leave) Joint Institute for Laboratory Astrophysics, University of Colorado, Boulder (Colorado, USA)
 Sept. 1988–August 1991: Assistant Professor of Physics
 Department of Physics and Astronomy, Drake University, Des Moines (Iowa, USA)
 Jan. 1986–August 1988: Research Associate
 Institut für Theoretische Physik I, Westfälische Wilhelms-Universität Münster (Germany)
 Jan. 1987–May 1987: Visiting Assistant Professor
 Department of Physics and Astronomy, Drake University, Des Moines (Iowa, USA)

Oct. 1984–Dec. 1985:	Research Associate Dept. of Appl. Math., The Queen’s University of Belfast (Northern Ireland)
Febr. 1983–Sept. 1984:	Research Assistant Institut für Theoretische Physik I, Westfälische Wilhelms-Universität Münster (Germany)
Oct. 1981–Jan. 1983:	Postgraduate Tutor Institut für Theoretische Physik I, Westfälische Wilhelms-Universität Münster (Germany)
Sept. 1980–Sept. 1981:	Student Tutor Institut für Theoretische Physik I, Westfälische Wilhelms-Universität Münster (Germany)

Visiting/Adjunct Appointments:

The Queen’s University of Belfast (Northern Ireland):	October 1982–December 1982 October 1983–December 1983 October 1984–December 1985 November 1987–December 1987 September 1995–November 1995 (Visiting Fellow) July 1996 (Visiting Fellow)
Drake University Des Moines (Iowa, USA):	January 1986–March 1986 January 1987–May 1987
York University Toronto (Canada):	May 1987–July 1987 September 1987–October 1987 January 1988–March 1988 May 1988–June 1988
University of Münster (Germany):	May 1989–July 1989 June 1990–August 1990 May 1991–June 1991 June 1992–August 1992 July 1993–August 1993 May 1994–June 1994 December 1995 (Visiting Fellow) June 2003–August 2003 (Mercator Professor)
Joint Institute for Laboratory Astrophysics (Boulder, Colorado, USA):	September 1992–June 1993 (Visiting Fellow)
The Flinders University of South Australia (Adelaide, Australia):	January 1996–May 1996 (Visiting Fellow)
Harvard Smithsonian Center for Astrophysics (Cambridge, Massachusetts):	June 2002–December 2002 (Visiting Fellow)
Curtin University of Technology (Perth, Australia):	January 2010–May 2010 (Adjunct Professor of Physics)
Griffith University (Brisbane, Australia):	January 2012–present (Adjunct Professor of Physics)

Honors/Awards

British Council Fellow	Oct. 1982–Dec. 1982
British Council Fellow	Oct. 1983–Dec. 1983
Fellow of the German Research Council	Oct. 1984–Dec. 1985
Stalnaker Lecturer	Drake University, 1992
Visiting Fellow, University of Colorado and JILA	Sept. 1992–June 1993
Centennial Scholar (College of Arts & Sciences)	Drake University, 1993-1994
Visiting Fellow, ITAMP, Harvard Smithsonian CfA	June 2002–December 2002
Mercator Professor, German Research Council	June 2003–August 2003
Fellow of the American Physical Society	inducted in 1998
listed in <i>Who’s Who in America</i>	since 2002
listed in <i>Who’s Who in the World</i>	since 2004
Outstanding Referee, Journals of the APS	since 2008
Troyer Research Fellow	Drake University, 2011-2012
Foundation Speaker	Gaseous Electronics Conference, 2012
Will Allis Prize	American Physical Society, 2016
Plenary Speaker	Int. Conf. on Photonic, Electronic, & Atomic Collisions, 2019
5 Sigma Physicist Award of the American Physical Society	awarded in 2020

Professional Activities

- Main fields of research:** Computational Physics
 Electron and Positron Collisions with Atoms and Ions
 Photoionization, including Strong-Field Processes in Atoms and Molecules
 General Scattering Theory
- Further fields:** Atomic Structure
 Heavy-Particle Collisions
 Mathematical Physics
- Publications:** 3 books
 51 further book contributions
 18 invited review articles
 2 major technical reports
 420 refereed papers in professional journals
 75 invited talks at international conferences
 121 colloquia, seminars, and guest lectures
 several hundred contributed papers at various national and international conferences
 (not listed individually)
 h-index (Google Scholar, Dec. 31, 2022): **56**; citations: **12,401**
- Current Grant Support:** National Science Foundation
 (Atomic, Molecular, and Optical Theory; Office of Cyberinfrastructure; XSEDE)
- Previous Grant Support:** National Science Foundation
 National Center for Computational Sciences
 National Energy Research Scientific Computing Center
 Research Corporation
 NATO
 Minnesota Supercomputer Institute
 Drake University
- Journal Referee:** Atomic Data and Nuclear Data Tables, Australian Journal of Physics,
 Canadian Journal of Physics, European Physical Journal D,
 European Physics Letters, Hyperfine Interactions,
 Journal of Electron Spectroscopy, Journal of Physics B, Physics Letters A,
 Physical Review A, Physical Review Letters, Nature Physics, Nature
- Guest Editor:** Canadian Journal of Physics (Special Issue, Nov./Dec. 1996)
 ATOMS (Special Issue in honor of Oleg Zatsarinny, 2021)
- Proposal Referee:** National Science Foundation, Department of Energy, Research Corporation (USA)
 (many review panels on AMO Theory, Comp. Phys., Astr. & Astrophys., ITR, XSEDE)
 National Science and Engineering Research Council of Canada
 Member, General Physics Grant Selection Committee (1998–2000)
 Australian Research Council
 Alexander-von-Humboldt Foundation (Germany)
 Deutsche Forschungsgemeinschaft (Germany)
- External Examiner:** Several PhD theses in Australia, Canada, Germany, and Great Britain
- Consultant:** Naval Research Laboratory (2001 –)
 Oak Ridge National Laboratory (2021 –)
- Affiliations:** American Physical Society (Fellow)
 Deutsche Physikalische Gesellschaft

Professional Leadership:

Chair, Theoretical Atomic, Molecular, and Optical Community (TAMOC), 1998–2000
 General Committee of the International Conference on Photonic, Electronic,
 and Atomic Collisions (ICPEAC), 1991–1995
 Executive Committee of the International Conference on Photonic, Electronic,
 and Atomic Collisions (ICPEAC), 1993–1995; 1999–2001; 2015–2017
 International Advisory Committee for the Symposium on Correlation,
 Polarization and (e,2e)-Processes (Brisbane 1991, Beijing 1999, Buenos Aires 2005)
 International Organizing Committee (Co-Chair) for the 7th Symposium on
 Correlation, Polarization and (e,2e)-Processes in Vancouver (Canada, 1995)
 Task Force on the Future of the International Conference on Photonic, Electronic,
 and Atomic Collisions (ICPEAC), 1995–1997
 Executive Committee of the Gaseous Electronics Conference (GEC), 2000–2002; 2014–2016
 International Advisory Committee for the Conference on Electron and Photon Impact
 Ionization and Related Topics (Louvain-la-Neuve, 2004)
 Secretary of the International Conference on Photonic, Electronic, and Atomic
 Collisions (ICPEAC), 2001–2007
 Scientific Co-Chair, International Symposium on (e,2e), Double Photoionization
 and Related Topics & 15th International Symposium on Polarization and
 Correlation in Electronic and Atomic Collisions; University of Kentucky (2009)
 Correspondent: Comments on Atomic, Molecular, and Optical Physics, 2006–2010
 Editorial Board: Journal on Atomic, Molecular, and Optical Physics, 2008–2011
 Specialist Editor (Comp. Atomic Physics): Comp. Phys. Commun., 2009–2017
 Editorial Board: European Journal of Physics D, 2017–present
 Editorial Board: Plasma Sources Science and Technology, 2017–present
 Treasurer of the Gaseous Electronics Conference (GEC), 2006–2010
 Member, Task Force on Grand Challenge Communities and Virtual Organizations
 Office of Cyber-Infrastructure, National Science Foundation, 2009–2011
 Organizer (P.I.) of NSF Workshop on *Theoretical Atomic-Molecular-Optical Physics*:
 Organizer of ITAMP/IAEA Workshop on *Uncertainty Assessment of Atomic and
 Molecular Data* (July 2014)
 Secretary (Organizer) 68th *Gaseous Electronics Conference* (GEC) (Oct. 2015)
 Executive Committee of the Few-Body Group of the American Physical Society, 2014–2017
 Program Committee for Numerous International Conferences
 International Chair of the 22th International Symposium on Correlation, Polarization,
 and Ionization in Atomic and Molecular Collisions (Satellite Meeting of ICPEAC 2023)

Teaching Experience

Below is a list of courses that I have taught at Drake University since 1988. The level varies from courses for non-physics majors (predominantly students of biology and chemistry) to those for undergraduate physics majors of all levels. Some of the courses have also been taught at the graduate level. Furthermore, I have advised students for Honors and Masters theses, and I have been closely involved in the supervision of several PhD students in Britain and Germany. Finally, I have supervised post-doctoral researchers and other visitors at Drake University.

Course List:

- Introductory Physics I for Physics Majors (calculus-based)
- Introductory Physics II for Physics Majors (calculus-based)
- Introductory Physics III for Physics Majors (calculus-based)
- Introductory Physics I for Science Majors (algebra-based)
- Introductory Physics II for Science Majors (algebra-based)
- Modern Physics
- Theoretical Mechanics
- Electromagnetic Theory
- Advanced Classical Physics
- Quantum Mechanics
- Thermodynamics and Statistical Physics
- Atomic and Molecular Physics
- Physics Seminar I, II, III
- Research Participation I, II
- First-Year Seminar: Physics for Future Presidents
- First-Year Seminar: Energy for Future Presidents

In all courses for physics majors, the teaching of computational techniques has been implemented to enhance the learning experience for the students. In most cases, the students are asked to write their own programs first before making use of advanced packages such as *Mathematica*. In this way, they will learn the details of the numerical methods — including the many potential problems that advanced packages can hide to some extent.

We have also used very advanced *Mathematica* programming in Research Participation classes to produce movies that provide a much deeper understanding of atomic collision processes than simple two-dimensional or even three-dimensional graphs. This work has been recognized by the professional community through several invitations of my undergraduate students to present their work in invited talks at international meetings — including the Centennial Meeting of the American Physical Society in Atlanta, Georgia (1999). Examples of these movies can be found via links from the website <http://bartschat.drake.edu/klaus.html>.

University Committee Service

Below is a list of committees I am currently serving on or have served on at Drake University (often more than once).

University Level

President, Drake University Faculty Senate (2010–11); Vice-President (2009–10)
President, Drake University Faculty Senate (2004–5); Vice-President (2003–4)
Member, Steering Committee for University Re-Accreditation (2005–8)
Member, Faculty Senate Executive Committee and President’s Advisory Committee (1997, 2003–4)
Member, Faculty Senate (several 2-year terms)
Member, Budget Committee (several 2-3 year terms, Vice Chair 2004–5, Chair 2005–6, Chair 2011–12)
Member, Sub-Committee on Mission and Integrity for University Re-Accreditation (2004–5)
Member and Chair, Admissions and Financial Aid Committee (1993–4, 2007–8)
Member, University Council for Strategic Planning (1997–9)
Member, Search Committee for Vice President of Institutional Advancement (2001)
Member, Board of Trustees Committee for Business, Finance, and Investment (2006–8)
Member, Board of Trustees Committee for Institutional Advancement (2000–2, 2004–6)
Member, Board of Trustees Committee for Academic Affairs (2004–5)
Member and Chair, Search Committee for Dean of the College of Arts & Sciences (2008)
Member, Task Force on Administrative Structures and Efficiency (2009)
Member and Chair, Search Committee for Vice President for Business and Finance (2011)
Member and Chair, Compensation Committee (2019–2023)

College Level

Member and Chair, Planning and Priorities Committee
Member, Faculty Cabinet (and Dean’s Advisory Committee)
Member, General Education Committee
Member, Curriculum Committee
Member and Chair, Sabbatical Review Committee
Member, several Promotion Committees

Department Level

Member and Chair, Department Chair Selection Committee
Member and Chair, Promotion and Tenure Committee
Member and Chair, Drake Physics Prize Committee
Member and Chair, several Promotion Committees

Grant History

Current Grants:

- National Science Foundation: *Photon- and Electron-Driven Atomic Collision Processes: General Theory and Accurate Numerical Calculations*
currently funded with **\$ 300,000** for period August 2021 – July 2024
- National Science Foundation: *Photon- and Electron-Driven Atomic Collision Processes: General Theory and Accurate Numerical Calculations*
currently funded with **\$ 310,000** for period August 2018 – July 2022
- National Science Foundation: *Elements: NSCI-Software – A General and Effective B-Spline R-Matrix Package for Charged-Particle and Photon Collisions with Atoms, Ions, and Molecules*
currently funded with **\$ 476,284** for period March 2019 – February 2023
- National Science Foundation: *Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms and Molecules*
continued funding on several XSEDE machines
- Texas Austin Computer Center: *R-Matrix with Time Dependence Calculations for Ultrafast Atomic Processes in Strong Laser Fields*
continued funding as Pathway project on Frontera

Previous Grants:

- National Science Foundation: *Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms and Molecules*
funded with resources equivalent to **\$79,363.41** on XSEDE
January 2019–March 2020
- National Science Foundation: *Development of a General and Effective Program B-Spline R-Matrix Program for Charged-Particle and Photon Collisions with Atoms, Ions, and Molecules*
funded with **\$ 216,171** for period August 2015 – July 2019
- National Science Foundation: *Excitation and Ionization in Atomic Collision Processes – General Theory and Accurate Numerical Calculations*
funded with **\$ 270,000** for period July 2014 – June 2019
- National Science Foundation: *Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms and Molecules*
funded with **1,669,220 SU** (service units) and **221,662** node hours on XSEDE
October 2017–December 2018
- National Science Foundation: *Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms and Molecules*
funded with **3,620,788 SU** on XSEDE
July 2016–September 2017
- National Science Foundation: *Development of a General, Fully Relativistic, Parallelized B-Spline R-Matrix with Pseudo-States Program for Electron and Photon Interactions with Atoms, Ions, and Molecules*
funded with **\$ 204,669** for period July 2012 – June 2016
- National Science Foundation: *Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms and Molecules*
funded with **8,303,280 SU** on XSEDE
July 2015–June 2016
- National Science Foundation: *Excitation and Ionization in Atomic Collision Processes – General Theory and Accurate Numerical Calculations*
funded with **\$ 320,784** for period August 2011 – July 2015
- National Science Foundation: *Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms and Molecules*
funded with **7,866,312 SU** on XSEDE
July 2014–June 2015
- National Science Foundation: *Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms and Molecules*
funded with **23,488,000 SU** on XSEDE
July 2013–June 2014

Previous Grants (continued):

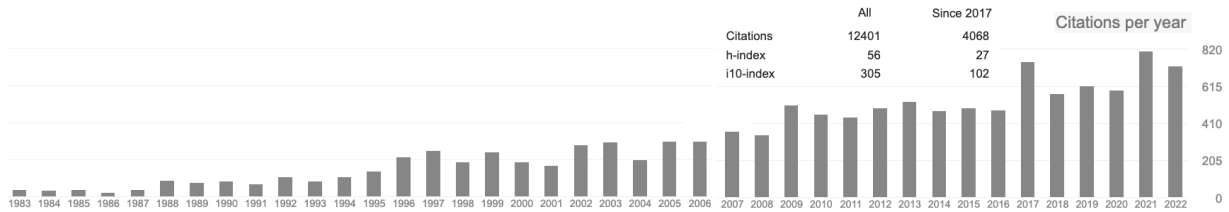
- National Science Foundation: *Workshop on AMO Theory; Recent Developments and a Vision for the Future*
funded with **\$ 85,621** for period July 2011– June 2014
- National Science Foundation: *Development of a general, fully relativistic B-Spline R-Matrix with pseudo-states program for electron and photon interactions with atoms, ions, and molecules*
funded with **\$ 196,764** for period September 2009 – August 2013
- National Science Foundation: *Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms and Molecules*
funded with **16,098,369 SU** on XSEDE
April 2012–June 2013
- National Science Foundation: *Excitation and Ionization in Atomic Collision Processes — General Theory and Accurate Numerical Calculations*
funded with **\$ 299,900** for period June 2008–May 2011
- National Science Foundation: *Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms and Molecules*
funded with **18,000,000 SU** on TeraGrid
January 2011–March 2012
- National Science Foundation: *Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms, Molecules, and Bose-Einstein Condensates*
funded with **10,500,000 SU** on TeraGrid
October 2009–December 2010
- National Science Foundation: *Development of a General and Effective B-Spline R-Matrix Program for Electron and Photon Collisions with Atoms, Ions, and Molecules*
funded with **\$ 290,200** for period June 2006–May 2010
- National Center for Computational Sciences:
Time-Dependent Interactions of Short, Intense Laser Pulses and Charged Particles with Atoms and Molecules
funded with **2,000,000 SU** at ORNL, January 2010–December 2010
- National Science Foundation: *Support for US-based Scientists to Attend Quantum Dynamics Imaging Workshop; Montreal, Canada; October 19-23, 2009*
funded with **\$ 19,040** for period September 2009–August 2010
- National Science Foundation: *Computational Studies of the Interaction of Time-Dependent Electromagnetic Fields with Atoms, Molecules and Bose Condensates*
funded with **2,200,000 SU** on Teragrid, October 2008–September 2009
- Department of Energy and National Energy Research Scientific Computer Center:
High-Precision Calculations for Electron and Photon Interactions with Atoms and Ions
funded with **50,000 SU** on Franklin, Oct. 2008–Sept. 2009
- National Science Foundation: *Benchmark Calculations for Atomic Continuum Processes*
funded with **100,000 SU** on Ranger (TACC), May 2008–April 2009
- National Science Foundation: *Excitation and Ionization in Atomic Collision Processes — General Theory and Accurate Numerical Calculations*
funded with **\$ 450,000** for period June 2003–May 2008
- National Science Foundation: *Development of a General and Effective Program for Electron Collisions with Atoms and Ions Using a B-Spline Approach with Non-orthogonal Orbitals*
funded with **\$ 240,000** for period October 2003–September 2006
- National Science Foundation: *Student Support for GEC 2007*
funded with **\$ 5,000** for period July 2007–June 2008
- National Science Foundation: *XXIVth ICPEAC Group Travel Grant for Young Scientists*
funded with **\$ 7,500** for period June 2005–May 2006
- National Science Foundation: *Excitation and Ionization in Atomic Collision Processes — General Theory and Accurate Numerical Calculations*
funded with **\$ 259,916** for period June 2000–May 2003
- Department of Energy and National Energy Research Scientific Computer Center:
Terascale Computational Atomic Physics for the Edge Region in Controlled Fusion Plasmas; member of the SCIDAC team
- National Energy Research Scientific Computer Center:
R-Matrix with Pseudo-States Calculations for Electron Collisions with Atoms and Ions
funded with **5,000 MPP hours** for period Oct. 2000–March 2002

Previous Grants (continued):

- National Science Foundation: *XXIInd ICPEAC Group Travel Grant for Young Scientists*
funded with **\$ 5,000** for period March 2001–February 2002
- National Science Foundation: *Excitation and Ionization in Atomic Collision Processes —
General Theory and Accurate Numerical Calculations*
funded with **\$ 209,730** for period June 1997–May 2000
- National Science Foundation: *Excitation and Ionization in Atomic Collision Processes —
General Theory and Accurate Numerical Calculations*
funded with **\$ 165,604** for period January 1994–June 1997
- National Science Foundation: *Excitation and Ionization in Atomic Collision Processes —
General Theory and Accurate Numerical Calculations*
funded with **\$ 97,377** for period January 1991–June 1994
- National Science Foundation: *XVIIIth ICPEAC International Travel Grant (with G.H. Dunn)*
funded with **\$ 8,000** for period May 1993–April 1994
- NATO: *Calculations of Atomic Data Using High-Performance Computing Platforms*
funded with **Bfr 300,000** for period September 2000–August 2004
- NATO: *Electron Scattering from Atoms and Molecules (with P.G. Burke and K. Blum)*
funded with **\$ 8,000** for period July 1990–June 1992
- NATO: *Electron Scattering from Atoms and Molecules (with P.G. Burke and K. Blum)*
funded with **\$ 9,000** for period April 1993–March 1996
- Research Corporation: *Excitation and Ionization of Atoms by Interaction with Electrons, Positrons,
Protons and Photons*
funded with **\$ 13,000** for period July 1989–June 1994
- Drake University: *Differential Cross Sections for Positron-Alkali Scattering*
funded with **\$ 1,000** for period January 1993–April 1993
- Minnesota Supercomputer Institute: *R-Matrix Calculations for Photo- and Particle Impact Ionization*
funded with **200 CPU hours** for period October 1989–June 1992
- Drake University: *Computational Physics: Program Development and Applications*
funded with **\$ 1,000** for period December 1988–May 1990

Scientific Publications

Below is a graph of my citation record from 1983 until December, 2022.



Books

1. *Computational Atomic Physics — Electron and Positron Scattering from Atoms and Ions*
K. Bartschat (Ed.), Springer (1996) with the following contributions:
 - (a) *Scattering Theory: An Overview*
 - (b) *Core potentials in Atomic Structure Calculations*
 - (c) *The Distorted Wave Method for Elastic Scattering and Atomic Excitation* (with D.H. Madison)
 - (d) *Scattering Amplitudes*
 - (e) *Density Matrices: Connection between Theory and Experiment*
2. *Polarization, Alignment, and Orientation in Atomic Collisions*
 N. Andersen and **K. Bartschat**, Springer (2001)
3. *Polarization, Alignment, and Orientation in Atomic Collisions* (2nd Edition)
 N. Andersen and **K. Bartschat**, Springer (2017)

Book Contributions

1. *A test of the influence of the nuclear spin in electron impact excitation processes*
K. Bartschat, K. Blum, P.G. Burke and N.S. Scott in: *Fundamental Processes in Atomic Collision Physics*
 H. Kleinpoppen, J.S. Briggs, and H.O. Lutz (Eds.), Plenum Press, New York and London (1985).
2. *Electron scattering from heavy atoms*
K. Bartschat and P.G. Burke in: *Coherence in Atomic Collision Physics*, J. Beyer, K. Blum, and R. Hippler
 (Eds.), Plenum Press, New York (1988).
3. *Excitation and ionization of atoms—what we can learn by using polarized collision partners*
K. Bartschat in : *Proceedings of the International Symposium on Correlation and Polarization in Electronic
 and Atomic Collisions*, P.A. Neill, K.H. Becker, and M.H. Kelley (Eds.), NIST Special Publication **789** (1990).
4. *Theoretical calculations of positron collisions with atoms*
 A.D. Stauffer, **K. Bartschat**, R.I. Campeanu, M. Horbatsch, R.P. McEachran, L.A. Parcell, and S.J. Ward in:
The Physics of Electronic and Atomic Collisions, A. Dalgarno, R.S. Freund, P.M. Koch, M.S. Lubell, and T.B.
 Lucatorco (Eds.), AIP Conference Proceedings **205**, New York (1990).
5. *Positron scattering from alkalis and noble gases — suggestions for testing theoretical predictions*
K. Bartschat, R.P. McEachran, and A.D. Stauffer in: *Hyperfine Interactions* **73** (1992) 99.
6. *Recent developments in the theoretical treatment of spin-dependent electron–atom scattering*
K. Bartschat in: *Correlations and Polarization in Electronic and Atomic Collisions and (e,2e) Reactions*,
 P.J.O. Teubner and E. Weigold (Eds.), IOP Conference Series #**122** (1992) 97.
7. *Recent progress in electron-atom close-coupling theory*
K. Bartschat in: *The Physics of Electronic and Atomic Collisions — Book of Invited Papers XVIII ICPEAC*,
 T. Andersen, B. Fastrup, F. Folkmann, H. Knudsen, and N. Andersen (Eds.), American Institute of Physics
 (1994) 251.
8. *The R-matrix method for electron impact ionization*
K. Bartschat and P.G. Burke in: *Atomic and molecular processes: an R-matrix approach*, P.G. Burke and
 K.A. Berrington (Eds.), Institute of Physics Publishing (London) (1993) 363; reprinted from *Journal of Physics
 B* **20** (1987) 3191.

9. *Differential cross sections for elastic and inelastic positron scattering from alkali atoms*
K. Bartschat, K.M. DeVries, R.P. McEachran, and A.D. Stauffer in: *Positron Interactions with Atoms, Molecules, and Clusters*, W. Raith and R.P. McEachran (Eds.), J.C. Baltzer AG (Basel, 1994); reprinted from *Hyperfine Interactions* **89** (1994).
10. *Density matrices*
K. Bartschat in: *Atomic, Molecular, & Optical Physics Handbook*, G.W. Drake (Ed.), American Institute of Physics (1996) 94.
11. *A modern theory of atomic line radiation*
K. Bartschat in: *Selected Topics in Electron Physics*, H. Kleinpoppen and M.C. Campbell (Eds.), Plenum Press, New York (1996) 141.
12. *Excitation of atoms by electron impact: Current status and future prospects*
K. Bartschat in: *Photon and Electron Collisions with Atoms and Molecules*, P.G. Burke and C.J. Joachain (Eds.), Plenum Press, New York (1997) 1.
13. *Intermediate energy R-matrix theory*
M.P. Scott, P.G. Burke, and **K. Bartschat** in: *Photonic, Electronic, and Atomic Collisions — Book of Invited Papers XX ICPEAC*, H. Winter and F. Aumayr (Eds.), World Scientific (1998) 229.
14. *Recent developments in the theory of electron–ion collisions*
K. Bartschat in: *Atomic Processes in Plasmas*, E. Oaks and M.S. Pindzola (Eds.), American Institute of Physics (1998) 121.
15. *Polarization, alignment, and orientation in electron–atom collisions: benchmarks for atomic collision theory*
K. Bartschat in: *Atomic Physics 16*, G.W.F. Drake (Ed.), American Institute of Physics (1999) 254.
16. *Ionization plus excitation in electron–atom collisions*
K. Bartschat in: *Proceedings of the International Conference on Coincidence Spectroscopy*, O. Robaux and A. Pochat (Eds.), J. Phys. IV (France) (1999), Pr 6-17.
17. *Benchmark studies in electron-impact excitation of atoms*
K. Bartschat in: *Supercomputing, collision processes, and applications*, K.L. Bell, K.A. Berrington, D.S.F. Crothers, A. Hibbert, and K.T. Taylor (Eds.), Plenum Press, New York (1999), 33.
18. *Complete experiments in electron–atom collisions: benchmarks for atomic collision theory*
K. Bartschat in: *Electron Scattering — Photon Impact — EPR-Experiments*, U. Becker and A. Crowe (Eds.), Plenum Press, New York (2001).
19. *Non-statistical magnetic substate populations following excitation of helium by electron and proton impact*
J. Hanni, H. Merabet, A. Siems, R. Bruch, M. Bailey, D.V. Fursa, I. Bray, **K. Bartschat**, H.C. Tseng, C.D. Lin, and A.G. Trigueiros in: *Application of Accelerators in Research and Industry*, J.L. Duggan and I.L. Morgan (Eds.), AIP Press, New York (2001).
20. *Excitation cross sections of $(1s np)^1P^o$ ($n = 2 - 5$) levels of helium by fast electron, proton, and molecular hydrogen (H_2^+ and H_3^+) impact*
H. Merabet, M. Bailey, R. Bruch, J. Hanni, S. Bliman, D.V. Fursa, I. Bray, **K. Bartschat**, H.C. Tseng, and C.D. Lin in: *Application of Accelerators in Research and Industry*, J.L. Duggan and I.L. Morgan (Eds.), AIP Press, New York (2001).
21. *Spectro-polarimetric measurements of the EUV emission from helium following e^- , H^+ , H_2^+ , and H_3^+ charged-particle impact*
H. Merabet, R. Bruch, M. Bailey, J. Hanni, S. Fineschi, A. Godunov, J. H. McGuire, I. Bray, **K. Bartschat**, H. C. Tseng, and C. D. Lin in: *SPIE Proceedings on UV/EUV and Visible Space Instrumentation for Astronomy and Solar Physics*, M.A. Gummin, O.H.W. Siegmund, and S. Fineschi (Eds.) (2001)
22. *Simultaneous ionization–excitation: a challenge for theory and experiment*
K. Bartschat in: *Correlations, Polarization, and Ionization in Atomic Systems*, D.H. Madison and M. Schulz (Eds.), AIP Conference Proceedings #**604**, American Institute of Physics (2002).
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A.H.N.C. De Silva, D. Atri-Schuller, S. Dubey, B.P. Acharya, K.L. Romans, K. Foster, O. Russ, K. Compton, C. Rischbieter, N. Douguet, **K. Bartschat**, and D. Fischer, Phys. Rev. Lett. **126** (2021) 023201
394. *Decomposition of the transition phase in multi-sideband schemes for reconstruction of attosecond beating by interference of two-photon transitions*
D. Bharti, D. Atri-Schuller, G. Menning, K.R. Hamilton, R. Moshhammer, T. Pfeifer, N. Douguet, **K. Bartschat**, and A. Harth, Phys. Rev. A **102** (2021) 022834
395. *Quantum control of entangled photon-pair generation in electron-atom collisions driven by laser-synthesized free-electron wave packets*
R.E. Goetz and **K. Bartschat**, Phys. Rev. A **103** (2021) 043112
396. *Anticorrelation in nonsequential double ionization of helium*
Z. Chen, A. Zhou, T. Morishita, Y. Bai, X. Hao, O. Zatsarinny, and **K. Bartschat**, Physical Review A **103** (2021) 053102
397. *Circular dichroism in atomic resonance-enhanced few-photon ionization*
A.H.N.C. De Silva, T. Moon, K.L. Romans, B.P. Acharya, S. Dubey, K. Foster, O. Russ, C. Rischbieter, N. Douguet, **K. Bartschat**, and D. Fischer, Physical Review A **103** (2021) 053125
398. *Linear dichroism in few-photon ionization of laser-dressed helium*
S. Meister, A. Bondy, K. Schnorr, S. Augustin, H. Lindenblatt, F. Trost, X. , M. Braune, B. Manschwetus, N. Schirmel, H. Redlin, N. Douguet, T. Pfeifer, **K. Bartschat**, and R. Moshhammer, European Physical Journal D **75** (2021) 1
399. *Single-cycle versus multicycle nonsequential double ionization of argon*
F. Liu, Z. Chen, T. Morishita, **K. Bartschat**, B. Böning, and S. Fritzsche, Physical Review A **104** (2021) 013105
400. *Relativistic B-Spline R-Matrix Calculations for Electron Collisions with Ytterbium*
K.R. Hamilton, **K. Bartschat**, and O. Zatsarinny, Atoms **9** (2021) 47
401. *A Tribute to Oleg Zatsarinny (19532021): His Life in Science*
K. Bartschat, C.F. Fischer, and A.N. Grum-Grzhimailo, Atoms **9** (2021) 53
402. *Benchmark Angle-Differential Cross-Section Ratios for Excitation of the $4p^5 5s$ Configuration in Krypton*
A. Sakaamini, J.B. Faure, M.A. Khakoo, O.I. Zatsarinny, and **K. Bartschat**, Atoms **9** (2021) 61
403. *Linear polarization fractions of Fulcher- α fluorescence in electron collisions with H_2*
L.H. Scarlett, U.S. Rehill, M.C. Zammit, K Bartschat, I. Bray, and D.V. Fursa, Physical Review A **104** (2021) L040801
404. *Magnetic dichroism in few-photon ionization of polarized atoms*
B.P. Acharya, M. Dodson, S. Dubey, K.L. Romans, A.H.N.C. De Silva, K. Foster, O. Russ, **K. Bartschat**, N. Douguet, and D. Fischer, Physical Review A **104** (2021) 053103
405. *Transport of electrons and propagation of the negative ionisation fronts in indium vapour*
S. Dujko, J. Atić, R.D. White, P.W. Stokes, K.R. Hamilton, O. Zatsarinny, **K. Bartschat**, M.S. Rabasović, D. Šević, B.P. Marinković, D.V. Fursa, I. Bray, R.P. McEachran, F. Blanco, G. García, D.B. Jones, L. Campbell, and M.J. Brunger, Plasma Sources Science and Technology **30** (2021) 115019
406. *Low-Energy Elastic Electron Scattering from Helium Atoms*
R.P. McEachran, K.R. Hamilton, and **K. Bartschat**, Atoms **9** (2021) 82
407. *Relativistic B-Spline R-Matrix Calculations for Electron Scattering from Thallium Atoms*
Y. Wang, H.L. Du, X.M. Zhu, O. Zatsarinny, and **K. Bartschat**, Atoms **9** (2021) 94
408. *Electron Scattering Cross-Section Calculations for Atomic and Molecular Iodine*
H.B. Ambalampitiya, K.R. Hamilton, O. Zatsarinny, **K. Bartschat**, M.A.P. Turner, A. Dzarasova, and J. Tennyson, Atoms **9** (2021) 103
409. *Oleg Zatsarinny (19532021): Memories by His Colleagues*
K. Bartschat, C.F. Fischer, and A.N. Grum-Grzhimailo, Atoms **9** (2021) 109

410. *Benchmark angle-differential cross-section ratios for the electron-impact excitation of the xenon $5p^6 1S_0 \rightarrow 5p^5 6s[3/2]_2$, $5p^5 6s[3/2]_1$, $5p^5 6s'[1/2]_0$, and $5p^5 6s'[1/2]_1 + 5p^5 6p[1/2]_1$ transitions at low and near-threshold incident electron energies*
A. Sakaamini, J.B. Faure, M.A. Khakoo, O. Zatsarinny, and **K. Bartschat**,
Physical Review A **104** (2021) 062805
411. *Generalizations of the R-Matrix Method to the Treatment of the Interaction of Short-Pulse Electromagnetic Radiation with Atoms*
B.I. Schneider, K.R. Hamilton, and K. Bartschat, Atoms **10** (2022) 26
412. *Carrier-Envelope-Phase Dependent Strong-Field Excitation*
D. Chetty, R.D. Glover, X.M. Tong, B.A. deHarak, H. Xu, N. Haram, **K. Bartschat**, A.J. Palmer, A.N. Luiten, P.S. Light, I.V. Litvinyuk, and R.T. Sang,
Phys. Rev. Lett. **128** (2022) 173201
413. *Two-path interference in resonance-enhanced few-photon ionization of Li atoms*
B.P. Acharya, S. Dubey, K.L. Romans, A.H.N.C. De Silva, K. Foster, O. Russ, **K. Bartschat**, N. Douguet, and D. Fischer, Phys. Rev. A **106** (2022) 173201
414. *Electron-impact excitation of the $5^2S_{1/2} \rightarrow 5^2P_{1/2}$ and $5^2P_{3/2}$ transitions in rubidium by 40-eV electrons: theory and experiment*
K.R. Hamilton, O. Zatsarinny, **K. Bartschat**, B. Predojević, D. Šević, B.P. Marinković, and M.J. Brunger
Eur. Phys. J. D **76** (2022) 92
415. *Influence of an atomic resonance on the coherent control of the photoionization process*
E.V. Gryzlova, P. Carpeggiani, M.M. Popova, M.D. Kiselev, N. Douguet, M. Reduzzi, M. Negro, A. Comby, H. Ahmadi, V. Wanie, M.C. Castrovilli, A. Fischer, P. Eng-Johnsson, M. Meyer, **K. Bartschat**, S.M. Burkov, T. Csizmadia, M. Dumergue, S. Kühn, N.G. Harshitha, M. Fule, F. Aenehvand, F. Stienkemeier, D. Iablonskyi, K. Ueda, P. Finetti, M. Zangrando, N. Mahne, K.L. Ishikawa, O. Plekan, K.C. Prince, E. Allaria, L. Giannessi, C. Callegari, A.N. Grum-Grzhimailo, and G. Sansone
Phys. Rev. Res. **4** (2022) 033231
416. *Ellipticity dependence of anticorrelation in the nonsequential double ionization of Ar*
Z. Chen, S. Li, H. Kang, T. Morishita, and **K. Bartschat**, Optics Express **30** (2022) 44039
417. *Photoelectron momentum distributions in the strong-field ionization of atomic hydrogen by few-cycle elliptically polarized optical pulses*
N. Douguet and **K. Bartschat**, Phys. Rev. A **106** (2022) 053112
418. *The 2021 release of the Quantemol database (QDB) of plasma chemistries and reactions*
J. Tennyson, S. Mohr, M. Hanicinec, A. Dzarasova, C. Smith, S. Waddington, B. Liu, L.L. Alves, **K. Bartschat**, A. Bogaerts, S.U. Engelmann, T. Gans, A.R. Gibson, S. Hamaguchi, K.R. Hamilton, C. Hill, D. O'Connell, S. Rauf, K. van't Veer, and O. Zatsarinny
Plasma Science Sources and Technology **31** (2022) 095020
419. *Effects of environment on the electron-impact ionization dynamics of argon clusters*
J. Zhou, M. Gong, O. Zatsarinny, D.M. Mootheril, X. Wang, X. Xue, S. Jia, L.-X. Li, **K. Bartschat**, X. Chen, A. Dorn, and X. Ren Phys. Rev. A **106** (2022) 06311
420. *High-order harmonic generation in the water window from mid-IR laser sources*
K. Finger, D. Atri-Schuller, N. Douguet, **K. Bartschat**, and K.R. Hamilton, Phys. Rev. A **106** (2022) 06311

Invited Talks at International Conferences

1. *New aspects in the study of spin-dependent interactions in inelastic collisions*
2nd International Symposium on *Polarization and Correlation in Electron–Atom Collisions*
July 25–26, 1983, in Münster (Germany).
2. *Electron scattering from heavy atoms*,
3rd International Symposium on *Polarization and Correlation in Electron–Atom Collisions*; August 1–2, 1985,
in Pasadena (California, USA).
3. *Electron scattering from atoms and ions*
CCP2-Meeting, September 9–10, 1985, in London (England).
4. *Collisional excitation of heavy atoms and ions*
International Workshop on the *Assessment of Atomic Data*; August 1–2, 1987, in Oxford (England).
5. *Atomic collision processes: what can we learn by using polarized collision partners?*
5th International Symposium on *Polarization and Correlation in Electron–Atom Collisions*
August 2–8, 1989, in New York (New York, USA).
6. *The theory of spin-dependent electron scattering: an overview*
Spring Meeting of the German and Austrian Physical Societies, March 11–15, 1991, in Freiburg (Germany).
7. *Positron scattering from alkalis and noble gases — suggestions for testing theoretical predictions*
5th International Positron Workshop, July 3–5, 1991, in Sydney (Australia).
8. *Recent developments in the theoretical treatment of spin-dependent electron–atom scattering*
6th International Symposium on *Correlation and Polarization in Electronic and Atomic Collisions and (e,2e) Reactions*; July 18–20, 1991, in Adelaide (Australia).
9. *Spin-dependent electron–atom scattering: recent developments and challenges for the future*
International Conference on *Photon and Electron Collisions with Atoms and Molecules (PECAM I)*
July 7–10, 1992, in Rome (Italy).
10. *Spin-dependent electron-atom scattering — a detailed test of atomic collision theory*
Annual Meeting of the Division of Atomic, Molecular and Optical Physics (DAMOP) of the American Physical Society; May 17–19, 1993, in Reno (Nevada, USA).
11. *Elastic and inelastic positron scattering from alkali atoms*
6th International Positron Workshop, July 14–16, 1993, in Bielefeld (Germany).
12. *Recent developments in electron-atom close-coupling theory*
XVIII International Conference on the Physics of Electronic and Atomic Collisions (ICPEAC)
July 21–27, 1993, in Aarhus (Denmark).
13. *Recent developments in electron–alkali-atom scattering theory*
47th Gaseous Electronic Conference (GEC), October 18–21, 1994, in Gaithersburg (Maryland, USA).
14. *Spin-resolved alignment and orientation effects in atomic collisions*
Advanced Workshop on Atomic and Molecular Physics, February 13–15, 1995, in Canberra (Australia).
15. *Simultaneous ionization and excitation of atoms by electron impact*
Electron Impact Symposium, July 21–22, 1995, in Reno (Nevada, USA).
16. *Excitation of atoms by electron impact: Current status and future prospects*
International Conference on *Photon and Electron Collisions with Atoms and Molecules (PECAM II)*
July 21–24, 1996, in Belfast (Northern Ireland).
17. *Recent progress in the theory of electron–atom collisions*
49th Gaseous Electronic Conference (GEC), October 21, 1996, at Argonne National Laboratory (Illinois, USA).
18. *The R-matrix with pseudo-states method*
Workshop on *New Developments in Electron–Atom Scattering*
October 24–26, 1996, at the Institute for Theoretical Atomic and Molecular Physics at Harvard University in Cambridge (Massachusetts, USA).

19. *Recent progress in the theory of electron–atom collisions*
Joint Meeting of the American Physical Society and the American Association of Physics Teachers with the Canadian Association of Physicists and the Sociedad Mexicana de Fisica
April 18–21, 1997, in Washington, D.C. (USA).
20. *Recent progress in the theory of electron-impact excitation and ionization*
9th International Symposium on *Correlation and Polarization in Electronic and Atomic Collisions*
July 31–August 3, 1997, in Rome (Italy).
21. *Electron–atom collisions: current status and future prospects*
International Symposium on *Polarization and Correlation in Atomic Collision Complexes*
November 14–15, 1997, in Bielefeld (Germany).
22. *Recent developments in the theory of electron–ion collisions*
APS Topical Conference on *Atomic Processes in Plasmas*, March 22–26, 1998, in Auburn (Alabama, USA).
23. *Complete experiments in electron–atom collisions: benchmarks for atomic collision theory*
Hans-Kleinpoppen Symposium on *Complete Experiments*, July 13–14, 1998, in Lucca (Italy).
24. *Polarization, alignment, and orientation in electron–atom collisions: benchmarks for atomic collision theory*
16th International Conference on Atomic Physics; August 3–7, 1998, in Windsor (Ontario, Canada).
25. *Benchmark studies in electron-impact excitation of atoms*
International Symposium on *Supercomputing, Collision Processes, and Applications*
September 14–16, 1998, in Belfast (Northern Ireland).
26. *Ionization plus excitation in electron–atom collisions*
International Conference on *Coincidence Spectroscopy*; September 23–26, 1998, in Brest (France).
27. *Electron collisions with atoms and ions: how theory can guide, check, complement, and extend experiment*
Workshop on *The Role of Theory in Atomic, Molecular and Optical Physics*
February 26–27, 1999, at the Institute for Theoretical Atomic and Molecular Physics at Harvard University in Cambridge (Massachusetts, USA).
28. *Benchmark calculations for electron impact excitation and ionization of atoms*
Centennial Meeting of the American Physical Society, March 20–26, 1999, in Atlanta (Georgia, USA).
29. *Recent progress in the theory of electron collisions with noble gases*
10th International Symposium on *Correlation and Polarization in Electronic and Atomic Collisions*
July 29–August 1, 1999, in Beijing (China).
30. *Computer simulations of excitation, ionization, and ionization–excitation in electron–atom collisions*
Workshop on *Computational Challenges in Atomic and Molecular Physics*
May 4–6, 2000, at the Institute for Theoretical Atomic and Molecular Physics at Harvard University in Cambridge (Massachusetts, USA).
31. *The three-body Coulomb problem: history, current status, and future challenges*
Workshop on *Computational Methods for Few-Body Dynamical Systems*
November 15–17, 2000, at the National Institute for Standards and Technology, in Washington, D.C. (USA).
32. *R-matrix with pseudo-states calculations for electron impact excitation and ionization*
Workshop on *Computational Atomic Physics*
January 11–12, 2001, Rollins College, in Winter Park (Florida, USA).
33. *Simultaneous ionization–excitation: a challenge for theory and experiment*
11th International Symposium on *Correlation and Polarization in Electronic and Atomic Collisions*
July 26–28, 2001, in Rolla (Missouri, USA).
34. *Benchmark calculations for electron collisions with complex atoms*
3rd International Conference on *Atomic and Molecular Data*
April 24–27, 2002, in Gatlinburg (Tennessee, USA).
35. *Recent progress in the simultaneous ionization–excitation of quasi-two-electron systems*
International Conference on *Electron and Photon Impact Ionization and Related Topics*
July 18–20, 2002, in Metz (France).

36. *Simultaneous ionization–excitation: (e,γ) , $(e,2e)$, $(e,e\gamma)$ and $(e,2e\gamma)$*
12th International Symposium on *Correlation and Polarization in Electronic and Atomic Collisions*
July 31–August 2, 2003, in Frankfurt (Germany).
37. *Calculation of electron–atom collision cross sections for lighting applications*
56th Gaseous Electronic Conference (GEC), October 21–24, 2003, in San Francisco (California, USA).
38. *A hybrid DWBA–R-matrix approach for charged-particle impact ionization of atoms and ions*
Joint session of the 13th International Symposium on *Correlation and Polarization in Electronic and Atomic Collisions* and the International Symposium on *$(e,2e)$, Double Photoionization, and Related Topics*
July 28–30, 2005, in Buenos Aires (Argentina).
39. *High-precision cross sections for electron–atom collisions in laser and lighting applications*
58th Gaseous Electronic Conference (GEC), October 16–20, 2005, in San Jose (California, USA).
40. *A B-spline R-matrix method with non-orthogonal orbitals for accurate calculations of atomic bound and continuum processes*
Symposium on *Computations in Quantum Many-Body Physics*, June 29–30, 2006, in Santa Fe (New Mexico, USA).
41. *High-precision cross sections for low-energy electron–atom collisions*
5th International Conference on *Atomic and Molecular Data and Their Applications (ICAMDATA)*,
October 15–19, 2006, in Paris (France).
42. *High-precision calculations of atomic bound and continuum processes*
Workshop on *Physics at EBIT at Advanced Research Light Sources*,
March 8–12, 2007, in Shanghai (China).
43. *High-precision calculations for electron-impact excitation and ionization of complex atoms*
38th Annual Meeting of the Division of Atomic, Molecular, and Optical Physics,
June 5–9, 2007, in Calgary (Canada).
44. *Ionization of noble gases by charged-particle impact*
Workshop on *Cold Antimatter Plasmas and Application to Fundamental Physics*,
February 20–22, 2008, in Okinawa (Japan).
45. *Electron-impact ionization-excitation of atoms.*
International Conference on *Many particle spectroscopy of atoms, molecules, clusters and surfaces*,
June 30– July 2, 2008, in Paris (France).
46. *Electron-impact excitation and ionization of complex atoms*
XXVIth International Conference on *Photonic, Electronic, and Atomic Collisions (ICPEAC XXVI)*,
July 22–28, 2009, in Kalamazoo (Michigan, USA)
47. *Multi-photon single and double ionization of complex atoms by ultrashort intense laser pulses*
Workshop on Quantum Dynamic Imaging
October 19–23, 2009, in Montreal (Quebec, Canada)
48. *Benchmark calculations of atomic data for plasma and discharge applications*
16th Gaseous Electronics Meeting
January 31–February 3, 2010, in Batemans Bay, New South Wales (Australia)
49. *Benchmark calculations of atomic data for plasma and lighting applications*
20th European Conference on *Atomic and Molecular Processes in Ionized Gases*
July 14–17, 2010, in Novi Sad (Serbia)
50. *Benchmark calculations of atomic data for plasma applications*
4th International Conference on *Plasma-Nanotechnology & Science*
March 10–12, 2011, in Takayama (Japan)
51. *Breakup of the H_2 molecule by XUV laser pulses: a time-dependent treatment in prolate-spheroidal coordinates*
Symposium on *Chasing Attosecond Dynamics of Atoms and Molecules with Electrons, Ions and Lasers*
April 18, 2011, in Manhattan (Kansas, USA)
52. *Breakup of the H_2 molecule by xuv laser pulses: A time-dependent treatment in prolate spheroidal coordinates*
International Workshop on *Intense-Field, Short-Wavelength Atomic and Molecular Processes (I-SWAMP)*
July 21–23, 2011, in Dublin (Ireland).

53. *Recent progress in calculations of ionization and ionization-excitation*
Joint session of the 13th International Symposium on *Correlation and Polarization in Electronic and Atomic Collisions* and the International Symposium on *(e,2e), Double Photoionization, and Related Topics*
August 4-6, 2011, in Dublin (Ireland).
54. *Computational methods for electron-atom collisions*
64th Gaseous Electronic Conference
November 15–18, 2011, in Salt Lake City (UT).
55. *Benchmark calculations of atomic collision processes*
March Meeting of the American Physics Society
February 27– March 2, 2012, in Boston (Massachusetts, USA).
56. *Non-perturbative calculations of electron-impact ionization and ionization-excitation using the B-spline R-matrix with pseudo-states approach*
International Conference on *Many-Particle Spectroscopy of Atoms, Molecules, Clusters and Surfaces*
August 27– September 1, 2012, in Berlin (Germany).
57. *GEC Foundation Talk: Electron collisions with atoms, ions, and molecules: experiment, theory, and applications*
65th Gaseous Electronic Conference
October 22–26, 2012, in Austin (TX).
58. *Computational Methods for Electron-Atom Collisions in Plasma Applications*
Annual Meeting of the Division of Atomic, Molecular, and Optical Physics of the American Physical Society
June 3–7 2013, in Quebec City (Quebec, Canada).
59. *Benchmark Calculations for Single and Double Ionization of Atoms and Small Molecules by Short-Pulse Intense Laser Fields*
3rd Russian-German Workshop on *Correlation and Polarization Phenomena in Ionization of Dilute Species by XUV and X-ray Radiation*
December 5–6 2013, in Hamburg (Germany).
60. *Benchmark Calculations for Single and Double Ionization of Atoms and Small Molecules by Short-Pulse Intense Laser Fields*
International Conference on *Many-Particle Spectroscopy of Atoms, Molecules, Clusters and Surfaces*
July 16–18, 2014, in Metz (France).
61. *Benchmark Calculations for Electron Collisions with Complex Atoms and Ions*
9th International Conference on *Atomic and Molecular Data and Their Applications (ICAMDATA)*,
September 21–25, 2014, in Jena (Germany).
62. *Non-Perturbative Calculations for Electron-Impact Ionization of Complex Atoms*
15th International Symposium on *Correlation and Polarization in Electronic and Atomic Collisions* and the International Symposium on *(e,2e), Double Photoionization, and Related Topics*
August 1-3, 2015, in San Sebastian (Spain).
63. *Will Allis Prize Talk: Electron Collisions with Atoms and Molecules: Experiment, Theory, and Applications*
Annual Meeting of the Division of Atomic, Molecular, and Optical Physics of the American Physical Society
May 23-27, 2016, in Providence (RI)
64. *Estimating Uncertainties of Theoretical Data for Electron Collisions with Atoms and Ions*
Technical Meeting on “Uncertainty Assessment and Benchmark Experiments for Atomic and Molecular Data for Fusion Applications”
December 19-21, 2016, in Vienna (Austria)
65. *Coherent Control and Attosecond Dynamics with Pulsed XUV and IR Radiation*
International Workshop on *Intense-Field, Short-Wavelength Atomic and Molecular Processes (I-SWAMP)*
July 22-24, 2017, in Brisbane (Australia).
66. *Recent Progress in the Field of Polarization, Alignment, and Orientation in Atomic Collisions*
Plenary Talk at the 13th International Symposium on *Correlation and Polarization in Electronic and Atomic Collisions* and the International Symposium on *(e,2e), Double Photoionization, and Related Topics*
August 2-4, 2017, in Palm Cove (Australia).
67. *Will Allis Prize Talk: Electron Collisions with Atoms and Molecules: Experiment, Theory, and Applications*
70th Gaseous Electronic Conference (GEC)
November 6–10, 2017, in Pittsburgh (Pennsylvania, USA).

68. *The R-Matrix Method for Electron and Photon Collisions with Atoms and Ions*
ITAMP Workshop on “Developing Flexible and Robust Software in Computational Atomic and Molecular Physics” May 16 – 18, 2018 in Cambridge (Massachusetts, USA).
69. *Calculation of Accurate Atomic Data for Electron and Photon Collisions with Atoms and Ions*
Annual Meeting of the Division of Atomic, Molecular, and Optical Physics of the American Physical Society
May 28 – 31, 2019 in Milwaukee (Wisconsin, USA).
70. *Electron Collisions with Atoms and Molecules: Experiment, Theory, and Applications*
XXXIst International Conference on *Photonic, Electronic, and Atomic Collisions* (ICPEAC XXVI),
July 23–30, 2019, in Deauville (France)
71. *Electron Scattering from Complex Atoms and Ions: Current Status and Future Prospects*
72nd Gaseous Electronic Conference (GEC)
Oct. 28–Nov. 1, 2019 in College Station (Texas, USA).
72. *The B-Spline R-Matrix Method: Methodology and Implementation*
Workshop on *Science Gateway for Atomic and Molecular Physics*
Dec. 11 – 13, 2019, at the National Institute of Standards and Technology, Gaithersburg (Maryland, USA)
73. *Coherent Control and Attosecond Dynamics with Pulse XUV and IR Radiation*
Quantum Battles in Attosecond Science
July 1 – 3, 2020 in London, U.K. (virtual)
74. *Atomic and Molecular Collision Data for Plasma Science*
72nd Gaseous Electronic Conference (GEC)
Oct. 5 – 9, 2020 in San Diego, CA (virtual)
75. *Using Circular Dichroism to Control Energy Transfer in Multi-Photon Ionization*
Advances in Atomic, Molecular, and Optical Sciences (AAMOS20) Dec. 14 – 18, 2020 in India (virtual)

Colloquia and Seminars

1. *Electron scattering from heavy atoms*
June 4, 1984, University of Münster (Germany)
2. *Electron scattering from and photoionisation of heavy atoms*
November 19, 1985, The Queen's University of Belfast (Northern Ireland)
3. *Electron scattering from and photoionisation of heavy atoms*
November 20, 1985, University College London (England)
4. *R-matrix and distorted-wave calculations for electron scattering from heavy atoms*
March 3, 1986, York University Toronto (Canada)
5. *Excitation and ionisation of atoms by electron and photon impact*
January 13, 1988, University of Freiburg (Germany)
6. *Excitation and ionisation of atoms by electron and photon impact*
February 26, 1988, Laval University, Quebec City (Canada)
7. *Excitation and ionisation of atoms by electron and photon impact*
February 29, 1988, National Bureau of Standards Gaithersburg (Maryland, USA)
8. *Calculation of atomic data for plasma physics*
March 19, 1988, University of Hannover (Germany)
9. *Excitation and ionisation of atoms by electron and photon impact*
May 26, 1988, University of Nebraska–Lincoln (USA)
10. *Excitation and ionization of atoms by interaction with electrons, positrons, protons and photons*
June 27, 1988, University of Münster (Germany)
11. *Excitation and ionisation of atoms by electron and photon impact*
February 18, 1989, University of Missouri–Rolla (USA)
12. *Atomic collision processes: Looking beyond cross sections*
February 24, 1989, University of Nebraska–Lincoln (USA)
13. *Atomic collision processes: Looking beyond cross sections*
March 22, 1990, Louisiana State University (Baton Rouge, Louisiana, USA)
14. *Atomic collision processes: Looking beyond cross sections*
March 29, 1990, University of Nevada–Reno (USA)
15. *Atomic collision processes: General theory and numerical methods*
February 28, 1991, York University Toronto (Canada)
16. *Photoionization of atomic barium from ground and excited states*
June 11, 1991, University of Hannover (Germany)
17. *Atomic collision processes: how good is the theory?*
November 27, 1991, ITAMP, Harvard Smithsonian Institute Center for Astrophysics, Cambridge (Massachusetts, USA)
18. *Quantum defect theory and its application to photoionization and electron impact ionization of atoms and ions*
April 15, 1992, Drake University (Des Moines, Iowa, USA)
19. *Photo- and electron impact ionization of complex atoms*
June 22, 1992, University of Frankfurt (Germany)
20. *Photo- and electron impact ionization of complex atoms*
July 27, 1992, University of Kaiserslautern (Germany)
21. *Atomic collisions: a submicroscopic billiard game? (Stalnaker Lecture)*
October 7, 1992, Drake University (Des Moines, Iowa, USA)
22. *Spin-dependent electron–atom scattering: recent developments and challenges for the future*
November 12, 1992, JILA, University of Colorado–Boulder (USA)

23. *Spin-resolved alignment and orientation effects in atomic collisions*
March 21, 1995, University of Windsor (Canada)
item *Complete experiments in electron–atom collisions*
October 19, 1995, University of Maynooth (Ireland)
24. *Complete experiments in electron–atom collisions*
November 8, 1995, University of Newcastle (England)
25. *Complete experiments in electron–atom collisions*
November 22, 1995, The Queen’s University of Belfast (Northern Ireland)
26. *Complete experiments in electron–atom collisions*
December 6, 1995, University of Münster (Germany)
27. *Complete experiments in electron–atom collisions*
December 20, 1995, University of Utrecht (The Netherlands)
28. *Complete experiments in electron–atom collisions*
March 27, 1996, Australian National University, Canberra (Australia)
29. *Complete experiments in electron–atom collisions*
May 9, 1996, University of Western Australia, Perth (Australia)
30. *Excitation, ionization, and simultaneous excitation–ionization of helium atoms*
May 10, 1996, Murdoch University, Perth (Australia)
31. *Electron–atom collisions* (three guest lectures)
May 16–20, Griffith University, Brisbane (Australia)
32. *Excitation, ionization, and simultaneous excitation–ionization of helium atoms*
May 17, 1996, Griffith University, Brisbane (Australia)
33. *Complete experiments in electron–atom collisions*
November 13, 1996, University of Nebraska–Lincoln (USA)
34. *Complete experiments in electron–atom collisions*
February 27, 1997, University of Wisconsin–Madison (USA)
35. *Electron–atom scattering: Current status and future prospects*
March 14, 1997, University of Missouri–Rolla (USA)
36. *New developments in the calculation of atomic data for excitation and ionization by electron and photon impact*
June 30, 1997, University of Hannover (Germany)
37. *New developments in the calculation of atomic data for electron impact excitation and ionization*
July 2, 1997, University of Greifswald (Germany)
38. *The R-matrix method in atomic collision theory*
November 5, 1997, Moscow State University (Russia)
39. *Complete experiments in electron–atom collisions*
November 6, 1997, Moscow State University (Russia)
40. *Electron collisions with atoms and ions — recent developments in theory, experiment, and computer simulations*
December 15, 1998, University of Bochum (Germany)
41. *Electron collisions with atoms and ions — recent developments in theory, experiment, and computer simulations*
April 9, 1999, University of Texas–Austin (USA)
42. *Computer simulations of excitation, ionization, and ionization–excitation in electron–atom collisions*
May 24, 2000, Moscow State University (Russia)
43. *Electron collisions with atoms and ions — recent developments in theory, experiment, and computer simulations*
September 18, 2000, University of Iowa (USA)
44. *Electron collisions with atoms and ions — recent developments in theory, experiment, and computer simulations*
November 13, 2000, Naval Research Laboratory (Washington, D.C., USA)
45. *Electron collisions with atoms and ions — recent developments in theory, experiment, and computer simulations*
February 23, 2001, University of Northern Iowa (Cedar Falls, Iowa, USA)

46. *Electron collisions with atoms and ions — recent developments in theory, experiment, and computer simulations*
March 12, 2001, Illinois State University (Normal, Illinois, USA)
47. *Electron collisions with atoms and ions — recent developments in theory, experiment, and computer simulations*
March 30, 2001, Old Dominion University (Norfolk, Virginia, USA)
48. *Electron collisions with atoms and ions — recent developments in theory, experiment, and computer simulations*
September 13, 2001, University of Missouri–Rolla (Rolla, Missouri, USA)
49. *Electron collisions with atoms and ions — recent developments in theory, experiment, and computer simulations*
November 20, 2001, Kansas State University (Manhattan, Kansas, USA)
50. *Simultaneous ionization–excitation: a challenge for theory and experiment*
August 26, 2002, ITAMP, Harvard Smithsonian Institute Center for Astrophysics, Cambridge (Massachusetts, USA)
51. *Electron–atom collisions: a solved problem ?*
December 9, 2002, University of Connecticut (Storrs, USA)
52. *Electron–atom collisions: a solved problem ?*
January 28, 2003, Griffith University (Brisbane, Australia)
53. *Electron–atom collisions: a solved problem ?*
February 11, 2003, Australian National University (Canberra, Australia)
54. *Electron–atom collisions: a solved problem ?*
February 20, 2003, Flinders University (Adelaide, Australia)
55. *Electron–atom collisions: a solved problem ?*
April 10, 2003, The University of Western Australia (Adelaide, Australia)
56. *Recent developments in simultaneous ionization–excitation*
May 9, 2003, The University of Western Australia (Adelaide, Australia)
57. *Electron–atom collisions: a solved problem ?*
June 23, 2003, University of Kaiserslautern (Germany)
58. *Electron–atom collisions: a solved problem ?*
June 25, 2003, University of Münster (Germany)
59. *Simultaneous ionization–excitation of quasi-two-electron targets*
July 8, 2003, The Queen’s University of Belfast (Northern Ireland)
60. *Wavepacket calculations and charge-cloud simulations for excitation and ionization by particle and photon impact*
April 14, 2004, University of Northern Iowa (Cedar Falls, Iowa, USA)
61. *Excitation and ionization by electron and photon impact: where are we now, and where are we going ?*
May 4, 2004, University of North Texas (Denton, Texas, USA)
62. *B-spline R-matrix calculations for electron collisions with noble gases*
June 23, 2004, University of Kaiserslautern (Germany)
63. *B-spline R-matrix calculations for electron–atom collisions*
June 26, 2004, University of Münster (Germany)
64. *The B-spline R-matrix method: recent results for electron and photon collisions with atoms and ions*
July 8, 2005, University of Kaiserslautern (Germany)
65. *Electron-impact ionization of atoms: beyond $(e, 2e)$ on H*
July 11, 2005, University of Frankfurt (Germany)
66. *Electron-impact ionization of atoms: beyond $(e, 2e)$ on H*
July 13, 2005, Max-Planck Institute for Nuclear Physics, Heidelberg (Germany)
67. *High-precision cross sections for electron–atom collisions in laser and lighting applications*
September 29, 2005, University of Missouri–Rolla (Rolla, Missouri, USA)
68. *Benchmark calculations of atomic data using the R-matrix method*
November 17, 2005, National Institute for Standards and Technology (Gaithersburg, Maryland, USA)
69. *Benchmark calculations for electron collision cross sections for laser and lighting applications*
July 7, 2006, University of Kaiserslautern (Germany)

70. *High-Precision Cross Sections for Low-Energy Electron-Atom Collisions: Critical Ingredients for Modeling Plasmas, Lasers, Stars, and the Atmosphere*
March 16, 2007, Australian National University, Canberra (Australia)
71. *High-Precision Cross Sections for Low-Energy Electron-Atom Collisions: Critical Ingredients for Modeling Plasmas, Lasers, Stars, and the Atmosphere*
March 19, 2007, Flinders University of South Australia, Adelaide (Australia)
72. *High-Precision Cross Sections for Low-Energy Electron-Atom Collisions: Critical Ingredients for Modeling Plasmas, Lasers, Stars, and the Atmosphere*
March 22, 2007 The University of Western Australia, Perth (Australia)
73. *High-precision calculations of atomic bound and continuum processes*
April 23, 2007, Drake University (Des Moines, Iowa, USA)
74. *Controlling the angular distribution of atomic photo-electrons in the region of laser-induced continuum structure in the femtosecond time domain*
July 11, 2007, Max-Planck Institute for Nuclear Physics, Heidelberg (Germany)
75. *Ultrashort intense laser-atom interactions*
July 11, 2007, Bothe Colloquium at the Max-Planck Institute for Nuclear Physics, Heidelberg (Germany)
76. *High-Precision Cross Sections for Low-Energy Electron-Atom Collisions: Critical Ingredients for Modeling Plasmas, Lasers, Stars, and the Atmosphere*
July 18, 2007, Max-Planck Institute for Plasma Physics, Greifswald (Germany)
77. *Benchmark Calculations of Atomic Data for Plasma Applications*
June 27, 2008, Max-Planck Institute for Plasma Physics, Greifswald (Germany)
78. *Benchmark Calculations of Atomic Data for Plasma Applications*
July 18, 2008, University of Kaiserslautern (Germany)
79. *Few-Cycle Intense Laser Interactions with Complex Atoms*
March 16, 2009, Los Alamos National Laboratory (Los Alamos, New Mexico, USA)
80. *Few-Cycle Intense Laser Interactions with Complex Atoms*
April 3, 2009, University of Kentucky (Lexington, Kentucky, USA)
81. *Single and Double Ionization of Atoms in Short-Pulse Intense Laser Fields*
January 22, 2010, Griffith University, Brisbane (Australia)
82. *Benchmark Calculations of Atomic Data for Plasma and Discharge Applications*
February 12, 2010, Australian National University, Canberra (Australia)
83. *Benchmark Calculations of Atomic Data for Plasma and Discharge Applications*
February 15, 2010, Swinburne University of Technology, Melbourne (Australia)
84. *Benchmark Calculations of Atomic Data for Plasma and Discharge Applications*
February 16, 2010, University of Melbourne, Melbourne (Australia)
85. *Single and Double Ionization of Atoms in Short-Pulse Intense Laser Fields*
February 26, 2010, University of Adelaide, Adelaide (Australia)
86. *Single and Double Ionization of Atoms in Short-Pulse Intense Laser Fields*
April 21, 2010, Curtin University of Technology, Perth (Australia)
87. *Single and Double Ionization of Atoms in Short-Pulse Intense Laser Fields*
June 14, 2010, University of Freiburg (Germany)
88. *Benchmark Calculations of Atomic Data for Plasma and Discharge Applications*
June 17, 2010, University of Fribourg (Switzerland)
89. *Calculations of Atomic Data for Plasma Applications*
July 18, 2010, Max-Planck Institute for Plasma Physics, Greifswald (Germany)
90. *Single and Double Ionization of Atoms in Short-Pulse Intense Laser Fields*
July 26, 2010, Max-Planck Institute for Nuclear Physics, Heidelberg (Germany)
91. *Single and Double Ionization of Atoms and Molecules by Short-Pulse Intense Lasers and Charged-Particle Impact*
April 7, 2011, Missouri University of Science and Technology, Rolla (Missouri, USA)

92. *Calculations of Atomic Data for Plasma Applications*
July 15, 2011, Ruhr-Universität, Bochum (Germany)
93. *Breakup of the Hydrogen Molecule by Short XUV Laser Pulses*
July 18, 2011, Goethe-Universität, Frankfurt (Germany)
94. *Single and Double Ionization of Atoms and Molecules by Short-Pulse Intense Lasers and Charged-Particle Impact*
October 19, 2011, Truman State University, Kirksville (Missouri, USA)
95. *Benchmark Calculations of Atomic Collision Processes*
April 13, 2012, Auburn University, Auburn (Alabama, USA)
96. *Effects of autoionizing states on two-photon double ionization of the H₂ molecule*
July 8, 2013, Goethe-Universität, Frankfurt (Germany)
97. *Benchmark Calculations of Atomic Collision Processes*
February 21, 2014, Harvard Smithsonian Center for Astrophysics, Cambridge (Massachusetts, USA)
98. *Benchmark Calculations of Atomic Collision Processes*
April 9, 2014, University of Western Australia, Perth (Australia)
99. *Computational methods for few-cycle intense-field laser-atom and laser-molecule interactions*
April 10, 2014, University of Western Australia, Perth (Australia)
100. *Benchmark Calculations of Atomic Collision Processes*
May 14, 2014, Swinburne University, Melbourne (Australia)
101. *Benchmark Calculations of Atomic Collision Processes*
May 22, 2014, Australian National University, Canberra (Australia)
102. *Benchmark Calculations of Atomic Collision Processes*
June 4, 2014, Griffith University, Brisbane (Australia)
103. *Benchmark Calculations of Atomic Collision Processes*
June 12, 2014, James Cook University, Townsville (Australia)
104. *Electron Collisions with Atoms and Molecules: Experiment, Theory, and Applications*
July 13, 2016, Max-Planck Institute for Nuclear Physics, Heidelberg (Germany)
105. *Electron Collisions with Atoms and Molecules: Experiment, Theory, and Applications*
December 8, 2016, University of Nebraska–Lincoln (USA)
106. *Electron Collisions with Atoms and Molecules: Experiment, Theory, and Applications*
March 29, 2017, National Institute for Science and Technology, Gaithersburg (Maryland, USA)
107. *Coherent Control and Attosecond Dynamics with Pulsed XUV and IR Radiation*
July 4, 2017, University of Jena (Germany)
108. *Coherent Control and Attosecond Dynamics with Pulsed XUV and IR Radiation*
July 11, 2017, Max-Planck Institute for Nuclear Physics, Heidelberg (Germany)
109. *Electron Collisions with Atoms and Molecules: Experiment, Theory, and Applications*
February 8, 2018, Australian National University, Canberra (Australia)
110. *Electron Collisions with Atoms and Molecules: Experiment, Theory, and Applications*
February 20, 2018, Flinders University of South Australia, Adelaide (Australia)
111. *Coherent Control and Attosecond Dynamics with Pulsed XUV and IR Radiation*
March 21, 2018, University of Central Florida, Orlando (Florida, USA)
112. *Coherent Control and Attosecond Dynamics with Pulsed XUV and IR Radiation*
July 7, 2018, Jilin University, Changchun (China)
113. *What is Energy?*
July 8, 2018, Harbin Institute of Technology, Harbin (China)
114. *Electron Collisions with Atoms and Molecules: Experiment, Theory, and Applications*
July 13, 2018, Tsinghua University, Beijing (China)
115. *Electron Collisions with Atoms and Molecules: Experiment, Theory, and Applications*
July 16, 2018, Henan Normal University, Xinxiang (China)

116. *Coherent Control and Attosecond Dynamics with Pulsed XUV and IR Radiation*
March 21, 2019, Missouri University of Science & Technology, Rolla (Missouri, USA)
117. *Electron Collisions: Experiment, Theory, and Applications*
October 14, 2019, University of Iowa, Iowa City (Iowa, USA)
118. *Coherent control and analysis of atomic few-photon ionization*
December 2, 2021, University of Kassel (Germany); virtual joint with D. Fischer (Rolla, Missouri, USA)
119. *Coherent Control and Attosecond Dynamics with Pulsed XUV and IR Radiation*
July 19, 2022, University of Freiburg (Germany)
120. *Ultra-Intense Ultra-Fast Free-Electron Lasers: Billion Dollar Investments for the Common Good*
July 29, 2022, Aalen University (Germany)
121. *Coherent Control and Attosecond Dynamics with Pulsed XUV and IR Radiation*
August 3, 2022, Max-Planck Institute for Nuclear Physics, Heidelberg (Germany)