



Robert W Schoenlein

Research Technical Manager, SLAC National Accelerator Laboratory

 Curriculum Vitae available Online

Bio

BIO

Dr. Schoenlein is the Deputy Director for Science at the SLAC Linac Coherent Light Source (LCLS), and is a P.I. in the Stanford PULSE Institute at SLAC. His research interests are in the application of ultrafast X ray spectroscopy and scattering techniques to investigate atomic and electronic structural dynamics in condensed matter including transition-metal complexes, molecular dynamics in solution, and electronic phase transitions in correlated electron systems. Prior to joining SLAC National Accelerator Laboratory in 2015, Dr. Schoenlein was a Senior Staff Scientist at LBNL with research programs in the Chemical Sciences and Materials Sciences Divisions. He also served as the Deputy Director for Science at the Advanced Light Source, and as scientific lead for the Next Generation Light Source Initiative at LBNL. Dr. Schoenlein received S.B., S.M., and Ph.D. degrees from the Massachusetts Institute of Technology, is a Fellow of the American Physical Society, and a recipient of the Adolph Lomb Medal from the Optical Society of America.

CURRENT ROLE AT STANFORD

Deputy Director for Science at the Linac Coherent Light Source

Principal Investigator in the Stanford PULSE Institute at SLAC

INSTITUTE AFFILIATIONS

- Principal Investigator, Stanford PULSE Institute

HONORS AND AWARDS

- APS Fellow: "for seminal contributions to ultrafast science using lasers and synchrotron radiation", American Physical Society
- Klaus Halbach Award, Advanced Light Source, LBNL (1996)
- Klaus Halbach Award, Advanced Light Source, LBNL (2000)
- Adolph Lomb Medal, Honoring noteworthy contribution to optics before the age of 30, Optical Society of America (1994)
- Newport Research Award, Newport Corp. (1988)
- NCAA Postgraduate Scholarship, NCAA (1984-1985)
- Hertz Foundation Scholarship, Fannie and John Hertz Foundation (1980-1984)

EDUCATION AND CERTIFICATIONS

- Ph.D., Massachusetts Institute of Technology (1989)
- S.M., Massachusetts Institute of Technology (1987)
- S.B., Massachusetts Institute of Technology (1984)

LINKS

- Publication List (Google Scholar): <https://tinyurl.com/ry7k8my>
- Linac Coherent Light Source (LCLS): <https://lcls.slac.stanford.edu/>

Publications

PUBLICATIONS

- **Uncovering the 3d and 4d Electronic Interactions in Solvated Ru Complexes with 2p3d Resonant Inelastic X-ray Scattering.** *Inorganic chemistry*
Poulter, B. I., Biasin, E., Nowak, S. H., Kroll, T., Alonso-Mori, R., Schoenlein, R. W., Govind, N., Sokaras, D., Khalil, M.
2023
- **Revealing core-valence interactions in solution with femtosecond X-ray pump X-ray probe spectroscopy.** *Nature communications*
Weakly, R. B., Liekhus-Schmaltz, C. E., Poulter, B. I., Biasin, E., Alonso-Mori, R., Aquila, A., Boutet, S., Fuller, F. D., Ho, P. J., Kroll, T., Loe, C. M., Lutman, A., Zhu, et al
2023; 14 (1): 3384
- **Precise dd excitations and commensurate intersite Coulomb interactions in the dissimilar cuprates YBa₂Cu₃O_{7-y} and La_{2-x}Sr_xCuO₄** *PHYSICAL REVIEW B*
Huang, S., Wray, L., Shao, Y., Wu, C., Wang, S., Lee, J., Chen, Y., Schoenlein, R. W., Mou, C. Y., Chuang, Y., Lin, J.
2023; 107 (13)
- **Femtosecond X-ray Spectroscopy Directly Quantifies Transient Excited-State Mixed Valency.** *The journal of physical chemistry letters*
Liekhus-Schmaltz, C., Fox, Z. W., Andersen, A., Kjaer, K. S., Alonso-Mori, R., Biasin, E., Carlstad, J., Chollet, M., Gaynor, J. D., Glowonia, J. M., Hong, K., Kroll, T., Lee, et al
1800: 378-386
- **Following Metal-to-Ligand Charge-Transfer Dynamics with Ligand and Spin Specificity Using Femtosecond Resonant Inelastic X-ray Scattering at the Nitrogen K-Edge.** *The journal of physical chemistry letters*
Jay, R. M., Eckert, S., Van Kuiken, B. E., Ochmann, M., Hantschmann, M., Cordones, A. A., Cho, H., Hong, K., Ma, R., Lee, J. H., Dakovski, G. L., Turner, J. J., Minitti, et al
2021: 6676-6683
- **Ultrafast x-ray pump x-ray probe transient absorption spectroscopy: A computational study and proposed experiment probing core-valence electronic correlations in solvated complexes.** *The Journal of chemical physics*
Liekhus-Schmaltz, C. E., Ho, P. J., Weakly, R. B., Aquila, A., Schoenlein, R. W., Khalil, M., Govind, N.
2021; 154 (21): 214107
- **Using X-ray free-electron lasers for spectroscopy of molecular catalysts and metalloenzymes** *NATURE REVIEWS PHYSICS*
Bergmann, U., Kern, J., Schoenlein, R. W., Wernet, P., Yachandra, V. K., Yano, J.
2021
- **Revealing the bonding of solvated Ru complexes with valence-to-core resonant inelastic X-ray scattering** *CHEMICAL SCIENCE*
Biasin, E., Nascimento, D. R., Poulter, B. I., Abraham, B., Kunnus, K., Garcia-Esparza, A. T., Nowak, S. H., Kroll, T., Schoenlein, R. W., Alonso-Mori, R., Khalil, M., Govind, N., Sokaras, et al
2021; 12 (10): 3713–25
- **Author Correction: Direct observation of coherent femtosecond solvent reorganization coupled to intramolecular electron transfer.** *Nature chemistry*
Biasin, E., Fox, Z. W., Andersen, A., Ledbetter, K., Kjar, K. S., Alonso-Mori, R., Carlstad, J. M., Chollet, M., Gaynor, J. D., Glowonia, J. M., Hong, K., Kroll, T., Lee, et al
2021
- **Direct observation of coherent femtosecond solvent reorganization coupled to intramolecular electron transfer.** *Nature chemistry*
Biasin, E., Fox, Z. W., Andersen, A., Ledbetter, K., Kjar, K. S., Alonso-Mori, R., Carlstad, J. M., Chollet, M., Gaynor, J. D., Glowonia, J. M., Hong, K., Kroll, T., Lee, et al
2021

- **Excited-State Charge Distribution of a Donor- π -Acceptor Zn Porphyrin Probed by N K-Edge Transient Absorption Spectroscopy.** *The Journal of physical chemistry letters*
Cordones, A. A., Pemmaraju, C. D., Lee, J. H., Zegkinoglou, I. n., Ragoussi, M. E., Himpfel, F. J., de la Torre, G. n., Schoenlein, R. W.
2021; 1182–88
- **Double core hole valence-to-core x-ray emission spectroscopy: A theoretical exploration using time-dependent density functional theory.** *The Journal of chemical physics*
Zhang, Y., Bergmann, U., Schoenlein, R., Khalil, M., Govind, N.
2019; 151 (14): 144114
- **Using Ultrafast X-ray Spectroscopy To Address Questions in Ligand-Field Theory: The Excited State Spin and Structure of [Fe(dcpp)(2)] (2+)** *INORGANIC CHEMISTRY*
Britz, A., Gawelda, W., Assefa, T. A., Jamula, L. L., Yarranton, J. T., Galler, A., Khakhulin, D., Diez, M., Hardee, M., Doumy, G., March, A., Bajnoczi, E., Nemeth, et al
2019; 58 (14): 9341–50
- **UV-Photochemistry of the Disulfide Bond: Evolution of Early Photoproducts from Picosecond X-ray Absorption Spectroscopy at the Sulfur K-Edge** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Ochmann, M., Hussain, A., von Ahnen, I., Cordones, A. A., Hong, K., Lee, J., Ma, R., Adamczyk, K., Kim, T., Schoenlein, R. W., Vendrell, O., Huse, N.
2018; 140 (21): 6554–61
- **Transient metal-centered states mediate isomerization of a photochromic rutheniumsulfoxide complex** *NATURE COMMUNICATIONS*
Cordones, A. A., Lee, J., Hong, K., Cho, H., Garg, K., Boggio-Pasqua, M., Rack, J. J., Huse, N., Schoenlein, R. W., Kim, T.
2018; 9: 1989
- **Comprehensive Experimental and Computational Spectroscopic Study of Hexacyanoferrate Complexes in Water: From Infrared to X-ray Wavelengths** *JOURNAL OF PHYSICAL CHEMISTRY B*
Ross, M., Andersen, A., Fox, Z. W., Zhang, Y., Hong, K., Lee, J., Cordones, A., March, A., Doumy, G., Southworth, S. H., Marcus, M. A., Schoenlein, R. W., Mukamel, et al
2018; 122 (19): 5075–86
- **Nonlinear Ultrafast Spin Scattering in the Skyrmion Phase of Cu₂OSeO₃** *PHYSICAL REVIEW LETTERS*
Langner, M. C., Roy, S., Huang, S. W., Koralek, J. D., Chuang, Y., Dakovski, G. L., Turner, J. J., Robinson, J. S., Coffee, R. N., Minitti, M. P., Seki, S., Tokura, Y., Schoenlein, et al
2017; 119 (10): 107204
- **The Linac Coherent Light Source: Recent Developments and Future Plans** *APPLIED SCIENCES-BASEL*
Schoenlein, R. W., Boutet, S., Minitti, M. P., Dunne, A. M.
2017; 7 (8)
- **Picosecond sulfur K-edge X-ray absorption spectroscopy with applications to excited state proton transfer** *STRUCTURAL DYNAMICS*
Van Kuiken, B. E., Ross, M. R., Strader, M. L., Cordones, A. A., Cho, H., Lee, J., Schoenlein, R. W., Khalil, M.
2017; 4 (4): 044021
- **Light-Induced Radical Formation and Isomerization of an Aromatic Thiol in Solution Followed by Time-Resolved X-ray Absorption Spectroscopy at the Sulfur K-Edge** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Ochmann, M., von Ahnen, I., Cordones, A. A., Hussain, A., Lee, J., Hong, K., Adamczyk, K., Vendrell, O., Kim, T., Schoenlein, R. W., Huse, N.
2017; 139 (13): 4797–4804
- **Prominent role of oxygen in the multiferroicity of DyMnO₃ and TbMnO₃: A resonant soft x-ray scattering spectroscopy study** *PHYSICAL REVIEW B*
Huang, S. W., Lee, J. M., Jeng, H., Shao, Y., Wray, L., Chen, J. M., Qiao, R., Yang, W. L., Cao, Y., Lin, J., Schoenlein, R. W., Chuang, Y.
2016; 94 (3)
- **Electronic and Molecular Structure of the Transient Radical Photocatalyst Mn(CO)(5) and Its Parent Compound Mn-2(CO)(10)** *INORGANIC CHEMISTRY*
Cho, H., Hong, K., Strader, M. L., Lee, J., Schoenlein, R. W., Huse, N., Kim, T.
2016; 55 (12): 5895–5903
- **Time-Resolved X-ray Spectroscopy in the Water Window: Elucidating Transient Valence Charge Distributions in an Aqueous Fe(II) Complex** *JOURNAL OF PHYSICAL CHEMISTRY LETTERS*

Van Kuiken, B. E., Cho, H., Hong, K., Khalil, M., Schoenlein, R. W., Kim, T., Huse, N.
2016; 7 (3): 465–70

- **Electronic and nuclear contributions to time-resolved optical and X-ray absorption spectra of hematite and insights into photoelectrochemical performance** *Energy & Environmental Science*
Hayes, D., Hadt, R. G., Emery, J. D., Cordones, A. A., Martinson, A. B. F., Shelby, M. L., Fransted, K. A., Dahlberg, P. D., Hong, J., Zhang, X., Kong, Q., Schoenlein, R. W., Chen, et al
2016; 9 (12): 3754–69
- **Tracking reaction dynamics in solution by pump-probe X-ray absorption spectroscopy and X-ray liquidography (solution scattering)** *CHEMICAL COMMUNICATIONS*
Kim, J., Kim, K., Oang, K., Lee, J., Hong, K., Cho, H., Huse, N., Schoenlein, R. W., Kim, T., Ihee, H.
2016; 52 (19): 3734–49
- **Scattering bottleneck for spin dynamics in metallic helical antiferromagnetic dysprosium** *PHYSICAL REVIEW B*
Langner, M. C., Roy, S., Kemper, A. F., Chuang, Y., Mishra, S. K., Versteeg, R. B., Zhu, Y., Hertlein, M. P., Glover, T. E., Dumesnil, K., Schoenlein, R. W.
2015; 92 (18)
- **Selective interlayer ferromagnetic coupling between the Cu spins in YBa₂Cu₃O_{7-x} grown on top of La_{0.7}Ca_{0.3}MnO₃** *SCIENTIFIC REPORTS*
Huang, S. W., Wray, L. A., Jeng, H., Tra, V. T., Lee, J. M., Langner, M. C., Chen, J. M., Roy, S., Chu, Y. H., Schoenlein, R. W., Chuang, Y., Lin, J.
2015; 5
- **Element-Specific Characterization of Transient Electronic Structure of Solvated Fe(II) Complexes with Time-Resolved Soft X-ray Absorption Spectroscopy** *ACCOUNTS OF CHEMICAL RESEARCH*
Hong, K., Cho, H., Schoenlein, R. W., Kim, T., Huse, N.
2015; 48 (11): 2957–66
- **Ultrafast x-ray and optical signatures of phase competition and separation underlying the photoinduced metallic phase in Pr_{1-x}Ca_xMnO₃** *PHYSICAL REVIEW B*
Langner, M. C., Zhou, S., Coslovich, G., Chuang, Y., Zhu, Y., ROBINSON, J. S., Schlotter, W. F., Turner, J. J., Minitti, M. P., Moore, R. G., Lee, W. S., Lu, D. H., Doering, et al
2015; 92 (15)
- **Sub-nanosecond time-resolved ambient-pressure X-ray photoelectron spectroscopy setup for pulsed and constant wave X-ray light sources** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Shavorskiy, A., Nepl, S., Slaughter, D. S., Cryan, J. P., Siefertmann, K. R., Weise, F., Lin, M., Bacellar, C., Ziemkiewicz, M. P., Zegkinoglou, I., Fraund, M. W., Khurmi, C., Hertlein, et al
2014; 85 (9): 093102
- **Atomic-Scale Perspective of Ultrafast Charge Transfer at a Dye-Semiconductor Interface** *JOURNAL OF PHYSICAL CHEMISTRY LETTERS*
Siefertmann, K. R., Pemmaraju, C. D., Nepl, S., Shavorskiy, A., Cordones, A. A., Vura-Weis, J., Slaughter, D. S., Sturm, F. P., Weise, F., Bluhm, H., Strader, M. L., Cho, H., Lin, et al
2014; 5 (15): 2753-2759
- **Coupled Skyrmion Sublattices in Cu₂OSeO₃** *PHYSICAL REVIEW LETTERS*
Langner, M. C., Roy, S., Mishra, S. K., Lee, J. T., Shi, X. W., Hossain, M. A., Chuang, Y., Seki, S., Tokura, Y., Kevan, S. D., Schoenlein, R. W.
2014; 112 (16): 167202
- **Glass-like recovery of antiferromagnetic spin ordering in a photo-excited manganite Pr_{0.7}Ca_{0.3}MnO₃** *SCIENTIFIC REPORTS*
Zhou, S. Y., Langner, M. C., Zhu, Y., Chuang, Y., Rini, M., Glover, T. E., Hertlein, M. P., Gonzalez, A., Tahir, N., Tomioka, Y., Tokura, Y., Hussain, Z., Schoenlein, et al
2014; 4: 4050
- **Ultrafast charge localization in a stripe-phase nickelate** *NATURE COMMUNICATIONS*
Coslovich, G., Huber, B., Lee, W., Chuang, Y., Zhu, Y., Sasagawa, T., Hussain, Z., Bechtel, H. A., Martin, M. C., Shen, Z., Schoenlein, R. W., Kaindl, R. A.
2013; 4
- **Ultra-fast and ultra-intense x-ray sciences: first results from the Linac Coherent Light Source free-electron laser** *JOURNAL OF PHYSICS B- ATOMIC MOLECULAR AND OPTICAL PHYSICS*

- Bostedt, C., Bozek, J. D., Bucksbaum, P. H., Coffee, R. N., Hastings, J. B., Huang, Z., Lee, R. W., Schorb, S., Corlett, J. N., Denes, P., Emma, P., Falcone, R. W., Schoenlein, et al
2013; 46 (16)
- **Simulating Ru L-3-Edge X-ray Absorption Spectroscopy with Time-Dependent Density Functional Theory: Model Complexes and Electron Localization in Mixed-Valence Metal Dimers** *JOURNAL OF PHYSICAL CHEMISTRY A*
Van Kuiken, B. E., Valiev, M., Daifuku, S. L., Bannan, C., Strader, M. L., Cho, H., Huse, N., Schoenlein, R. W., Govind, N., Khalil, M.
2013; 117 (21): 4444–54
 - **Real-Time Manifestation of Strongly Coupled Spin and Charge Order Parameters in Stripe-Ordered La_{1.75}Sr_{0.25}NiO₄ Nickelate Crystals Using Time-Resolved Resonant X-Ray Diffraction** *PHYSICAL REVIEW LETTERS*
Chuang, Y. D., Lee, W. S., Kung, Y. F., Sorini, A. P., Moritz, B., Moore, R. G., Patthey, L., Trigo, M., Lu, D. H., Kirchmann, P. S., Yi, M., Krupin, O., Langner, et al
2013; 110 (12)
 - **Time-Resolved X-Ray Photoelectron Spectroscopy Techniques For Real-Time Studies Of Interfacial Charge Transfer Dynamics** *22nd International Conference on the Application of Accelerators in Research and Industry (CAARI)*
Shavorskiy, A., Cordones, A., Vura-Weis, J., Siefertmann, K., Slaughter, D., Sturm, F., Weise, F., Bluhm, H., Strader, M., Cho, H., Lin, M., Bacellar, C., Khurmi, et al
AMER INST PHYSICS.2013: 475–479
 - **Elucidating Charge Delocalization in the High-Spin State of aqueous Fe-II Spin-Crossover Compounds via Time-Resolved Spectroscopy in the X-ray Water Window**
Huse, N., Van Kuiken, B. E., Cho, H., Strader, M. L., Kim, T., Khalil, M., Schoenlein, R. W.
edited by Chergui, M., Taylor, A., Cundiff, S., DeVivieRiedle, R., Yamagouchi, K.
E D P SCIENCES.2013
 - **Tracking Charge Localization via Transient Electron-Phonon Coupling in a Stripe-ordered Nickelate**
Coslovich, G., Huber, B., Lee, W., Chuang, Y., Zhu, Y., Sasagawa, T., Hussain, Z., Bechtel, H. A., Martin, M. C., Shen, Z., Schoenlein, R. W., Kaindl, R. A., IEEE
IEEE.2013
 - **Ultrafast Mid-infrared Spectroscopy of the Charge- and Spin-ordered Nickelates** *Conference on Ultrafast Phenomena and Nanophotonics XVII*
Coslovich, G., Huber, B., Lee, W., Chuang, Y., Zhu, Y., Sasagawa, T., Hussain, Z., Bechtel, H. A., Martin, M. C., Schoenlein, R. W., Shen, Z., Kaindl, R. A.
SPIE-INT SOC OPTICAL ENGINEERING.2013
 - **Ultrast Mid-infrared Spectroscopy of the Charge- and Spin-Ordered Nickelate La_{1.75}Sr_{0.25}NiO₄** *18th International Conference on Ultrafast Phenomena*
Coslovich, G., Huber, B., Lee, W., Chuang, Y., Zhu, Y., Sasagawa, T., Hussain, Z., Bechtel, H. A., Martin, M. C., Schoenlein, R. W., Shen, Z., Kaindl, R. A.
E D P SCIENCES.2013
 - **Observation of Coherent Helimagnons and Gilbert Damping in an Itinerant Magnet** *PHYSICAL REVIEW LETTERS*
Koralek, J. D., Meier, D., Hinton, J. P., Bauer, A., Parameswaran, S. A., Vishwanath, A., Ramesh, R., Schoenlein, R. W., Pflleiderer, C., Orenstein, J.
2012; 109 (24): 247204
 - **Probing the Electronic Structure of a Photoexcited Solar Cell Dye with Transient X-ray Absorption Spectroscopy** *JOURNAL OF PHYSICAL CHEMISTRY LETTERS*
Van Kuiken, B. E., Huse, N., Cho, H., Strader, M. L., Lynch, M. S., Schoenlein, R. W., Khalil, M.
2012; 3 (12): 1695–1700
 - **Phase fluctuations and the absence of topological defects in a photo-excited charge-ordered nickelate** *NATURE COMMUNICATIONS*
Lee, W. S., Chuang, Y. D., Moore, R. G., Zhu, Y., Patthey, L., Trigo, M., Lu, D. H., Kirchmann, P. S., Krupin, O., Yi, M., Langner, M., Huse, N., ROBINSON, et al
2012; 3
 - **Ultrafast Dynamics of the Mid-infrared Pseudogap in Stripe-phase La_{1.75}Sr_{0.25}NiO₄**
Coslovich, G., Huber, B., Lee, W., Chuang, Y., Zhu, Y., Sasagawa, T., Hussain, Z., Bechtel, H. A., Martin, M. C., Schoenlein, R. W., Shen, Z., Kaindl, R. A., IEEE
IEEE.2012

- **Advances in Ultrafast Control and Probing of Correlated-Electron Materials** *IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS*
Wall, S., Rini, M., Dhesi, S. S., Schoenlein, R. W., Cavalleri, A.
2012; 18 (1): 81–91
- **Ligand-field symmetry effects in Fe(II) polypyridyl compounds probed by transient X-ray absorption spectroscopy** *FARADAY DISCUSSIONS*
Cho, H., Strader, M. L., Hong, K., Jamula, L., Gullikson, E. M., Kim, T., de Groot, F. M. F., McCusker, J. K., Schoenlein, R. W., Huse, N.
2012; 157: 463–74
- **Ferromagnetic Enhancement of CE-Type Spin Ordering in (Pr, Ca)MnO₃** *PHYSICAL REVIEW LETTERS*
Zhou, S. Y., Zhu, Y., Langner, M. C., Chuang, Y., Yu, P., Yang, W. L., Gonzalez, A., Tahir, N., Rini, M., Chu, Y., Ramesh, R., Lee, D., Tomioka, et al
2011; 106 (18): 186404
- **Femtosecond Soft X-ray Spectroscopy of Solvated Transition-Metal Complexes: Deciphering the Interplay of Electronic and Structural Dynamics** *JOURNAL OF PHYSICAL CHEMISTRY LETTERS*
Huse, N., Cho, H., Hong, K., Jamula, L., de Groot, F. M. F., Kim, T., McCusker, J. K., Schoenlein, R. W.
2011; 2 (8): 880–84
- **Photo-Induced Spin-State Conversion in Solvated Transition Metal Complexes Probed via Time-Resolved Soft X-ray Spectroscopy** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Huse, N., Kim, T., Jamula, L., McCusker, J. K., de Groot, F. M. F., Schoenlein, R. W.
2010; 132 (19): 6809–16
- **Ultrafast conversions between hydrogen bonded structures in liquid water observed by femtosecond x-ray spectroscopy** *JOURNAL OF CHEMICAL PHYSICS*
Wen, H., Huse, N., Schoenlein, R. W., Lindenberg, A. M.
2009; 131 (23)
- **Transient electronic structure of the photoinduced phase of Pr_{0.7}Ca_{0.3}MnO₃ probed with soft x-ray pulses** *PHYSICAL REVIEW B*
Rini, M., Zhu, Y., Wall, S., Tobey, R. I., Ehrke, H., Garl, T., Freeland, J. W., Tomioka, Y., Tokura, Y., Cavalleri, A., Schoenlein, R. W.
2009; 80 (15)
- **Probing the hydrogen-bond network of water via time-resolved soft X-ray spectroscopy** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
Huse, N., Wen, H., Nordlund, D., Szilagyi, E., Daranciang, D., Miller, T. A., Nilsson, A., Schoenlein, R. W., Lindenberg, A. M.
2009; 11 (20): 3951-3957
- **Time-resolved Studies of Phase Transition Dynamics in Strongly Correlated Manganites**
Rini, M., Tobey, R., Dean, N., Wall, S., Ehrke, H., Zhu, Y., Tomioka, Y., Tokura, Y., Schoenlein, R. W., Cavalleri, A.
edited by Tanaka, K., Ogawa, T., Hashimoto, H., Koshihara, S.
IOP PUBLISHING LTD.2009
- **Probing Reaction Dynamics of Transition-Metal Complexes in Solution via Time-Resolved X-ray Spectroscopy**
Huse, N., Khalil, M., Kim, T., Smeigh, A. L., Jamula, L., McCusker, J. K., Schoenlein, R. W.
edited by Tanaka, K., Ogawa, T., Hashimoto, H., Koshihara, S.
IOP PUBLISHING LTD.2009
- **Optical switching in VO₂ films by below-gap excitation** *APPLIED PHYSICS LETTERS*
Rini, M., Hao, Z., Schoenlein, R. W., Giannetti, C., Parmigiani, F., Fourmaux, S., Kieffer, J. C., Fujimori, A., Onoda, M., Wall, S., Cavalleri, A.
2008; 92 (18)
- **Ultrafast Phase-Transition Induced by Selective Vibrational Excitation in a Magnetoresistive Manganite**
Rini, M., Tobey, R., Wall, S., Dean, N., Itatani, J., Tomioka, Y., Tokura, Y., Schoenlein, R. W., Cavalleri, A., IEEE
IEEE.2008: 3321-+
- **Control of the electronic phase of a manganite by mode-selective vibrational excitation** *NATURE*
Rini, M., Tobey, R., Dean, N., Itatani, J., Tomioka, Y., Tokura, Y., Schoenlein, R. W., Cavalleri, A.
2007; 449 (7158): 72-74
- **Coherent orbital waves in the photo-induced insulator-metal dynamics of a magnetoresistive manganite** *NATURE MATERIALS*

Polli, D., Rini, M., Wall, S., Schoenlein, R. W., Tomioka, Y., Tokura, Y., Cerullo, G., Cavalleri, A.
2007; 6 (9): 643-647

- **Successful completion of the femtosecond slicing upgrade at the ALS**
Steier, C., Heimann, P., Marks, S., Robin, D., Schoenlein, R., Wan, W., Wittmer, W., IEEE
IEEE.2007: 3393-3395
- **A high-average power femtosecond laser for synchrotron light source applications**
Wilcox, R. B., Schoenlein, R. W.
edited by Hoffman, H. J., Shori, R. K., Hodgson, N.
SPIE-INT SOC OPTICAL ENGINEERING.2007
- **Laser seeding of the storage-ring microbunching instability for high-power coherent terahertz radiation** *PHYSICAL REVIEW LETTERS*
Byrd, J. M., Hao, Z., Martin, M. C., Robin, D. S., Sannibale, F., Schoenlein, R. W., Zholents, A. A., Zolotorev, M. S.
2006; 97 (7): 074802
- **Tracking the motion of charges in a terahertz light field by femtosecond X-ray diffraction** *NATURE*
Cavalleri, A., Wall, S., Simpson, C., Statz, E., Ward, D. W., Nelson, K. A., Rini, M., Schoenlein, R. W.
2006; 442 (7103): 664-666
- **Picosecond X-ray absorption spectroscopy of a photoinduced iron(II) spin crossover reaction in solution** *JOURNAL OF PHYSICAL CHEMISTRY A*
Khalil, M., Marcus, M. A., Smeigh, A. L., McCusker, J. K., Chong, H. H., Schoenlein, R. W.
2006; 110 (1): 38-44
- **Ultra-broadband femtosecond measurements of the photo-induced phase transition in VO₂: From the mid-IR to the hard x-rays** *JOURNAL OF THE PHYSICAL SOCIETY OF JAPAN*
Cavalleri, A., Rini, M., Schoenlein, R. W.
2006; 75 (1)
- **Band-selective measurements of electron dynamics in VO₂ using femtosecond near-edge x-ray absorption** *PHYSICAL REVIEW LETTERS*
Cavalleri, A., Rini, M., Chong, H. H., Fourmaux, S., Glover, T. E., Heimann, P. A., Kieffer, J. C., Schoenlein, R. W.
2005; 95 (6): 067405
- **Photoinduced phase transition in VO₂ nanocrystals: ultrafast control of surface-plasmon resonance** *OPTICS LETTERS*
Rini, M., Cavalleri, A., Schoenlein, R. W., Lopez, R., Feldman, L. C., Haglund, R. F., Boatner, L. A., Haynes, T. E.
2005; 30 (5): 558-560
- **Tailored terahertz pulses from a laser-modulated electron beam**
Martin, M. C., Byrd, J., Hao, Z., Robin, D., Sannibale, F., Schoenlein, R. W., Zholents, A., Zolotorev, M., IEEE
IEEE.2005: 489-490
- **Evidence for a structurally-driven insulator-to-metal transition in VO₂: A view from the ultrafast timescale** *PHYSICAL REVIEW B*
Cavalleri, A., Dekorsy, T., Chong, H. H., Kieffer, J. C., Schoenlein, R. W.
2004; 70 (16)
- **Picosecond soft x-ray absorption measurement of the photoinduced insulator-to-metal transition in VO₂** *PHYSICAL REVIEW B*
Cavalleri, A., Chong, H. H., Fourmaux, S., Glover, T. E., Heimann, P. A., Kieffer, J. C., Mun, B. S., Padmore, H. A., Schoenlein, R. W.
2004; 69 (15)
- **A setup for ultrafast time-resolved x-ray absorption spectroscopy** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Saes, M., Bressler, C., van Mourik, F., Gawelda, W., Kaiser, M., Chergui, M., Bressler, C., Grolimund, D., Abela, R., Glover, T. E., Heimann, P. A., Schoenlein, R. W., Johnson, et al
2004; 75 (1): 24-30
- **Femtosecond X-rays and structural dynamics in condensed matter** *ULTRAFAST DYNAMICAL PROCESSES IN SEMICONDUCTORS*
Cavalleri, A., Schoenlein, R. W.
2004; 92: 309-337
- **LUX - A recirculating Linac-based ultrafast x-ray source**

- Corlett, J. N., Barletta, W. A., DeSantis, S., Doolittle, L., Fawley, W. M., Green, M. A., Heimann, P., Leone, Lidia, S., Li, D., Parmigiani, F., Ratti, A., Robinson, K., et al
edited by Warwick, T., Arthur, J., Padmore, H. A., Stohr, J.
AMER INST PHYSICS.2004: 121-124
- **ALS Beamline 6.0 for ultrafast X-ray absorption spectroscopy**
Heimann, P. A., Padmore, H. A., Schoenlein, R. W.
edited by Warwick, T., Arthur, J., Padmore, H. A., Stohr, J.
AMER INST PHYSICS.2004: 1407-1410
 - **Generation of femtosecond synchrotron pulses: Performance and characterization**
Schoenlein, R. W., Cavalleri, A., Chong, H. H., Glover, T. E., Heimann, P. A., Zholents, A. A., Zolotarev, M. S.
edited by Warwick, T., Arthur, J., Padmore, H. A., Stohr, J.
AMER INST PHYSICS.2004: 1403-1406
 - **LUX: A design study for a linac-/laser-based ultrafast x-ray source**
Corlett, J. N., Barletta, W. A., DeSantis, S., Doolittle, L., Fawley, W. M., Heimann, P., Leone, S., Lidia, S., Li, D., Penn, G., Ratti, A., Reinsch, M., Schoenlein, et al
edited by Biedron, S. G., Eberhardt, W., Ishikawa, T., Tatchyn, R. O.
SPIE-INT SOC OPTICAL ENGINEERING.2004: 1-12
 - **Metal-insulator transitions in an expanding metallic fluid: Particle formation kinetics** *PHYSICAL REVIEW LETTERS*
Glover, T. E., Ackerman, G. D., Belkacem, A., Heimann, P. A., Hussain, Z., Lee, R. W., Padmore, H. A., Ray, C., Schoenlein, R. W., Steele, W. F., Young, D. A.
2003; 90 (23): 236102
 - **Core-level photoemission spectroscopy: Kinetics of cluster formation during femtosecond laser ablation.**
Glover, E., Ackerman, G., Schoenlein, R.
AMER CHEMICAL SOC.2003: U438
 - **Development of a longitudinal density monitor for storage rings**
Zolotarev, M., Beche, J. F., Byrd, J., Datte, P., De Santis, S., Denes, P., Placidi, M., Ratti, A., Riot, Schoenlein, R., Turner, W.
edited by Chew, J., Lucas, P., Webber, S.
IEEE.2003: 2530-2532
 - **A recirculating linac-based facility for ultrafast x-ray science**
Corlett, J. N., Barletta, W. A., DeSantis, S., Doolittle, L., Fawley, W. M., Green, M. A., Heimann, P., Leone, S., Lidia, S., Li, D., Ratti, A., Robinson, K., Schoenlein, et al
edited by Chew, J., Lucas, P., Webber, S.
IEEE.2003: 186-188
 - **Techniques for synchronization of x-ray pulses to the pump laser in an ultrafast x-ray facility**
Corlett, J. N., Doolittle, L., Schoenlein, R., Staples, J., Wilcox, R., Zholents, A.
edited by Chew, J., Lucas, P., Webber, S.
IEEE.2003: 2408-2410
 - **Observation of a nearly isotropic, high-energy Coulomb explosion group in the fragmentation of D-2 by short laser pulses** *PHYSICAL REVIEW A*
Staudte, A., Cocke, C. L., Prior, A. H., Belkacem, A., Ray, C., Chong, H. W., Glover, T. E., Schoenlein, R. W., Saalman, U.
2002; 65 (2)
 - **Femtosecond X-rays from relativistic electrons: new tools for probing structural dynamics** *COMPTES RENDUS DE L ACADEMIE DES SCIENCES SERIE IV PHYSIQUE ASTROPHYSIQUE*
Schoenlein, R. W., Chong, H. H., Glover, T. E., Heimann, P. A., Leemans, W. P., Padmore, H. A., Shank, C. V., Zholents, A. A., Zolotarev, M. S., Corlett, J. S.
2001; 2 (10): 1373-1388
 - **Ultrafast X-ray diffraction of laser-irradiated crystals** *7th International Conference on Synchrotron Radiation Instrumentation (SRI 2000)*
Heimann, P. A., Lindenberg, A. M., Kang, I., JOHNSON, S., Missalla, T., Chang, Z., Falcone, R. W., Schoenlein, R. W., Glover, T. E., Padmore, H. A.
ELSEVIER SCIENCE BV.2001: 986-989

- **Measurement of synchrotron pulse durations using surface photovoltage transients**
Glover, T. E., Ackermann, G. D., Belkacem, A., Feinberg, B., Heimann, P. A., Hussain, Z., Padmore, H. A., Ray, C., Schoenlein, R. W., Steele, W. F.
ELSEVIER SCIENCE BV.2001: 1438-1440
- **High-order harmonic pulse broadening in an ionizing medium** *PHYSICAL REVIEW A*
Glover, T. E., Chin, A. H., Schoenlein, R. W.
2001; 63 (2)
- **Generation and application of femtosecond X-rays from a synchrotron**
Schoenlein, R. W., Chong, H. H., Glover, T. E., Heimann, P. A., Shank, C. V., Zholents, A. A., Zolotorev, M. S., IEEE, IEEE
IEEE.2001: 527-528
- **Generation of femtosecond X-ray pulses via laser-electron beam interaction** *APPLIED PHYSICS B-LASERS AND OPTICS*
Schoenlein, R. W., Chattopadhyay, S., Chong, H. H., Glover, T. E., Heimann, P. A., Leemans, W. P., Shank, C. V., Zholents, A., Zolotorev, M.
2000; 71 (1): 1-10
- **Femtosecond X-ray generation through relativistic electron beam-laser interaction** *COMPTEs RENDUS DE L ACADEMIE DES SCIENCES SERIE IV PHYSIQUE ASTROPHYSIQUE*
Leemans, W., Chattopadhyay, S., Esarey, E., Zholents, A., Zolotorev, M., Chin, A., Schoenlein, R., Shank, C. V.
2000; 1 (3): 279-296
- **Generation of femtosecond pulses of synchrotron radiation** *SCIENCE*
Schoenlein, R. W., Chattopadhyay, S., Chong, H. H., Glover, T. E., Heimann, P. A., Shank, C. V., Zholents, A. A., Zolotorev, M. S.
2000; 287 (5461): 2237-2240
- **Time-resolved x-ray photoabsorption and diffraction on timescales from ns to fs** *18th International Conference on X-ray and Inner-Shell Processes*
Heimann, P. A., Missalla, T., Lindenberg, A., Kang, I., JOHNSON, S., Chang, Z., Kapteyn, H. C., Lee, R. W., Falcone, R. W., Schoenlein, R. W., Glover, T. E., Zholents, A. A., Zolotorev, et al
AMER INST PHYSICS.2000: 664-668
- **Ultrafast structural dynamics in InSb probed by time-resolved X-ray diffraction**
Chin, A. H., Schoenlein, R. W., Glover, T. E., Balling, P., Leemans, W. P., Shank, C. V.
edited by Elsaesser, T., Fujimoto, J. G., Wiersma, D. A., Zinth, W.
SPRINGER-VERLAG BERLIN.1998: 401-403
- **Laser based sub-picosecond electron bunch characterization using 90 degrees Thomson scattering**
Leemans, W. P., Volfbeyn, P., Zolotorev, M., Kim, K. J., Chattopadhyay, S., Schoenlein, R. W., Chin, A. H., Glover, T. E., Balling, P., Shank, C. V.
edited by Comyn, M., Craddock, M. K., Reiser, M., Thomson, J.
IEEE.1998: 1984-1986
- **Interaction of relativistic electrons with ultrashort laser pulses: Generation of femtosecond X-rays and microprobing of electron beams** *IEEE JOURNAL OF QUANTUM ELECTRONICS*
Leemans, W. P., Schoenlein, R. W., Volfbeyn, P., Chin, A. H., Glover, T. E., Balling, P., Zolotorev, M., Kim, K. J., Chattopadhyay, S., Shank, C. V.
1997; 33 (11): 1925-1934
- **X-ray based subpicosecond electron bunch characterization using 90 degrees Thomson scattering** *PHYSICAL REVIEW LETTERS*
Leemans, W. P., Schoenlein, R. W., Volfbeyn, P., Chin, A. H., Glover, T. E., Balling, P., Zolotorev, M., Kim, K. J., Chattopadhyay, S., Shank, C. V.
1996; 77 (20): 4182-4185
- **Femtosecond spectroscopy of a 13-demethylrhodopsin visual pigment analogue: The role of nonbonded interactions in the isomerization process** *JOURNAL OF PHYSICAL CHEMISTRY*
Wang, Q., Kochendoerfer, G. G., Schoenlein, R. W., Verdegem, P. J., Lugtenburg, J., Mathies, R. A., Shank, C. V.
1996; 100 (43): 17388-17394
- **Femtosecond x-ray pulses at 0.4 angstrom generated by 90 degrees Thomson scattering: A tool for probing the structural dynamics of materials** *SCIENCE*
Schoenlein, R. W., Leemans, W. P., Chin, A. H., Volfbeyn, P., Glover, T. E., Balling, P., Zolotorev, M., Kim, K. J., Chattopadhyay, S., Shank, C. V.
1996; 274 (5285): 236-238

- **Observation of laser assisted photoelectric effect and femtosecond high order harmonic radiation** *PHYSICAL REVIEW LETTERS*
Glover, T. E., Schoenlein, R. W., Chin, A. H., Shank, C. V.
1996; 76 (14): 2468-2471
- **RHODOPSIN PHOTOCHEMISTRY IS VIBRATIONALLY COHERENT**
MATHIES, R. A., WANG, Q., PETEANU, L. A., SCHOENLEIN, R. W., KOCHENDOERFER, G., SHANK, C. V.
AMER CHEMICAL SOC.1995: 42-PHYS
- **THE 1ST STEP IN VISION DRIVEN BY A NONBONDED STERIC INTERACTION**
WANG, Q., KOCHENDOERFER, G. G., VERDEGEM, P. J., LUGTENBURG, J., MATHIES, R. A., SCHOENLEIN, R. W., SHANK, C. V.
AMER CHEMICAL SOC.1995: 67-PHYS
- **Femtosecond X-ray generation through 90 degrees Thomson scattering: Status of the LBL experiment**
LEEMANS, W., SCHOENLEIN, R., CHIN, A., GLOVER, E., CONDE, M., CHATTOPADHYAY, S., KIM, K. J., SHANK, C. V.
edited by Schoessow, P.
AIP PRESS.1995: 209-223
- **VIBRATIONALLY COHERENT PHOTOCHEMISTRY IN THE FEMTOSECOND PRIMARY EVENT OF VISION** *SCIENCE*
WANG, Q., SCHOENLEIN, R. W., PETEANU, L. A., MATHIES, R. A., SHANK, C. V.
1994; 266 (5184): 422-424
- **FEMTOSECOND VIBRATIONALLY COHERENT PHOTOCHEMISTRY IN RHODOPSIN**
SHANK, C. V., QUING, W., SCHOENLEIN, R. W., PETEANU, L. A., ROSENTHAL, S. J., MATHIES, R. W.
AMER CHEMICAL SOC.1994: 14-PHYS
- **QUANTUM-SIZE DEPENDENCE OF FEMTOSECOND ELECTRONIC DEPHASING AND VIBRATIONAL DYNAMICS IN CDSE NANOCRYSTALS** *PHYSICAL REVIEW B*
MITTLEMAN, D. M., SCHOENLEIN, R. W., SHIANG, J. J., COLVIN, V. L., ALIVISATOS, A. P., SHANK, C. V.
1994; 49 (20): 14435-14447
- **THE 1ST STEP IN VISION OCCURS IN FEMTOSECONDS - COMPLETE BLUE AND RED SPECTRAL STUDIES** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
PETEANU, L. A., SCHOENLEIN, R. W., WANG, Q., MATHIES, R. A., SHANK, C. V.
1993; 90 (24): 11762-11766
- **FEMTOSECOND DYNAMICS OF CIS-TRANS ISOMERIZATION IN A VISUAL PIGMENT ANALOG - ISORHODOPSIN** *JOURNAL OF PHYSICAL CHEMISTRY*
SCHOENLEIN, R. W., PETEANU, L. A., WANG, Q., MATHIES, R. A., SHANK, C. V.
1993; 97 (46): 12087-12092
- **INVESTIGATION OF FEMTOSECOND ELECTRONIC DEPHASING IN CDSE NANOCRYSTALS USING QUANTUM-BEAT-SUPPRESSED PHOTON-ECHOES** *PHYSICAL REVIEW LETTERS*
SCHOENLEIN, R. W., MITTLEMAN, D. M., SHIANG, J. J., ALIVISATOS, A. P., SHANK, C. V.
1993; 70 (7): 1014-1017
- **FEMTOSECOND DYNAMICS OF THE CIS-TRANS-ISOMERIZATION IN RHODOPSIN - THE 1ST STEP IN VISION**
WANG, Q., SCHOENLEIN, R. W., PETEANU, L. A., MATHIES, R. A., SHANK, C. V.
BIOPHYSICAL SOCIETY.1993: A127
- **ULTRAFAST DYNAMICS OF PHOTOEXCITED C(60)**
DEXHEIMER, S. L., MITTLEMAN, D. M., SCHOENLEIN, R. W., VAREKA, W. A., XIANG, X. D., ZETTL, A., SHANK, C. V.
edited by Gosnell, T. R., Taylor, A. J., Nelson, K. A., Downer, M. C.
SPIE - INT SOC OPTICAL ENGINEERING.1993: 328-332
- **GENERATION OF 312-NM, FEMTOSECOND PULSES USING A POLED COPOLYMER FILM** *IEEE JOURNAL OF QUANTUM ELECTRONICS*
YANKELEVICH, D. R., DIENES, A., KNOESEN, A., SCHOENLEIN, R. W., SHANK, C. V.
1992; 28 (10): 2398-2403
- **K-SPACE CARRIER DYNAMICS IN GAAS** *APPLIED PHYSICS LETTERS*
PORTELLA, M. T., BIGOT, J. Y., SCHOENLEIN, R. W., CUNNINGHAM, J. E., SHANK, C. V.

1992; 60 (17): 2123-2125

● **FEMTOSECOND PHOTOISOMERIZATION OF RHODOPSIN AS THE PRIMARY EVENT IN VISION**

SCHOENLEIN, R. W., SHANK, C. V., PETEANU, L. A., MATHIES, R. A.

edited by LAUBEREAU, A., SEILMEIER, A.

IOP PUBLISHING LTD.1992: 583-588

● **THE 1ST STEP IN VISION - FEMTOSECOND ISOMERIZATION OF RHODOPSIN** *SCIENCE*

SCHOENLEIN, R. W., PETEANU, L. A., MATHIES, R. A., SHANK, C. V.

1991; 254 (5030): 412-415

● **2-DIMENSIONAL CARRIER-CARRIER SCREENING IN A QUANTUM-WELL** *PHYSICAL REVIEW LETTERS*

BIGOT, J. Y., PORTELLA, M. T., SCHOENLEIN, R. W., CUNNINGHAM, J. E., SHANK, C. V.

1991; 67 (5): 636-639

● **NON-MARKOVIAN DEPHASING OF MOLECULES IN SOLUTION MEASURED WITH 3-PULSE FEMTOSECOND PHOTON-ECHOES** *PHYSICAL REVIEW LETTERS*

BIGOT, J. Y., PORTELLA, M. T., SCHOENLEIN, R. W., BARDEEN, C. J., MIGUS, A., SHANK, C. V.

1991; 66 (9): 1138-1141

● **GENERATION OF BLUE-GREEN 10 FS PULSES USING AN EXCIMER PUMPED DYE AMPLIFIER** *APPLIED PHYSICS LETTERS*

SCHOENLEIN, R. W., BIGOT, J. Y., PORTELLA, M. T., SHANK, C. V.

1991; 58 (8): 801-803

● **FEMTOSECOND RELAXATION DYNAMICS OF IMAGE-POTENTIAL STATES** *PHYSICAL REVIEW B*

SCHOENLEIN, R. W., FUJIMOTO, J. G., EESLEY, G. L., CAPEHART, T. W.

1991; 43 (6): 4688-4698

● **RESONANT INTERVALLEY SCATTERING IN GAAS** *PHYSICAL REVIEW LETTERS*

BIGOT, J. Y., PORTELLA, M. T., SCHOENLEIN, R. W., CUNNINGHAM, J. E., SHANK, C. V.

1990; 65 (27): 3429-3432

● **FEMTOSECOND EXCITED-STATE DYNAMICS OF POLYDIACETYLENE** *APPLIED PHYSICS LETTERS*

HUXLEY, J. M., MATALONI, P., SCHOENLEIN, R. W., FUJIMOTO, J. G., IPPEN, E. P., CARTER, G. M.

1990; 56 (16): 1600-1602

● **FEMTOSECOND DYNAMICS OF THE N = 2 IMAGE-POTENTIAL STATE ON AG(100)** *PHYSICAL REVIEW B*

SCHOENLEIN, R. W., FUJIMOTO, J. G., EESLEY, G. L., CAPEHART, T. W.

1990; 41 (8): 5436-5439

● **AMPLIFICATION OF FEMTOSECOND PULSES IN TI-AL2O3 USING AN INJECTION-SEEDED LASER** *OPTICS LETTERS*

LAGASSE, M. J., SCHOENLEIN, R. W., FUJIMOTO, J. G., SCHULZ, P. A.

1989; 14 (24): 1347-1349

● **FEMTOSECOND STUDIES OF INTERVALLEY SCATTERING IN GAAS AND ALXGA1-XAS**

BAILEY, D. W., STANTON, C. J., HESS, K., LAGASSE, M. J., SCHOENLEIN, R. W., FUJIMOTO, J. G.

PERGAMON-ELSEVIER SCIENCE LTD.1989: 1491-1495

● **CORNEAL ABLATION BY NANOSECOND, PICOSECOND, AND FEMTOSECOND LASERS AT 532 AND 625 NM** *ARCHIVES OF OPHTHALMOLOGY*

STERN, D., SCHOENLEIN, R. W., PULIAFITO, C. A., DOBI, E. T., BIRNGRUBER, R., FUJIMOTO, J. G.

1989; 107 (4): 587-592

● **FEMTOSECOND STUDIES OF IMAGE-POTENTIAL DYNAMICS IN METALS** *PHYSICAL REVIEW LETTERS*

SCHOENLEIN, R. W., FUJIMOTO, J. G., EESLEY, G. L., CAPEHART, T. W.

1988; 61 (22): 2596-2599

● **FEMTOSECOND HOT CARRIER ENERGY REDISTRIBUTION IN GAAS AND ALGAAS** *SOLID-STATE ELECTRONICS*

SCHOENLEIN, R. W., LIN, W. Z., BRORSON, S. D., IPPEN, E. P., FUJIMOTO, J. G.

1988; 31 (3-4): 443-446

- **FEMTOSECOND ABSORPTION SATURATION STUDIES OF HOT CARRIERS IN GAAS AND ALGAAS** *IEEE JOURNAL OF QUANTUM ELECTRONICS*
LIN, W. Z., SCHOENLEIN, R. W., FUJIMOTO, J. G., IPPEN, E. P.
1988; 24 (2): 267-275
- **FEMTOSECOND HOT-CARRIER ENERGY RELAXATION IN GAAS** *APPLIED PHYSICS LETTERS*
SCHOENLEIN, R. W., LIN, W. Z., IPPEN, E. P., FUJIMOTO, J. G.
1987; 51 (18): 1442-1444
- **FEMTOSECOND LASER TISSUE INTERACTIONS - RETINAL INJURY STUDIES** *IEEE JOURNAL OF QUANTUM ELECTRONICS*
BIRNGRUBER, R., PULIAFITO, C. A., GAWANDE, A., LIN, W. Z., SCHOENLEIN, R. W., FUJIMOTO, J. G.
1987; 23 (10): 1836-1844
- **FEMTOSECOND STUDIES OF NONEQUILIBRIUM ELECTRONIC PROCESSES IN METALS** *PHYSICAL REVIEW LETTERS*
SCHOENLEIN, R. W., LIN, W. Z., FUJIMOTO, J. G., EESLEY, G. L.
1987; 58 (16): 1680-1683