

Complete list of peer-reviewed publications

2011

69. F. Süßmann, S. Zherebtsov, J. Plenge, Nora G. Johnson, M. Kübel, A.M. Sayler, V. Mondes, C. Graf, E. Rühl, G.G. Paulus, D. Schmischke, P. Swrschek, M.F. Kling, **Single-shot velocity-map imaging of attosecond light-field control at kilohertz rate**, *Rev. Sci. Instr.*, in press.
68. F. Süßmann, M.F. Kling, **Attosecond nanoplasmonic streaking of localized fields near metal nanospheres**, *Phys. Rev. B*, in press.
67. Y.-Y. Yang, E. Csapo, Y.-L. Zhang, F. Süßmann, S.L. Stebbings, X.-M. Duan, Z.-S. Zhao, I. Dekany, M.F. Kling, **Optimization of the field enhancement and spectral bandwidth of single and coupled bimetal core-shell nanoparticles for few-cycle laser applications**, *Plasmonics*, in press.
66. M. Durach, A. Rusina, M.F. Kling, M.I. Stockman, **Predicted ultrafast dynamic metallization of dielectric nanofilms by strong single-cycle optical fields**, *Phys. Rev. Lett.* **107**, 086602 (2011).
65. A. Vernaleken, J. Weitenberg, Th. Sartorius, P. Ruessbuildt, W. Schneider, S.L. Stebbings, M.F. Kling, P. Hommelhoff, H.-D. Hoffmann, R. Poprawe, F. Krausz, Th. Hänsch, Th. Udem, **Single pass high harmonic generation at 20.8 MHz repetition rate**, *Opt. Lett.* **36**, 3428 (2011).
64. S.L. Stebbings, F. Süßmann, Y.-Y. Yang, A. Scrinzi, M. Durach, A. Rusina, M.I. Stockman, M.F. Kling, **Generation of isolated attosecond XUV pulses employing nanoplasmonic field enhancement: optimization of coupled ellipsoids**, *New J. Phys.* **13**, 063010 (2011).
63. B. Bergues, S. Zherebtsov, Y. Deng, X. Gu, I. Znakovskaya, R. Kienberger, F. Krausz, G. Marcus, M.F. Kling, **Sub-cycle electron control in the photoionization of xenon using a few-cycle laser pulse in the mid-infrared**, *New J. Phys.* **13**, 063010 (2011).
62. S. Zherebtsov, A. Wirth, T. Uphues, I. Znakovskaya, O. Herrwerth, J. Gagnon, M. Korbman, V.S. Yakovlev, M.J.J. Vrakking, M. Drescher, M.F. Kling, **Attosecond imaging of XUV-induced atomic photoionization and Auger decay in strong laser fields**, *J. Phys. B.* **44**, 105601 (2011).
61. S. Zherebtsov, Th. Fennel, J. Plenge, E. Antonsson, I. Znakovskaya, A. Wirth, O. Herrwerth, F. Süßmann, C. Peltz, I. Ahmad, S. A. Trushin, V. Pervak, S. Karsch, M.J.J. Vrakking, B. Langer, C. Graf, M.I. Stockman, F. Krausz, E. Rühl, M.F. Kling, **Controlled near-field enhanced electron acceleration from dielectric nanospheres with intense few-cycle laser fields**, *Nature Phys.* **7**, 656 (2011).
60. I. Znakovskaya, P. von den Hoff, N. Schirmel, G. Urbasch, S. Zherebtsov, B. Bergues, R. de Vivie-Riedle, K.-M. Weitzel, M.F. Kling, **Waveform control of orientation-dependent ionization of DCI in few-cycle laser fields**, *Phys. Chem. Chem. Phys.* **13**, 8653 (2011).
59. B. Jochim, R. Averin, N. Gregerson, J. McKenna, S. De, D. Ray, M. Zohrabi, B. Bergues, K.D. Carnes, M.F. Kling, I. Ben-Itzhak, E. Wells, **Velocity map imaging as a tool for gaining mechanistic insight from closed-loop control studies of molecular fragmentation**, *Phys. Rev. A* **83**, 043417 (2011).
58. D. Ray, Z.J. Chen, S. De, W. Cao, I.A. Bocharova, I.V. Litvinyuk, A.T. Le, C.D. Lin, M.F. Kling, C.L. Cocke, **Momentum spectra of electrons rescattered from rare gas targets following their extraction by one- and two-color short laser pulses**, *Phys. Rev. A.* **83**, 013410 (2011).

57. Y.Y. Yang, F. Süßmann, S. Zharebtsov, I. Pupeza, J. Kaster, D. Lehr, H.-J. Fuchs, E.-B. Kley, E. Fill, X.-M. Duan, Z.-S. Zhao, F. Krausz, S.L. Stebbings, M.F. Kling, **Optimization and characterization of a highly-efficient diffraction nanograting for MHz XUV pulses**, *Opt. Exp.* **19**, 1954 (2011).
56. N.G. Johnson, O. Herrwerth, A. Wirth, S. De, I. Ben-Itzhak, M. Lezius, B. Bergues, M.F. Kling, A. Senftleben, C.D. Schröter, R. Moshhammer, J. Ullrich, K.J. Betsch, R.R. Jones, T. Rathje, K. Rühle, W. Müller, G.G. Paulus, **Single-shot carrier-envelope-phase tagged ion momentum imaging of non-sequential double ionization of argon in intense 4-fs laser fields**, *Phys. Rev. A.* **81**, 013412 (2011).

2010

55. J. Mauritsson, T. Remetter, M. Swoboda, K. Klünder, A.L'Huillier, K.J. Schafer, O. Ghafur, F. Kelkensberg, W. Siu, P. Johnsson, M.J.J. Vrakking, I. Znakovskaya, T. Uphues, S. Zharebtsov, M.F. Kling, F. Lepine, E. Benedetti, F. Ferrari, G. Sansone, M. Nisoli, **Attosecond pump-probe electron interferometry**, *Phys. Rev. Lett.* **105**, 053001 (2010).
54. E. Goulielmakis, Z.-H. Loh, A. Wirth, R. Santra, N. Rohringer, V.S. Yakovlev, S. Zharebtsov, T. Pfeiffer, A.M. Azzeer, M.F. Kling, S.R. Leone, F. Krausz, **Real-time observation of valence electron motion**, *Nature* **466**, 739-743 (2010).
53. G. Sansone, F. Kelkensberg, J. F. Pérez-Torres, F. Morales, M.F. Kling, W. Siu, O. Ghafur, P. Johnsson, M. Swoboda, E. Benedetti, F. Ferrari, F. Lépine, J. L. Sanz-Vicario, S. Zharebtsov, I. Znakovskaya, A. L'Huillier, M. Yu. Ivanov, M. Nisoli, F. Martín, M.J.J. Vrakking, **Electron localization following attosecond molecular photoionization**, *Nature* **465**, 763-766 (2010)
52. Y.H. Jiang, A. Rudenko, O. Herrwerth, L. Foucar, M. Kurka, K.U. Kühnel, M. Lezius, M.F. Kling, J. van Tilborg, A. Belkacem, K. Ueda, S. Düsterer, R. Treusch, C.D. Schröter, R. Moshhammer, J. Ullrich, **Ultrafast Photo-Isomerization of Acetylene Cations**, *Phys. Rev. Lett.* **105**, 263002 (2010).
51. Y.H. Jiang, T. Pfeifer, A. Rudenko, O. Herrwerth, L. Foucar, M. Kurka, K.U. Kühnel, M. Lezius, M.F. Kling, X. Liu, K. Ueda, S. Düsterer, R. Treusch, C.D. Schröter, R. Moshhammer, J. Ullrich, **Temporal coherence effects in multiple ionization of N₂ via XUV pump-probe autocorrelation**, *Phys. Rev. A.* **82**, 041403 (2010).
50. W. Cao, S. De, K.P. Singh, S. Chen, M.S. Schöffler, A. Alnaser, I.A. Bocharova, G. Laurent, D. Ray, S. Zharebtsov, M. F. Kling, I. Ben-Itzhak, I.V. Litvinyuk, A. Belkacem, T. Osipov, T. Rescigno, and C.L. Cocke, **Dynamic control of the fragmentation of CO^{q+} excited states generated with high-order harmonics**, *Phys. Rev. A.* **82**, 043410 (2010).
49. M. Durach, A. Rusina, M.F. Kling, and M.I. Stockman, **Metallization of nanofilms in strong adiabatic electric fields**, *Phys. Rev. Lett.* **105**, 086803 (2010).
48. M. Kurka, J. Feist, D.A. Horner, A. Rudenko, Y.H. Jiang, K.U. Kühnel, L. Foucar, T.N. Rescigno, C.W. McCurdy, R. Pazourek, S. Nagele, M. Schulz, O. Herrwerth, M. Lezius, M.F. Kling, M. Schöffler, A. Belkacem, S. Düsterer, R. Treusch, B.I. Schneider, L.A. Collins, J. Burgdörfer, C.D. Schröter, R. Moshhammer, and J. Ullrich, **Differential cross sections for non-sequential double ionization of He by 52eV photons from FLASH**, *New J. Phys.* **12**, 073035 (2010).
47. S. De, I.A. Bocharova, M. Magrakvelidze, D. Ray, W. Cao, B. Bergues, U. Thumm, M.F. Kling, I.V. Litvinyuk, and C.L. Cocke, **Tracking nuclear wave packet dynamics in**

- molecular oxygen ions with few-cycle infrared laser pulses**, *Phys. Rev. A* **82**, 013408 (2010).
46. A. Rudenko, Y.H. Jiang, M. Kurka, K.U. Kühnel, L. Foucar, O. Herrwerth, M. Lezius, M.F. Kling, C.D. Schröter, R. Moshhammer, and J. Ullrich, **Exploring few-photon, few-electron reactions at FLASH: From ion yield and momentum measurements to time-resolved and kinematically complete experiments**, *J. Phys. B* **43**, 194004 (2010).
 45. Y.H. Jiang, A. Rudenko, J.F. Pérez-Torres, O. Herrwerth, L. Foucar, M. Kurka, K.U. Kühnel, M. Toppin, E. Plésiat, F. Morales, F. Martín, M. Lezius, M.F. Kling, T. Jahnke, R. Dörner, J.L. Sanz-Vicario, J. van Tilborg, A. Belkacem, M. Schulz, K. Ueda, T.J.M. Zouros, S. Düsterer, R. Treusch, C.D. Schröter, R. Moshhammer, and J. Ullrich, **Investigating two-photon double ionization of D₂ by XUV-pump – XUV-probe experiments at FLASH**, *Phys. Rev. A* **81**, 051402 (2010).
 44. Y.H. Jiang, A. Rudenko, E. Plésiat, L. Foucar, M. Kurka, K.U. Kühnel, J. F. Pérez-Torres, F. Martín, O. Herrwerth, M. Lezius, M.F. Kling, T. Jahnke, R. Dörner, J. L. Sanz-Vicario, J. Van Tilborg, A. Belkacem, K. Ueda, T. J. M. Zouros, S. Düsterer, R. Treusch, C.D. Schröter, R. Moshhammer, and J. Ullrich, **Tracing direct and sequential two-photon double ionization of D₂ in femtosecond extreme-ultraviolet laser pulses**, *Phys. Rev. A* **81**, 021401(R) (2010).
 43. P. von den Hoff, I. Znakovskaya, S. Zherebtsov, M.F. Kling, R. de Vivie-Riedle, **Effects of multi orbital contributions in the angular-dependent ionization of molecules in intense few-cycle laser pulses**, *Appl. Phys. B* **98**, 659 (2010)
 42. K.R. Sawyer, J.F. Cahoon, J.E. Shanoski, E.A. Glascoe, M.F. Kling, J.P. Schlegel, M.C. Zoerb, L.K. Anderson, M. Hapke, H. Frei, J.F. Hartwig, C.E. Webster, C.B. Harris, **Time-resolved IR studies on the mechanism for the functionalization of primary C-H bonds by photoactivated Cp*W(CO)₃(Bpin)**, *J. Am. Chem. Soc.* **132**, 1848-1859 (2010).

2009

41. P. von den Hoff, I. Znakovskaya, M.F. Kling, R. de Vivie-Riedle, **Attosecond control of the dissociative ionization via electron localization: A comparison between D₂ and CO**, *Chem. Phys.* **366**, 139–147 (2009).
40. F. Kelkensberg, C. Lefebvre, W. Siu, O. Ghafur, T.T. Nguyen-Dang, O. Atabek, A. Keller, V. Serov, P. Johnsson, M. Swoboda, T. Remetter, A. L’Huillier, S. Zherebtsov, G. Sansone, E. Benedetti, F. Ferrari, M. Nisoli, F. Lepine, M.F. Kling, M.J.J. Vrakking, **Molecular dissociative ionization and wave packet dynamics studied using two-colour XUV+IR pump-probe spectroscopy**, *Phys. Rev. Lett.* **103**, 123005 (2009)
39. R. Gopal, K. Simeonidis, R. Moshhammer, Th. Ergler, M. Dürr, M. Kurka, K.-U. Kühnel, S. Tschuch, C.-D. Schröter, D. Bauer, J. Ullrich, A. Rudenko, O. Herrwerth, Th. Uphues, M. Schultze, E. Goulielmakis, M. Uiberacker, M. Lezius, M.F. Kling, **Three-dimensional momentum imaging of electron wave packet interference in few-cycle laser pulses**, *Phys.Rev.Lett.* **103** (2009) 053001.
38. I. Znakovskaya, P. von den Hoff, S. Zherebtsov, A. Wirth, O. Herrwerth, M.J.J. Vrakking, R. de Vivie-Riedle, M.F. Kling, **Attosecond control of electron dynamics in carbon monoxide**, *Phys.Rev.Lett.* **103** (2009) 103002.
37. D. Ray, F. He, S. De, W. Cao, H. Mashiko, P. Ranitovic, K. P. Singh, I. Znakovskaya, U. Thumm, G. G. Paulus, M. F. Kling, I. V. Litvinyuk, and C. L. Cocke, **Ion-Energy**

- Dependence of Asymmetric Dissociation of D₂ by a Two-Color Laser Field**, *Phys. Rev. Lett.* **103**, 223201 (2009)
36. S. De, I. Znakovskaya, D. Ray, F. Anis, Nora G. Johnson, I.A. Bocharova, M. Magrakvelidze, B.D. Esry, C.L. Cocke, I.V. Litvinyuk, M.F. Kling, **Field-free orientation of CO molecules by femtosecond two-color laser fields**, *Phys. Rev. Lett.* **103**, 153002 (2009)
35. P. Johnsson, A. Rouzee, W. Siu, Y. Huismans, F. Lepine, T. Marchenko, S. Düsterer, F. Tavella, N. Stojanovic, A. Azima, R. Treusch, M.F. Kling, M.J.J. Vrakking, **Field-free molecular alignment probed by the free electron laser in Hamburg (FLASH)**, *J.Phys.B.* **42** (2009) 134017.
34. O. Ghafur, W. Siu, P. Johnsson, M.F. Kling, M. Drescher, M.J.J. Vrakking, **A velocity map imaging detector with an integrated gas injection system**, *Rev. Sci. Instr.* **80**, 033110 (2009).
33. S. Michaeu, Z.J. Chen, A.T. Le, J. Rauschenberger, M.F. Kling, C.D. Lin, **Accurate retrieval of target structure and laser parameters of few-cycle pulses from photoelectron momentum spectra**, *Phys. Rev. Lett.* **102**, 073001 (2009).
32. J. Lin, N. Weber, A. Wirth, S.H. Chew, M. Escher, M. Merkel, M.F. Kling, M.I. Stockman, F. Krausz, U. Kleineberg, **Characterization of a TOF-PEEM for ultrahigh spatio-temporal probing of nanoplasmonic optical fields**, *J. Phys. Condens. Matter* **21**, 314005 (2009).

2008

31. M. Kling and F. Krausz (News&Views), **Attoscience – An attosecond stopwatch**, *Nature Phys.* **4**, 515-516 (2008).
30. M.F. Kling, M.J.J. Vrakking (invited review article), **Attosecond Electron Dynamics**, *Annu. Rev. Phys. Chem.* **59**, 463-492 (2008).
29. M.F. Kling, Ch. Siedschlag, I. Znakovskaya, A.J. Verhoef, S. Zherebtsov, F. Krausz, M. Lezius, M.J.J. Vrakking, **Strong-field control of electron localization during molecular dissociation**, *Mol.Phys.* **106**, 455-465 (2008).
28. M.F. Kling, J. Rauschenberger, A.J. Verhoef, E. Hasovic, T. Uphues, D.B. Milosevic, H.G. Muller, M.J.J. Vrakking, **Imaging of carrier-envelope phase effects in above-threshold ionization with intense few-cycle laser fields**, *New J. Phys.* **10**, 025024 (2008).
27. Th. Uphues, M. Schultze, M.F. Kling, M. Uiberacker, S. Hendel, U. Heinzmann, N.M. Kabaschnik, M. Drescher, **Ion-charge-state chronoscopy of cascaded atomic Auger decay**, *New J. Phys.* **10**, 025009 (2008).
26. Y. Ni, S. Zamith, F. Lepine, T. Martchenko, M. Kling, O. Ghafur, H.G. Muller, G. Berden, F. Robicheaux, M.J.J. Vrakking, **Above-threshold ionization in a strong dc laser field**, *Phys. Rev. A* **78**, 013413 (2008).
25. J.F. Cahoon, M.F. Kling, K.R. Sawyer, L.K. Andersen, C.B. Harris (honor issue for F.A. Cotton), **DFT and time-resolved IR investigation of electron transfer between photogenerated 17- and 19-electron organometallic radicals**, *J. Mol. Struct.* **890**, 328 (2008).

2007

24. R. Kienberger, M. Uiberacker, M.F. Kling, F. Krausz, **Attosecond physics comes of age: from tracing to steering electrons at sub-atomic scales**, *J.Mod.Opt.* **54**, 1985-1998 (2007).
23. F. Lepine, M.F. Kling, Y. Ni, J. Khan, O. Ghafur, T. Martchenko, E. Gustafsson, P. Johnsson, K. Varju, T. Remetter, A. L'Huillier, M.J.J. Vrakking, **Short XUV pulses to characterize field-free molecular alignment**, *J. Mod. Opt.* **54**, 953 (2007).
22. M.I. Stockman, M.F. Kling, U. Kleineberg, F. Krausz, **Attosecond nanoplasmonic field microscope**, *Nature Photonics* **1**, 539 (2007).
21. M. Uiberacker, Th. Uphues, M. Schultze, A.J. Verhoef, V. Yakovlev, M.F. Kling, J. Rauschenberger, N.M. Kabaschnik, H. Schröder, M. Lezius, K.L. Kompa, H.-G. Muller, M.J.J. Vrakking, S. Hendel, U. Kleineberg, U. Heinzmann, M. Drescher, F. Krausz, **Attosecond real-time observation of electron tunneling in atoms**, *Nature* **446**, 627-632 (2007).
20. A. Gijsbertsen, W. Siu, M.F. Kling, P. Johnsson, P. Jansen, S. Stolte, M.J.J. Vrakking, **Direct Determination of the Sign of the NO Dipole Moment**, *Phys.Rev.Lett.* **99**, 213003 (2007).
19. E.A. Glascoe, M.F. Kling, J.E. Shanoski, R.A. DiStasio, Jr., C.K. Payne, B.V. Mork, T.D. Tilley, C.B. Harris, **Photoinduced β -Hydrogen Elimination and Radical Formation with $\text{CpW}(\text{CO})_3(\text{CH}_2\text{CH}_3)$: Ultrafast IR and DFT Studies**, *Organometallics* **26**, 1424-1432 (2007).

2006

18. K. Varjú, P. Johnsson, J. Mauritsson, T. Remetter, T. Ruchon, Y. Ni, F. Lépine, M. Kling, J. Khan, K.J. Schafer, M.J.J. Vrakking, A. L'Huillier, **Angularly resolved electron wave packet interferences**, *J. Phys. B* **39**, 3983-3991 (2006).
17. M.F. Kling, Ch. Siedschlag, A.J. Verhoef, J.I. Kahn, M. Schultze, Y. Ni, Th. Uphues, M. Uiberacker, M. Drescher, F. Krausz, M.J.J. Vrakking, **Control of Electron Localization in Molecular Dissociation**, *Science* **312**, 246-248 (2006).
16. T. Remetter, P. Johnsson, K. Varjú, Y. Ni, F. Lépine, E. Gustafsson, M. Kling, J. Khan, R. López-Martens, J. Mauritsson, M.B. Gaarde, K.J. Schafer, M.J.J. Vrakking, A. L'Huillier **Interference of Attosecond Electron Wavepackets**, *Nature Physics* **2**, 323-326 (2006).
15. E.A. Glascoe, M.F. Kling, J.E. Shanoski, C.B. Harris, **The Nature and Role of Bridged Carbonyl Intermediates in the Ultrafast Photoinduced Rearrangement of $\text{Ru}_3(\text{CO})_{12}$** *Organometallics* **25**, 775-784 (2006).
14. J.F. Cahoon, M.F. Kling, K.R. Sawyer, H. Frei, C.B. Harris, **19-Electron Intermediates in the Ligand Substitution of $\text{CpW}(\text{CO})_3$ with a Lewis Base**, *J. Am. Chem. Soc.* **128**, 3152-3153 (2006).

2005

13. J.F. Cahoon, M.F. Kling, S. Schmatz, C.B. Harris, **19-electron intermediates and cage effects in the photochemical disproportionation of $[\text{CpW}(\text{CO})_3]_2$ with Lewis bases** *J. Am. Chem. Soc.* **127**, 12555-12565 (2005).
12. M. Buback, M. Kling, S. Schmatz, **Decomposition of tertiary alkoxy radicals**, *Z. Phys. Chem.* **219**, 1-18 (2005). – Dedicated to the memory of Prof. E.U. Franck
11. J.E. Shanoski, C.K. Payne, M.F. Kling, E.A. Glascoe, C.B. Harris

Ultrafast Infrared Mechanistic Studies of the Interaction of 1-Hexyne with Group 6 Hexacarbonyl Complexes, *Organometallics* 24, 1852-1859 (2005).

2004

10. M. Buback, M. Kling, S. Schmatz, J. Schroeder (invited article), **Photo-induced decomposition of organic peroxides: Ultrafast formation and decarboxylation of carbonyloxy radicals, *Phys. Chem. Chem. Phys.* 6, 5441-5455 (2004).**
9. Ch. Grimm, M. Kling, J. Schroeder, J. Troe, J. Zerbs, **Density dependent photochemical branching ratio in supercritical CO₂: Photodissociation and isomerization of diiodomethane, *Isr. J. Chem.* 43, 305-317 (2004).** – Dedicated to Prof. J. Jortner (70th birthday)
8. M.F. Kling, J.F. Cahoon, E.A. Glascoe, J.E. Shanoski, C.B. Harris, **The role of odd-electron intermediates and in-cage electron transfer in ultrafast photochemical disproportionation reactions in Lewis bases, *J. Am. Chem. Soc.* 126, 11414-11415 (2004).**

2003

7. B. Abel, J. Aßmann, M. Buback, M. Kling, S. Schmatz, J. Schroeder **Ultrafast decarboxylation of organic peroxides in solution: Interplay of different spectroscopic techniques, quantum chemistry and theoretical modeling, *Angew. Chem. Int. Ed.* 42, 299-303 (2003).**
6. J. Aßmann, M. Kling, B. Abel (invited article), **Watching photo-induced chemistry and molecular energy flow in solution in real-time, *Angew. Chem. Int. Ed.*, 42, 2226-2246 (2003).**
5. B. Abel, J. Assmann, M. Buback, P. Botschwina, M. Kling, R. Oswald, S. Schmatz, J. Schroeder, T. Witte, **Experimental and theoretical investigations on the ultrafast photo-induced decarboxylation of organic peroxides in solution: formation and decarboxylation of benzoyloxy radicals, *J. Phys. Chem. A.*, 107, 5157-5167 (2003).**
4. B. Abel, J. Assmann, M. Buback, Ch. Grimm, M. Kling, S. Schmatz, J. Schroeder, T. Witte, **Ultrafast decarboxylation of carbonyloxy radicals: Influence of molecular structure, *J. Phys. Chem. A.*, 107, 9499-9510 (2003).**
3. M. Kling, S. Schmatz, **Decarboxylation of carbonyloxy radicals: a density functional study, *Phys. Chem. Chem. Phys.*, 5, 3891-3896 (2003).**
2. B. Abel, M. Buback, M. Kling, S. Schmatz, J. Schroeder, **A seemingly well understood light-induced peroxide decarboxylation reaction reinvestigated with femtosecond time resolution, *J. Am. Chem. Soc.*, 125, 13274-13278 (2003).**

2001

1. M. Buback, M. Kling, M.T. Seidel, F.D. Schott, J. Schroeder, U. Steegmüller, **Picosecond IR study of UV-induced peroxide decomposition: formation and vibrational relaxation of CO₂ in CH₂Cl₂ solution, *Z. Phys. Chem.* 215, 717-735 (2001).**