

## Publications 1987-2016 Prof. Dr. Reinhard Dörner

Journal	Total
	338
Science/Nature	11
Nature Phys./Nature Comm./PNAS	12
Phys.Rev.Lett.	76
Phys.Rev A/B	55
J.Phys.B	48
other refereed	78
non refereed	56

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### Publications 2016

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- [1] A. Hartung, F. Morales, M. Kunitski, K. Henrichs, A. Laucke, M. Richter, T. Jahnke, A. Kalinin, M. Schöffler, L.Ph.H. Schmidt, M. Ivanov, O. Smirnova and R. Dörner  
Electron spin polarization in strong-field ionization of xenon atoms  
*Nature Photonics*, 10, 526 (2016)
- [2] S. Zeller, M. Kunitski, J. Voigtsberger, A. Kalinin, A. Schottelius, C. Schober, M. Waitz, H. Sann, A. Hartung, T. Bauer, M. Pitzer, F. Trinter, C. Goihl, C. Janke, M. Richter, G. Kastirke, M. Weller, J. Williams, M. Braune, R.E. Grisenti, W. Schöllkopf, L.Ph.H. Schmidt, M. Schöffler, A. Czasch, T. Jahnke, and R. Dörner  
Imaging the  $He_2$  quantum halo state using a free electron laser  
*PNAS*, accepted for publication (2016)
- [3] H. Sann, T. Havermeier, C. Müller, H.K. Kim, F. Trinter, M. Waitz, J. Voigtsberger, F. Sturm, T. Bauer, R. Wallauer, D. Schneider, M. Weller, C. Goihl, J. Tross, K. Cole, J. Wu, M.S. Schöffler, H. Schmidt-Böcking, T. Jahnke, M. Simon, and R. Dörner  
Imaging the temporal evolution of molecular orbitals during ultrafast dissociation  
*Phys.Rev.Lett.*, accepted for publication (2016)
- [4] H. Sann, C. Schober, A. Mhamdi, F. Trinter, C. Müller, S. K. Semenov, M. Stener, M. Waitz, T. Bauer, R. Wallauer, C. Goihl, J. Titze, F. Afaneh, L.Ph.H. Schmidt, M. Kunitski, H. Schmidt-Böcking, Ph. V. Demekhin, N. A. Cherepkov, M. S. Schöffler, T. Jahnke, and R. Dörner  
Delocalization of a vacancy across two neon atoms bound by the van der Waals force  
*Phys.Rev.Lett.*, accepted for publication (2016)
- [5] S. Eckart, M. Richter, M. Kunitski, A. Hartung, J. Rist, K. Henrichs, N. Schlott, H. Kang, T. Bauer, H. Sann, L.Ph.H. Schmidt, M. Schöffler, T. Jahnke and R. Dörner  
Non-Sequential Double Ionization by Counter Rotating Circularly Polarized Two-Color Laser Fields  
*Phys.Rev.Lett.*, 117, 133202 (2016)
- [6] M. Waitz, D. Metz, J. Lower, C. Schober, M. Keiling, M. Pitzer, K. Mertens, M. Martins, J. Viefhaus, S. Klumpp, T. Weber, H. Schmidt-Böcking, L.Ph.H. Schmidt, F. Morales, S. Miyabe, T.N. Rescigno, C.W. McCurdy, F. Martn, J.B. Williams, M.S. Schöffler, T. Jahnke, and R. Dörner  
Two-particle interference of electron pairs on a molecular level  
*Phys.Rev.Lett.* 117, 083002 (2016)
- [7] M. Waitz, D. Aslitürk, N. Wechselberger, H.K. Gill, J. Rist, F. Wiegandt, C. Goihl, G. Kastirke, M. Weller, T. Bauer, D. Metz, F.P. Sturm, J. Voigtsberger, S. Zeller, F. Trinter, G. Schiwietz, T. Weber, J.B. Williams, M.S. Schöffler, L.Ph.H. Schmidt, T. Jahnke, and R. Dörner  
Electron localization in dissociating  $H_2^+$  by retroaction of a photoelectron onto its source  
*Phys.Rev.Lett.*, 116, 043001 (2016)

- [8] H. Gassert, O. Chuluunbaatar, M. Waitz, F. Trinter, H.-K. Kim, T. Bauer, A. Laucke, Ch. Müller, J. Voigtsberger, M. Weller, J. Rist, M. Pitzer, S. Zeller, T. Jahnke, L.Ph.H. Schmidt, J.B. Williams, S.A. Zaytsev, A.A. Bulychev, K.A. Kouzakov, H. Schmidt-Böcking, R. Dörner, Yu.V. Popov, and M.S. Schöffler  
Agreement of experiment and theory on the single ionization of helium by fast proton impact  
*Phys.Rev.Lett.*, *116*, 073201 (2016)
- [9] E. Diesen, U. Saalman, M. Richter, M. Kunitski, R. Dörner, and J.M. Rost  
Dynamical characteristics of Rydberg electrons released by a weak electric field  
*Phys.Rev.Lett.*, *116*, 143006 (2016)
- [10] L.Ph.H. Schmidt, M. Schöffler, C. Goihl, T. Jahnke, H. Schmidt-Böcking, and R. Dörner  
Quasimolecular electron promotion beyond the  $1s\sigma$  and  $2p\pi$  channels in slow collisions of  $\text{He}^{2+}$  and He  
*Phys.Rev.A*, *94*, 033416 (2016)
- [11] M. Richter, M. Kunitski, M. Schöffler, T. Jahnke, L.Ph.H. Schmidt, and R. Dörner  
Ionization in orthogonal two-color laser fields: Origin and phase dependences of trajectory-resolved Coulomb effects  
*Phys.Rev.A*, *94*, 033416 (2016)
- [12] M. Pitzer, G. Kastirke, P. Burzinski, M. Weller, D. Metz, J. Neff, M. Waitz, F. Trinter, L.Ph.H.Schmidt, J.B. Williams, T. Jahnke, H. Schmidt-Böcking, R. Berger, R. Dörner, and M. Schöffler.  
Stereochemical configuration and selective excitation of the chiral molecule halothane  
*J.Phys.B*, *49*, 234001 (2016)
- [13] M. Pitzer, G. Kastirke, M. Kunitski, T. Jahnke, T. Bauer, C. Goihl, F. Trinter, C. Schober, K. Henrichs, J. Becht, S. Zeller, H. Gassert, M. Waitz, A. Kuhlins, A.S. Johnson, H. Sann, F. Sturm, F. Wiegandt, R. Wallauer, L.Ph.H. Schmidt, M. Mazenauer, B. Spenger, S. Marquardt, S. Marquardt, H. Schmidt-Böcking, J. Stohner, R. Dörner, M. Schöffler, and R. Berger  
Absolute configuration from different multifragmentation pathways in light-induced Coulomb Explosion Imaging  
*ChemPhysChem*, *16*, 2465 (2016)
- [14] F. Afaneh, R. Ali, R. Qasem, N. Balasmeh, S. Hamasha, R. Dörner, and H. Schmidt-Böcking  
First results from the Jordan COLTRIMS imaging system  
*Nucl.Instr.Meth. B* *380*, 84 (2016)
- [15] A. Menssen, C.S. Trevisan, M.S. Schöffler, T. Jahnke, I. Bocharova, F. Sturm, N. Gehrken, B. Gaire, H. Gassert, S. Zeller, J. Voigtsberger, A. Kuhlins, F. Trinter, A. Gatton, J. Sartor, D. Reedy, C. Nook, B. Berry, M. Zohrabi, A. Kalinin, I. Ben-Itzhak, A. Belkacem, R. Dörner, T. Weber, A.L. Landers, T.N. Rescigno, C.W. McCurdy, and J.B. Williams  
Molecular frame photoelectron angular distributions for core ionization of ethane, carbon tetrafluoride and 1,1-difluoroethylene  
*J.Phys.B* *49*, 055203 (2016)

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**Publications 2015**

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- [16] M. Kunitski, S. Zeller, J. Voigtsberger, A. Kalinin, L. Ph. H. Schmidt, M. Schöffler, A. Czasch, W. Schöllkopf, R. E. Grisenti, T. Jahnke, D. Blume, and R. Dörner  
Observation of the Efimov state of the helium trimer  
*Science*, *348*, 551 (2015)
- [17] M. Richter, M. Kunitski, M. Schöffler, T. Jahnke, L.Ph.H. Schmidt, M. Li, Y. Liu, and R. Dörner  
Streaking Temporal Double-Slit Interference by an Orthogonal Two-Color Laser Field  
*Phys.Rev.Lett.*, *114*, 143001 (2015)

- [18] B. Gaire, D. J. Haxton, F. P. Sturm, J. Williams, A. Gatton, I. Bocharova, N. Gehrken, M. Schöffler, H. Gassert, S. Zeller, J. Voigtsberger, T. Jahnke, M. Zohrabi, D. Reedy, C. Nook, A. L. Landers, A. Belkacem, C. L. Cocke, I. Ben-Itzhak, R. Dörner, and Th. Weber  
Auger decay and subsequent fragmentation pathways of ethylene following K-shell ionization  
*Phys. Rev. A* 92, 013407 (2015)
- [19] J. Wu and R. Dörner  
Angular Streaking for Strong Field Ionization of Molecules  
Attosecond Physics Without Attosecond Pulses  
*in: Ultrafast Dynamics Driven by Intense Light Pulses Springer Series on Atomic, Optical, and Plasma Physics Volume 86, 2016, pp 49-61 (2015)*
- [20] R. Moshhammer and R. Dörner  
Das ganze Bild aus Bruchstücken  
*Physik Journal* 14 62 (2015)
- [21] M. Pitzer, R. Dörner and M. Schöffler  
Wenn Licht Moleküle in Stücke reisst  
*Forschung Frankfurt* 2, 25, (2015)
- [22] F. King, T. Kruppi, J. Müller, R. Dörner, L.Ph.H. Schmidt, H. Schmidt-Böcking and K.E. Stiebing  
Status of the Frankfurt low energy electrostatic storage ring (FLSR)  
*Physica Scripta T166, 014064 (2015)*
- [23] Y. V. Popov, A. Galstyan, O. Chuluunbaatar, S. Houamer, A. A. Bulychev, M. Schöffler, H.-K. Kim, J. N. Titze, T. Jahnke, L.Ph.H. Schmidt, H. Schmidt-Böcking, R. Dörner  
Charge transfer processes in proton-helium collisions: The validity of the first Born approximation  
*Journal of Physics: Conference Series, 601, 12008 (2015)*

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**Publications 2014**

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- [24] F. Trinter, M. S. Schöffler, H.-K. Kim, F. P. Sturm, K. Cole, N. Neumann, A. Vredenberg, J. Williams, I. Bocharova, R. Guillemin, M. Simon, A. Belkacem, A. L. Landers, Th. Weber, H. Schmidt-Böcking, R. Dörner, and T. Jahnke  
Resonant Auger decay driving intermolecular Coulombic decay in molecular dimers  
*Nature* 505, 664 (2014)
- [25] M. Meckel, A. Staudte, S. Patchkovskii, D. M. Villeneuve, P. B. Corkum, R. Dörner, and M. Spanner  
Signatures of the continuum electron phase in molecular strong-field photoelectron holography  
*Nature Physics* 10, 594 (2014)
- [26] J. Voigtsberger, S. Zeller, J. Becht, N. Neumann, F. Sturm, H.-K. Kim, M. Waitz, F. Trinter, M. Kunitski, A. Kalinin, J. Wu, W. Schöllkopf, D. Bressanini, A. Czasch, J. B. Williams, K. Ullmann-Pfleger, L. Ph H. Schmidt, M. S. Schöffler, R. E. Grisenti, T. Jahnke, and R. Dörner  
Imaging the structure of the trimer systems  ${}^4\text{He}_3$  and  ${}^3\text{He}^4\text{He}_2$   
*Nature Communications* 5, 5765 (2014)
- [27] L. Ph. H. Schmidt, C. Goihl, D. Metz, H. Schmidt-Böcking, R. Dörner, S. Yu. Ovchinnikov, J. H. Macek, and D. R. Schultz  
Vortices Associated with the Wave Function of a Single Electron Emitted in Slow Ion-Atom Collisions  
*Phys.Rev.Lett.* 112, 083201 (2014)
- [28] P. Burzynski, F. Trinter, J. B. Williams, M. Weller, M. Waitz, M. Pitzer, J. Voigtsberger, C. Schober, G. Kastirke, C. Müller, C. Goihl, F. Wiegandt, R. Wallauer, A. Kalinin, L. Ph. H. Schmidt, M. Schöffler, G. Schiwietz, N. Sisourat, T. Jahnke, and R. Dörner

Interatomic-Coulombic-decay-induced recapture of photoelectrons in helium dimers  
*Phys.Rev.A* 90, 022515 (2014)

- [29] B. Gaire, S. Y. Lee, D. J. Haxton, P. M. Pelz, I. Bocharova, F. P. Sturm, N. Gehrken, M. Honig, M. Pitzer, D. Metz, H.-K. Kim, M. Schöffler, R. Dörner, H. Gassert, S. Zeller, J. Voigtsberger, W. Cao, M. Zohrabi, J. Williams, A. Gatton, D. Reedy, C. Nook, Thomas Müller, A. L. Landers, C. L. Cocke, I. Ben-Itzhak, T. Jahnke, A. Belkacem, and Th. Weber  
Photo-double-ionization of ethylene and acetylene near threshold  
*Phys.Rev.A* 89, 013403 (2014)
- [30] A. Knie, A. Hans, M. Förstel, U. Hergenhahn, Ph. Schmidt, Ph. Reiss, C. Ozga, B. Kambs, F. Trinter, J. Voigtsberger, D. Metz, T. Jahnke, R. Dörner, A.I. Kuleff, L.S. Cederbaum, Ph.V. Demekhin, and A. Ehresmann  
Detecting ultrafast interatomic electronic processes in media by fluorescence  
*New J. Phys.* 16 102002 (2014)
- [31] B. Gaire, I. Bocharova, F. P. Sturm, N. Gehrken, J. Rist, H. Sann, M. Kunitski, J. Williams, M. S. Schöffler, T. Jahnke, B. Berry, M. Zohrabi, M. Keiling, A. Moradmand, A. L. Landers, A. Belkacem, R. Dörner, I. Ben-Itzhak, and Th. Weber  
Hydrogen and fluorine migration in photo-double-ionization of 1,1-difluoroethylene (1,1- $C_2H_2F_2$ ) near and above threshold  
*Phys.Rev.A* 89, 043423 (2014)
- [32] F. Trinter, M. Waitz, M. S. Schöffler, H.-K. Kim, J. Titze, O. Jagutzki, A. Czasch, L. Ph. H. Schmidt, H. Schmidt-Böcking, and R. Dörner  
Search for isotope effects in projectile and target ionization in swift  $He^+$  on  $H_2$  or  $D_2$  collisions  
*Phys.Rev.A* 89, 032702 (2014)
- [33] M. Odenweller, J. Lower, K. Pahl, M. Schütt, J. Wu, K. Cole, A. Vredenburg, L. Ph. Schmidt, N. Neumann, J. Titze, T. Jahnke, M. Meckel, M. Kunitski, T. Havermeier, S. Voss, M. Schöffler, H. Sann, J. Voigtsberger, H. Schmidt-Böcking, and R. Dörner  
Electron emission from  $H_2^+$  in strong laser fields  
*Phys.Rev.A* 89, 013424 (2014)
- [34] H.-K. Kim, H. Gassert, J. N. Titze, M. Waitz, J. Voigtsberger, F. Trinter, J. Becht, A. Kalinin, N. Neumann, C. Zhou, L. Ph. H. Schmidt, O. Jagutzki, A. Czasch, M. Schöffler, H. Merabet, H. Schmidt-Böcking, T. Jahnke, H. J. Lüdde, A. Cassimi, and R. Dörner  
Orientation dependence in multiple ionization of  $He_2$  and  $Ne_2$  induced by fast, highly charged ions: Probing the impact-parameter-dependent ionization probability in 11.37-MeV/u  $S^{14+}$  collisions with He and Ne  
*Phys.Rev.A* 89, 022704 (2014)

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- [35] M. Pitzer, M. Kunitski, A. S. Johnson, T. Jahnke, H. Sann, F. Sturm, L. Ph. H. Schmidt, H. Schmidt-Böcking, R. Dörner, J. Stohner, J. Kiedrowski, M. Reggelin, S. Marquardt, A. Schiesser, R. Berger, M. S. Schöffler  
Direct Determination of Absolute Molecular Stereochemistry in Gas Phase by Coulomb Explosion Imaging  
*Science* 341, 1096 (2013)
- [36] J. Wu, M. Magrakvelidze, L.P.H. Schmidt, M. Kunitski, T. Pfeifer, M. Schöffler, M. Pitzer, M. Richter, S. Voss, H. Sann, H. Kim, J. Lower, T. Jahnke, A. Czasch, U. Thumm and R. Dörner  
Understanding the role of phase in chemical bond breaking with coincidence angular streaking  
*Nature Comm.* 4, 2177 (2013)
- [37] F. Trinter, J. B. Williams, M. Weller, M. Waitz, M. Pitzer, J. Voigtsberger, C. Schober, G. Kastirke, C. Müller, C. Goihl, P. Burzynski, F. Wiegandt, R. Wallauer, A. Kalinin,

- L.Ph.H. Schmidt, M.S. Schöffler, Y.-C. Chiang, K. Gokhberg, T. Jahnke, and R. Dörner  
Vibrationally resolved decay width of Interatomic Coulombic Decay in HeNe  
*Phys.Rev.Lett.* *111*, 233004 (2013)
- [38] L.Ph.H. Schmidt, J. Lower, T. Jahnke, S. Schössler, M. S. Schöffler, A. Menssen, C. Leveque, N. Sisourat, R. Taieb, H. Schmidt-Böcking, and R. Dörner  
Momentum transfer to a free floating double slit: Realization of a thought experiment from the Einstein-Bohr debates  
*Phys.Rev.Lett.* *111*, 103201 (2013)
- [39] K. Henrichs, M. Waitz, F. Trinter, H. Kim, A. Menssen, H. Gassert, H. Sann, T. Jahnke, J. Wu, M. Pitzer, M. Richter, M. S. Schöffler, M. Kunitski and R. Dörner  
Observation of Electron Energy Discretization in Strong Field Double Ionization  
*Phys.Rev.Lett.* *111*, 113003 (2013)
- [40] J. Wu, X. Gong, M. Kunitski, F. K. Amankona-Diawuo, L. Ph. H. Schmidt, T. Jahnke, A. Czasch, T. Seideman, and R. Dörner  
Strong Field Multiple Ionization as a Route to Electron Dynamics in a van der Waals Cluster  
*Phys.Rev.Lett.* *111*, 083003 (2013)
- [41] M. S. Schöffler, C. Stuck, M. Waitz, F. Trinter, T. Jahnke, U. Lenz, M. Jones, A. Belkacem, A. L. Landers, M. S. Pindzola, C. L. Cocke, J. Colgan, A. Kheifets, I. Bray, H. Schmidt-Böcking, R. Dörner, and Th. Weber  
Ejection of Quasi-Free-Electron Pairs from the Helium-Atom Ground State by Single-Photon Absorption  
*Phys.Rev.Lett.* *111*, 013003 (2013)
- [42] J. Wu, M. Kunitski, M. Pitzer, F. Trinter, L. Ph. H. Schmidt, T. Jahnke, M. Magrakvelidze, C. B. Madsen, L. B. Madsen, U. Thumm, and R. Dörner  
Electron-Nuclear Energy Sharing in Above-Threshold Multiphoton Dissociative Ionization of H<sub>2</sub>  
*Phys.Rev.Lett.* *111*, 023002 (2013)
- [43] J. Wu, M. Magrakvelidze, A. Vredenburg, L. Ph. H. Schmidt, T. Jahnke, A. Czasch, R. Dörner, and U. Thumm  
Steering the nuclear motion in singly ionized argon dimers with mutually detuned laser pulses  
*Phys.Rev.Lett.*, *110*, 033005 (2013)
- [44] H. Ni, C. Ruiz, R. Dörner, and A. Becker  
Numerical simulations of single-photon double ionization of the helium dimer  
*Phys. Rev.A* *88*, 013407 (2013)
- [45] M. Kunitski, M. Richter, M. D. Thomson, A. Vredenburg, J. Wu, T. Jahnke, M. Schöffler, H. Schmidt-Böcking, H. G. Roskos, and R. Dörner  
Optimization of single-cycle terahertz generation in LiNbO<sub>3</sub> for sub-50 femtosecond pump pulses  
*Optics Express* *21*, 6806 (2013)
- [46] P. M. Hillenbrand, S Haggmann, Th Stöhlker, Yu Litvinov, C Kozhuharov, U Spillmann, V Shabaev, K Stiebing, M Lestinsky, A Surzhykov, A Voitkiv, B Franzke, D Fischer, C Brandau, S Schippers, A Müller, D Schneider, D Jakubassa, A Artiomov, E DeFilippo, X Ma, R Dörner, and H Rothard  
Future experiments using forward electron spectroscopy to study the quantum dynamics of high-Z ions at the ESR/CRYRING storage rings  
*Physica Scripta T156*, 014087 (2013)
- [47] S. Haggmann, Th Stöhlker, Yu Litvinov, C Kozhuharov, P-M Hillenbrand, U Spillmann, V Shabaev, K Stiebing, M Lestinsky, A Surzhykov, A Voitkiv, B Franzke, D Fischer, D Schneider, D Jakubassa, A Artiomov, E DeFilippo, X Ma, R Dörner, and H Rothard  
Few-body quantum dynamics of high-Z ions studied at the future relativistic high-energy

storage ring

*Physica Scripta T156, 014086 (2013)*

- [48] K. Nagaya, A. Sugishima, H. Iwayama, H. Murakami, M. Yao, H. Fukuzawa, X.-J. Liu, K. Motomura, K. Ueda, N. Saito, L. Foucar, A. Rudenko, M. Kurka, K.-U. Kühnel, J. Ullrich, A. Czasch, R. Dörner, R. Feifel, M. Nagasono, A. Higashiya, M. Yabashi, T. Ishikawa, T. Togashi, H. Kimura, and H. Ohashi  
Unusual Under-threshold Ionization of Neon Clusters Studied by Ion Spectroscopy  
*J.Phys.B: At. Mol. Opt. Phys.* 46,164023 (2013)
- [49] M. S. Schöffler, O. Chuluunbaatar, S. Houamer, A. Galstyan, J. N. Titze, L. Ph. H. Schmidt, T. Jahnke, H. Schmidt-Böcking, R. Dörner, Yu. V. Popov, A. A. Gusev, and C. Dal Cappello  
Two-dimensional electron-momentum distributions for transfer ionization in fast proton-helium collisions  
*Phys.Rev.A* 88, 042710 (2013)
- [50] M. S. Schöffler, O. Chuluunbaatar, Yu. V. Popov, S. Houamer, J. Titze, T. Jahnke, L. Ph. H. Schmidt, O. Jagutzki, A. G. Galstyan, and A. A. Gusev  
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*Phys.Rev.A* 87, 032715 (2013)
- [51] X. Gong, M. Kunitski, L. Ph. H. Schmidt, T. Jahnke, A. Czasch, R. Dörner, and J. Wu  
Simultaneous probing of geometry and electronic orbital of ArCO by Coulomb-explosion imaging and angle-dependent tunneling rates  
*Phys. Rev.A* 88, 013422 (2013)
- [52] H.-K. Kim, H. Gassert, M. S. Schöffler, J. N. Titze, M. Waitz, J. Voigtsberger, F. Trinter, J. Becht, A. Kalinin, N. Neumann, C. Zhou, L. Ph. H. Schmidt, O. Jagutzki, A. Czasch, H. Merabet, H. Schmidt-Böcking, T. Jahnke, A. Cassimi, and R. Dörner  
Ion-impact-induced interatomic Coulombic decay in neon and argon dimers  
*Phys. Rev.A* 88, 042707 (2013)
- [53] D. Comtois, H.-C. Bandulet, M. Spanner, D. Pavić, M. Meckel, D. Zeidler, H. Pepin, R. Dörner, J.-C. Kieffer, D.M. Villeneuve, P.B. Corkum and A. Staudte  
Laser-induced orbital projection and diffraction of  $O_2$  with velocity map imaging  
*Journal of Modern Optics DOI:10.1080/09500340.2013.771755 (2013)*
- [54] J. Wu, A. Vredenburg, L. Ph. H. Schmidt, T. Jahnke, A. Czasch, and R. Dörner  
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*Phys. Rev.A* 87, 023406 (2013)

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*Nature Comm.* 3, 1113 (2012)
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- [60] J.B. Williams, C. Trevisan, M. Schöffler, T. Jahnke, I. Bocharova, H. Kim, B. Ulrich, R. Wallauer, F. Sturm, T.N. Rescigno, A. Belkacem, R Dörner, Th. Weber, C.W. McCurdy and A L Landers  
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#### Patents

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- [339] Bestimmung der Carrier-Envelope Phase (CEP) eines ultrakurzen Laserpulses  
German Patent DE102004054408B4 published 31.05.2007
- [340] Verfahren und hochauflösendes Impulsmikroskop zum Nachweis geladener Teilchen  
Method for observing dynamic processes in atomic or molecular systems  
German Patent DE000019740807A1 published 25.03.1999
- [341] Verfahren und Vorrichtung zur Herstellung eines Energiespeicherbausteins  
Energy storage component production  
German Patent DE000019705520A1 published 20.08.1998
- [342] Verfahren zum Darstellen dynamischer Prozesse zwischen einem Target und einem feinen Projekttilstrahl in atomaren und/oder molekularen Dimensionen sowie eine dazu verwendete Mikroskopeinrichtung  
Dynamic process representation method for atomic and/or molecular system  
German Patent DE000019604472C1 published 02.10.1997