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Mark I. Stockman, Professor of Physics, PhD, DSc

American Physical Society (APS), Fellow
Optical Society of America (OSA), Fellow

An updated CV with hyperlinks to the related materials is available on line at http://www.phy-astr.gsu.edu/stockman/

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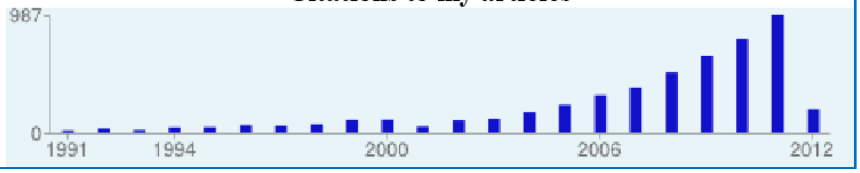

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1. Personal

- Born: Kharkov (Ukraine, former USSR)
- US citizen
- Phone (Worldwide): +1-678-457-4739

2. Brief Narrative

Mark I. Stockman, Ph. D., D. Sc., is a Professor of Physics at Georgia State University at Atlanta, GA.

Personal: Born in Kharkov (Ukraine), US citizen. MS (Honors) in Theoretical Physics from Novosibirsk State University (Russia), 1970. Diploma in Physics (with Honors) and MS in Physics from Novosibirsk State University, Russia, 1970. Ph. D. in Theoretical Physics from Institute of Nuclear Physics (Novosibirsk), Russian Academy of Sciences, 1975. D.Sc. in Theoretical and Optical Physics from Institute of Automation and Electrometry (Novosibirsk), Russian Academy of Sciences, 1989. Recent research focuses on electronic and optical properties of plasmonic metal and metal-semiconductor nanostructures. Published close to 170 major research articles. **American Physical Society (APS), Fellow; Optical Society of America (OSA), Fellow.**

Invited/Keynote Talks and Lectures: Presented numerous plenary, keynote and invited talks and lectures at major Conferences in the field of optics and nanoplasmonics. Chairman of SPIE *Metal Nanoplasmonics* Conference 2005-2011 at San Diego (CA), co-Chair of OSA Nanoplasmonics and Metamaterials Conference (META) 2008 and 2010. Presented invited lecturers at various international scientific schools, including *International Winter College on Nanophotonics* (2005; the next lecture course is scheduled in 2012) at the Abdus Salam International Center for Theoretical Physics at Trieste, Italy, *Erasmus Mundus School*, Porquerolles Islands (France, 2008), International Summer School *New Frontiers in Optical Technologies*, Tampere University of Technology (2008 and 2009, Tampere, Finland), APS March Meeting 2009, Korean Nanooptics Society Winter Workshop (2007-2010), Instrument Technology Research Center (ITRC), Hsinchu, Taiwan (2009), IEEE International Conference COMCAS 2009, Tel Aviv, Israel (2009), International Summer School *Dissipation at Surfaces*, University of Duisburg-Essen, Germany (2009), the International Conference on Micro/Nano Optical Engineering (ICOME) at Changchun, China (2011), Zhong-Guan-Cun Forum on Condensed Matter Physics – the 232th Lecture at Beijing Institute of Physics, Chinese Academy of Sciences, Beijing, 2011.

Taught short courses *Nanoplasmonics* at 2005-2012 SPIE *Photonics West* Meetings and 2005-2011 SPIE *Optics and Photonics* Meetings, ETOPIM International Conference at Sidney (Australia); Ecole Normale Supérieure de Cachan (France) (2006); University of Stuttgart (2008), Max Planck Institute for Quantum Optics (Garching at Munich, Germany, 2009), Enrico Fermi School at Varenna (Italy) 2010, Ettore Majorana International School at Erice, Sicily 2008 and 2011, Abdus Salam International Center for Theoretical Physics(ITCP) (Trieste, Italy), 2005 and 2012.

Visiting Positions: Distinguished Visiting Professor at Ecole Normale Supérieure de Cachan (France) (March, 2006 and July, 2008); Invited Professor at Ecole Supérieure de Physique et de Chimie Industrielle, Paris, France, May-June, 2008; Guest Professor at the University of Stuttgart (September-November, 2008), Guest Professor at Ludwig Maximilian University (Munich, Germany) and Max Plank Institute for Quantum Optics (Garching at Munich, Germany) at the Munich Advanced Photonics (MAP) Center of Excellence, and Center for Advanced Studies at Ludwig Maximilian University (Munich, Germany), 2008-2009.

Expertise: Nanoplasmonics and nanooptics, physical optics, theoretical condensed matter and optical physics, and strong field and ultrafast optics and nanoplasmonics.

Major Scientific Results:

Mark I. Stockman is a pioneer of nanoplasmonics publishing his first results in this area in 1988, setting the foundations of the field and later having obtained groundbreaking results in it. His pioneering research in this area began with the introduction of the giant optical enhancement in fractal nanoclusters of plasmonic metals. He was one of the co-authors in a fundamental paper (1992) that correctly predicted the spectrum of surface enhanced Raman scattering (SERS) with a dramatic enhancement in the red/near-ir spectral region, which was instrumental in the discovery by K. Kneipp et al. (1999) of the single-molecule SERS, as acknowledged by the corresponding reference. Today SERS is a thriving field with many new phenomena and applications.

In 1995-1996 he introduced localization of plasmonic eigenmodes and such universally accepted phenomenon as *plasmonic near-field hot spots*. This direction of research was further developed when in 2001 he in collaboration with David Bergman showed that dark and bright plasmonic eigenmodes co-exist. He also showed that strongly-localized eigenmodes are necessarily dark. Thus it was established that the Anderson localization of surface

plasmons does not play a role in far-field optics of nanoplasmonic systems but is very important and can be observed with near-field excitation, which is another fundamental result. These results form the fundamental basis of the contemporary nanoplasmonics.

Starting from 2000, Mark Stockman published a series of pioneering results that, to a significant degree, determined the modern development of the field of nanooptics and nanoplasmonics. In 2000 he pioneered the field of ultrafast nanoplasmonics with his Phys. Rev. Lett. article predicting the giant ultrafast fluctuations (the "*Ninth Wave Effect"*) of the nanoplasmonic local fields. In 2003 he with co-authors introduced *coherent control of ultrafast localization on the nanoscale* , another milestone of the ultrafast nanoplasmonics. This development allowed for a very accurate control of optical energy with a nanometer resolution in space and with the femtosecond precision in time. This breakthrough work has initiated a significant field of scientific research; in particular it has stimulated Focus Program *"Ultrafast Nanooptics"* of German Science Foundation (2009).

In 2003, Mark Stockman in collaboration with David Bergman set foundation of quantum nanoplasmonics with a seminal phys. Rev. Lett. article introducing *Surface Plasmon Amplification by Stimulated Emission of Radiation (SPASER),* published in Phys. Rev. Lett. Simultaneously, they filed a patent application for SPASER; a *US patent No. 7,569,188* for SPASER was issued to them in 2009. The SPASER is a nanoscale quantum generator of local plasmonic fields, which are intense and ultrafast. The SPASER is also a quantum amplifier: it is about the same size and with similar gain as the most common and most important microelectronic active element, MOSFET (metal-oxide-semiconductor field effect transistor). Importantly, the SPASER is approximately 1000 times faster than the MOSFET The SPASER is the previously "missing" active element of nanoplasmonics that possesses a potential to become the basis of active nanoplasmonic technologies. It will be possible to build ultrafast processors of information with SPASERs replacing MOSFETs. The SPASERs can also be used in nanosensing, nanoimaging, and nanolithography, and many other fields. Since initial introduction of SPASER, Stockman was followed by many research groups from all over the world in developing the SPASER both theoretically and experimentally. Recently there has been experimental confirmation and observation of SPASER jointly by three groups published in *Nature*. An extensive wave of publications on the SPASER and related nanolasers has followed. The SPASER will potentially have a revolutionary effect on nanoplasmonics and generally on nanotechnologies. Also, reports and comments on the SPASER and nanolasers have been published in Nature, Optics Express, et al. citing SPASER as an original idea.

In 2004, Mark Stockman published two seminal results introducing *adiabatic concentration of optical energy on nanoscale* in plasmonic tapers and efficient *nanolenses of nanoparticle aggregates*. Both these works enjoyed wide experimental and theoretical following, accumulating hundreds references.

He is continuing to work very actively. In 2007, he pioneered attosecond nanoplasmonics and *attosecond nanoplasmonic-field microscopy* [in collaboration with a team from Max Plank Institute for Quantum Optics (MPQ, Garching, Germany) and Ludwig Maximilian University (LMU, Munich, Germany)]. Among recent novel results are plasmonic renormalization of Coulomb interactions (2008), time-reversal coherent control on the nanoscale (2008), nanoconcentration of terahertz radiation (2008), Giant Plasmon-Induced Drag Effect Rectification (SPIDER) (2009), SPASER as a bistable (logical) nanoamplifier (2010), and coherent control of third harmonic generation in photonic-plasmonic systems [in collaboration with University of Stuttgart, Germany (2010)].

In 2010 he with his collaborators introduced a novel concept of adiabatic metallization of dielectrics in strong fields. In 2011, this concept has been developed by him and the same collaborators to predict the dynamic ultrafast metallization of dielectrics. This development of the ultrafast/ultrastrong-field condensed-matter optical physics is promising to become a foundation of the new solid state technology of information processing that is three orders of magnitude faster than the existing technologies.

2. Education

- D. Sci. in Physics, Institute of Automation and Electrometry, Russian Academy of Sciences, Novosibirsk, Russia, 1979-1989. (This degree is much higher than the Ph.D. It typically requires 15 to 20 years of successful research and publication of at least 50 papers in refereed journals. It is awarded to less than 1% of active Ph.D. scientists. A counterpart in Germany is Habilitation)
- Ph.D. in Physics, Institute of Nuclear Physics, Russian Academy of Sciences, Novosibirsk, Russia, 1971-1974. Graduate adviser: Prof. S. T. Belyaev, member of the Russian Academy of Sciences. (Belyaev's major accomplishments: Belyaev's technique for interacting Bose systems; theory of nucleon superconductivity and collective excitations in nuclei.)

- Diploma in Physics and MS in Theoretical Physics (with Honors), University of Novosibirsk, Novosibirsk, Russia, 1970

3. Research and Academic Positions

- Professor of Physics, Department of Physics and Astronomy, Georgia State University, 1996-Present.
- Guest Professor at Max Plank Institute for Quantum Optics (MPQ) (Garching, Germany), Ludwig Maximilian University (LMU) (Munich, Germany) at the Munich Advanced Photonics (MAP) Center and Center for Advanced Studies (CAS) at LMU, December 2008 – August 2009.
- Guest Professor of Physics, University of Stuttgart, Germany, September-November 2008.
- Distinguished Invited Professor of Physics, l'Ecole Normale Supérieure de Cachan (France), July 2008
- Invited Professor, l'Ecole Supérieure de Physique et de Chimie Industrielles de la ville de Paris (France), June 2008.
- Max Planck Award Recipient, Max Plank Institute for Quantum Optics, Garching at Munich (Germany), January-February 2007.
- Invited Professor of Physics, Ecole Normale Supérieure de Cachan (France), January 2006
- Visiting Professor of Physics, Washington State University, 1991-1996
- Visiting Scientist, State University of New York at Buffalo, 1990-91
- Senior Research Scientist, Institute of Automation and Electrical Measurements, Russian Academy of Sciences, 1980-89
- Research Scientist, Institute of Automation, Russian Academy of Sciences, 1975-80
- Research Scientist, Institute of Nuclear Physics, Russian Academy of Sciences, Novosibirsk, Russia, 1974-75
- Instructor (part-time), University of Novosibirsk, 1970-75
- Research Associate, Institute of Nuclear Physics, Russian Academy of Sciences, Novosibirsk, Russia, 1970-74.

4. Research

Theoretical Nanoplasmonics and Nanooptics

The study includes theory of nanoplasmonics, electronic, optical (especially, nonlinear optical and ultrafast optical) properties of nanostructured and nanoscale systems. The study invokes advanced analytical methods and large-scale computer modeling.

This research is supported by grants from the US Department of Energy, US National Science Foundation, US-Israel Binational Science Foundation. The total of MIS's extramural funding cis in millions of the USD (see GRANTS AND CONTRACTS Section for details). MIS's research group includes Postdoctoral Associates and graduate students.

4.1. Major Results

- Prediction [61] and invention [18] of *Surface Plasmon Amplification by Stimulated Emission of Radiation (SPASER)*. Spaser is similar to laser, but does not emit light. Instead, it generates local optical fields of high intensity and temporal coherence. Spaser will provide

unprecedented capabilities for sensing, probing, manipulation, and modification of nano-objects. The SPASER is both the nanoscopic quantum generator and quantum amplifier of localized optical fields on the nanoscale. As such the SPASER is the "missing" active element of nanoplasmonics. It can amplify similar to a common MOS transistor, but is ~1000 times faster. The SPASER has recently been observed experimentally and is currently a subject of active research efforts of many groups worldwide.

- Prediction of *Metallization of Dielectric Nanofilms by Strong Fields* in adiabatic [12] and ultrafast [1] processes.
- Introduction of an effect of *Adiabatic Energy Nanoconcentration of Optical Energy* [46]: high-efficiency transfer of energy from the far zone to near-zone in tapered nanoplasmonic waveguides. This effect is highly promising for nanooptics and nanotechnology, in particular, for ultramicroscopy and nanomodification. It has been confirmed in numerous experiments and set a foundation of new spectroscopic and nanoscopic techniques.
- Introduction of *Efficient Nanolens* [55] of nanospheres and prediction of a giant SERS from it as a substrate. This prediction has been confirmed experimentally.
- Introduction and study of the surface plasmon localization (bright and dark modes) [65]; introduction of the nanoplasmonic *hot spot*s [84, 86, 88].
- Prediction of *Surface Plasmon Induced Drag Effect* (SPIDER) [17], which is generation of very intense terahertz nanoscale fields in nanowire plasmonic waveguides.
- Introduction of attosecond nanoplasmonics [31]. The proposed attosecond plasmonic field microscope allows one directly and non-invasively to measure nanometer-femtosecond spatio-temporal dynamics of local plasmonic fields in metal nanostructures.
- Prediction [63], theory, and numerical simulation [51] of ultrafast nanoscale energy concentration by means of coherent control. This idea provides unique possibilities for controlling energy of ultrafast optical excitation of nanosystems on nanometer-femtosecond spatio-temporal scale. There has recently been the direct experimental observations of the coherent control on the nanoscale.
- Prediction, theory, and numerical simulation of enhanced optical nonlinearities and surface-enhanced Raman scattering by fractal clusters and nanocomposites [101, 102, 108, 112-123]. Many of these predictions have been experimentally confirmed. These effects are due to giant fluctuations and enhancement of local fields in nanosystems predicted in Ref. [88].

4.2. Other Significant Recent Results

- From the fundamental principle of causality, it is rigorously shown that the negative refraction in a uniform and isotropic medium is impossible without significant optical losses in the region of the negative refraction [34].
- Proposal of the full spatio-temporal coherent control on the nanoscale [32] in plasmon polaritonic systems. This allows one to dynamically focus the optical energy in nanoscopic spatial region and femtosecond tine intervals simultaneously. In systems with localized surface plasmons, a possibility is shown to localize optical excitation energy at a given nanoscale site at a required moment of time with femtosecond accuracy using the principles of the time-reversal [28].
- Theory of the ultimate resolution of the "Perfect Lens" in the near field as determined by the spatial dispersion and Landau damping in the electron liquid [1].
- Explanation, theory, and numerical simulation of high-power femtosecond laser damage of dielectrics as "Forest Fires" [49].

- Prediction and numerical simulation of giant random enhancement of femtosecond and attosecond local fields in disordered media (clusters, composites and rough surfaces) under ultrafast excitation ("The Ninth Wave" effect) [71].
- Microscopic theory of radiative and radiationless decay of a quantum dot at a metal surface is developed based on random phase approximation for electron gas in metal [49]. Giant enhancement of relaxation is predicted. (Collaboration with Los Alamos National Laboratory.)
- Theory and interpretation of experimental results on phase-sensitive near-field scanning optical microscopy (NSOM) of metal nanoparticles is developed [49, 58]. (Collaboration with Los Alamos National Laboratory.)
- Theory, numerical simulation, and interpretation of experimental data on enhanced second harmonic generation (SHG) on nanostructured gold surfaces is developed [49]. It is shown that for such systems SHG is highly depolarized and dephased, providing a perspective nanosource of high-intensity illumination on the nanoscale. (Collaboration with École Normale Supérieure de Cachan, Paris, France.)
- Microscopic many-body theory of a 2d electron gas with Coulomb interaction in semiconductor quantum structures is developed. The theory is based on Kadanoff-Baym-Keldysh field-theoretical technique and uses self-consistent random-phase approximation (SCRPA, also called the GW approximation) [62, 66, 69].
- Microscopic theory of the light-induced (LID) effect based on non-equilibrium quantum field theory (Kadanoff-Baym-Keldysh technique) [74]. New properties of the LID effect are found that are due to energy dependence of electron scattering.
- Dipolar spectral theory of linear and nonlinear optical susceptibilities of nanocomposites has been developed [72]. These composites are predicted to possess greatly enhanced optical nonlinearities.
- Chaotic behavior of quantum currents in a magnetic field has been shown numerically [75]. These currents bear important information on long-range spatial correlation in quantum-chaotic states.
- Predictions, theory, and computer simulation of inhomogeneous localization and chaos of elementary excitations (surface plasmons) in nanostructured systems [78, 79, 82, 84]. A remarkable property of this chaos is the existence of long-range spatial correlations.

4.3. Research Group and Supervision of Students

Graduate Students Sponsored: S. Yu. Novozhilov and A. L. Kozionov (Senior Research Scientists at Institute of Automation and Electrometry, Russia), V. A. Markel (Professor at the University of Pennsylvania), S. V. Faleev (on scientific staff of the Sandia National Laboratories), K. B. Kurlayev (Georgia School System), L. S. Muratov (on scientific staff of Spectral Sciences, Inc., Boston, MA), T. Siddiqui (Lucent Technologies), and J. R. Evans (research faculty at the University of Central Florida), Prabath Hewageegana (Professor in Sri Lanka); Maxim Durach and Anastasia Rusina.

Research Scientists/Postdoctoral Associates. Previously Supported: Dr. Kuiru Li (Research Associate), Dr. Xiangting Li (Research Scientist) and Dr. Daniel Brandl (Postdoctoral Associate), Maxim Durach and Anastasia Rusina.

4.4. Collaborations

I have a number of active and established collaborations. Some of them have already led to publications of papers and signing of contracts, others resulted in joined obtaining significant research grants, submissions of grant proposal, and research projects currently in progress. Major of them are listed below along with the researchers involved. There are collaborations with both experimentalists and theorists, presented approximately equally:

- David J. Bergman, Department of Physics, Tel Aviv University, Israel
- Sophie Brasselet, Institut Fresnel, Marseilles, France
- Paul Corkum, Femtosecond Science Program, National Research Council of Canada
- Maxim Durach, Georgia State University, Atlanta, GA, USA
- Sergey V. Faleev, Sandia National Laboratories, Livermore, CA, USA
- Enzo di Fabrizio, Italian Institute of Technology, Genoa, Italy
- Harald Giessen, University of Stuttgart, Germany
- Dmitry Gramotnev, Queensland University of Technology, Brisbane, Australia
- Misha Ivanov, Femtosecond Science Program, National Research Council of Canada
- Ulf Kleineberg, Ludwig Maximilian University, Munich, Germany
- Victor Klimov, Los Alamos National Laboratory, Los Alamos, New Mexico, USA
- Matthias Kling, Max Plank Institute for Quantum Optics, Garching, Germany
- Katrin Kneipp, Technical University Copenhagen, Denmark
- Takayoshi Kobayashi, University of Tokyo, Japan
- Ferenc Krausz, Max Plank Institute for Quantum Optics, Garching, Germany
- Ivan Larkin, Georgia State University, Atlanta, GA, USA
- Kuiru Li, Georgia State University, Atlanta, GA, USA
- Keith Nelson, MIT, Boston, USA
- Peter Nordlander, Rice University, Houston, Texas, USA
- Hrvoje Petek, University of Pittsburgh, USA
- Anastasia Rusina, Georgia State University, Atlanta, GA, USA
- Igor Tsukerman, University of Akron, OH 44325, USA
- Nikolay Zheludev, University of Southampton, UK
- Joseph Zyss, Ecole Normale Supérieure de Cachan, France

5. Grants and Contracts

Pending Grants and Contracts

Current Grants and Contracts

- United States Department of Energy Grant No. DE-FG02-01ER15213 *Novel Nanoplasmonic Theory*. Sole PI: Mark I. Stockman. This grant period is 36 months starting on November 1, 20010 and ending October 31, 2013. The total grant amount is **$300,000** from the US DOE, Program: *Atomic, Molecular, and Optical Science (AMOS).* Chemical Sciences, Biosciences and Geosciences Division

- US Department of Energy Grant No. DE-FG02-11ER46789 *Quantum Nanoplasmonics*, Sole PI: Mark I. Stockman. This grant is in the total amount of **$429,000**. The grant period is 36 months. Program: *Physical Behavior of Materials*, Materials Sciences and Engineering (MSE) Division.

- US-Israel Binational Science Foundation Grant *Surface Plasmon Resonances in Metal/Dielectric Nanocomposites*, US PI: Mark I. Stockman. This grant period is 60 months starting on September 1, 2007. MIS's total amount is **$61,000**.

Completed Grants and Contracts

- Center for Advanced Studies at Ludwig Maximilian University (Munich, Germany), Grant (Stipend of **30,000 Euro** (approx. $42,000) for Project *Ultrafast Nanoplasmonics*, December 2008 – August 2009.
- United States Department of Energy Grant No. DE-FG02-01ER15213 *Novel Nanoplasmonic Theory*. Sole PI: Mark I. Stockman. This grant period is 36 months starting on November 1, 2007 and ending October 31, 2010. The total grant amount is **$300,000** from the US DOE plus a $19,900 per annum matching for a postdoctoral associate salary from GSU.
- National Science Foundation Grant No. CHE-0507147 *NIRT: Full Spatio-Temporal Coherent Control on Nanoscale.* This grant is received with Massachusetts Institute of Technology and University of Pittsburgh. The total amount is **$1.3 million** for the period 2005-2009. PI: Mark I. Stockman, whose funding from this grant is **$260,000**.
- United States Department of Energy Grant No. DE-FG02-01ER15213 *Novel Nanoplasmonic Theory*. Sole PI: Mark I. Stockman. This grant period is 36 months starting on November 1, 2004 and ending October 31, 2007. The total grant amount is **$285,000** from the US DOE plus a $18,000 per annum matching for a postdoctoral associate salary from GSU.
- United States Department of Energy Grant No. DE-FG02-03ER15486 *Computational Nanophotonics: Model Optical Interactions and Transport in Tailored Nanosystem Architectures*. This grant is received with Argonne National Laboratory and Northwestern University. GSU PI: Mark I. Stockman. This grant period is 2003-2007. MIS's total amount (funded by DOE as a separate grant) is **$255,000**.
- United States Department of Energy Grant No. DE-FG02-01ER15213 *Femtosecond and Attosecond Laser-Pulse Energy Concentration and Transformation in Nanostructured Systems*. Sole PI: Mark I. Stockman. This grant period is 38 months starting on September 1, 2001 and ending on October 30, 2004 (see the Current Grants and Contracts for the continuing grant). The total grant amount is **$290,000** from the US DOE plus $18,000 match for equipment from GSU, plus $18,000 per annum match for a postdoctoral associate salary from GSU.
- US-Israel Binational Science Foundation Grant *Surface Plasmon Resonances in Metal/Dielectric Nanocomposites*, US PI: Mark I. Stockman. This grant period is 48 months starting on September 1, 2003. MIS's total amount is **$61,000**.
- Los Alamos National Laboratory Contract No. 69837-001-03 3R *Theory of Near-Field Optical Responses of Metal Nanostructures.* Sole PI: Mark I. Stockman. This contract period is 12 months starting 1 October 2002. The contract amount is **$30,000**.

6. Awards and Recognitions

American Physical Society (APS), Fellow
Optical Society of America (OSA), Fellow

- Guest Professorship at Max Plank Institute for Quantum Optics (MPQ) (Garching, Germany) and Ludwig Maximilian University (Munich, Germany) at the Munich Center Advanced Photonics (MAP) and Center for Advanced Studies (CAS), December 2008 – August 2009.
- Guest Professorship at the University of Stuttgart (Germany), September-November 2008.
- Invited Distinguished Professorship at Ecole Normale Supérieure de Cachan (France), June-July, 2008.
- Invited Professor at Ecole Supérieur de Physique et de Chimie Industrielle, Paris, France, May - June, 2008.
- Max Plank Research Award by the German Max-Plank-Gesellschaft for research on the subject "*Collective Electrodynamics in Ultrafast Plasmons*", January-February, 2007.
- Invited Distinguished Professorship at Ecole Normale Supérieure de Cachan (France), March, 2006.

See also Grants and Contracts in Sec. 5.

7. Teaching

This description with hyperlinks to related materials, including on-line information on the courses taught, is available on line at www.phy-astr.gsu.edu/stockman/data/teaching.html

I have an extensive teaching experience at both the undergraduate and graduate levels. This includes teaching in the US as a Visiting Professor in the Department of Physics, Washington State University, and a Visiting Scientist in the Department of Physics, State University of New York at Buffalo. I presently teach at Georgia State University Department of Physics and Astronomy. I also teach professional Short Course "Nanoplasmonics" at SPIE Photonics West and Optics and Photonics Meetings annually for over five years. This course also taught multiple times on invitations at other international meetings and various leading scientific institutions.

I have taught over 20 different courses in physics and related fields at both the undergraduate and graduate levels. The courses for which on-line materials are available are highlighted/underlined)

Undergraduate courses:

General Physics *(freshman level).* http://www.phy-astr.gsu.edu/stockman/1111K/1111K.html
and
http://www.phy-astr.gsu.edu/stockman/data/101spr96.html
Introductory Classical Mechanics (*Junior level*)
Quantum Mechanics *(Senior level)*
Statistical and Thermal Physics. *(Senior/graduate level).*
http://www.phy-astr.gsu.edu/stockman/data/7850sp.html *(Taught at GSU).*
Solid State Physics *(senior level)*

Graduate courses:

Mathematics of Physics II. (*Senior/graduate levels)*
http://www.phy-astr.gsu.edu/stockman/data/6520mp.html *(Taught at GSU).*
Intermediate Classical Mechanics (*Senior/graduate level)*
http://www.phy-astr.gsu.edu/stockman/461cm/classmech.htm
Advanved Classical Mechanics. hhttp://www.phy-astr.gsu.edu/stockman/8010cm/8010cm.htm
(Taught at GSU).
Advanced Statistical Physics. On line materials are available at
http://www.phy-astr.gsu.edu/stockman/data/8310sp.html *(Taught at GSU).*
Quantum Theory I and II *(Two semesters of advanced quantum mechanics)*
Solid State Physics
Atomic, Molecular, and Optical Physics
Nonlinear Optics and Spectroscopy
Physics of Laser-Induced Phenomena and Applications of Lasers
Quantum Many-Body Theory
Mathematica in Physics Simulations *(a part of* the Modern Physics Lab *(Taught at GSU).*
Computer Simulations in Physics

Teaching Philosophy

I consider teaching as an important part of science, which on one hand allows one to transfer your knowledge to students, and, on the other hand, to get a great research force at a reasonable price, which students are. Based on the student's evaluations, my performances have always scored much better than average, typically from excellent to outstanding.

I have substantially incorporated computer-assisted and on-line methods in my teaching. Besides a classroom teaching, I have been an advisor to many undergraduate and graduate students and postdoctoral associates. A considerable and important part of my research has been done in close collaboration with students. Up to date, I have been an advisor for seven Master's theses and nine Ph.D. dissertations, all of them successfully defended. I have always actively involved my students, both undergraduate and graduate, in my research and published many papers in collaboration with my students.

8. Professional Service

- Program Committee of International Conferences *Ultrafast Phenomena* 2006, 2008, and 2010.
- Co-Chair of the OSA Topical Meeting *Plasmonics and Metamaterials* (with Dr. Martin Wegener as the other Co-Chair), Tucson, AZ, 2010.
- Chairman of Conference *Metal Nanoplasmonics* at Optical Science and Technology (2005-2010 SPIE Annual Meetings) (San Diego, 2005-2010)
- Organizer and Chair of Special Session *Novel Nanooptics* at "Progress in Electromagnetic Research Symposium" (PIERS) 2003 (Honolulu, Hawaii), 2004 (Pisa, Italy), 2005 (Hangzhou, China), and 2007 (Beijing, China).
- Program Committee of Conference *Complex Mediums V: Beyond Linear Isotropic Dielectrics*" at Optical Science and Technology (2004-2008 SPIE Annual Meeting).
- Program Committee of the CLEO/QELS-2005 International Conference, Baltimore, USA, 2005.
- Program Committee of the CLEO/QELS-2005 Pacific Rim International Conference (Tokyo, Japan)

- Program Committee of Conference "*Complex Mediums IV: Light and Complexity*" at Optical Science and Technology (2004-2006 SPIE Annual Meetings).
- Expert Panel member of Deuche Forschungsgemeinschaft (German counterpart of the NSF) Excellence Initiative.
- Foreign Expert and Invited Speaker at Deuche Forschungsgemeinschaft Schwerpunktprogramme (German counterpart of NSF Focused Research Program), Bad Honnef, Germany, June 26, 2005. Expert panelist for Deutche Forschungsgemeinschaft (2006 Bonn, 2006 Frankfurt, 2007 Bonn, and 2012.
- Short Lecture Course *Nanoplasmonics* at SPIE 2005-2007 Optics and Photonics Meetings, San Diego, California, 2005 and 2006, and at 2006-2007 Photonics West Meeting, San Jose, California, 2006; ETOPIM International Conference (Sydney, Australia, 2006).
- Referee for Nature, Science, Physical Review Letters, Physical Review B, Proceedings of the National Academy of Sciences U.S.A., Surface Science, Physics Letters A, Optics Express, Journal of Chemical Physics, Journal of Optical Society of America, The Journal of Physical Chemistry, Europhysics Letters, Nano Letters, Office of Basic Energy Sciences of the US Department of Energy, National Science Foundation, Air Force Office of Scientific Research, Petroleum Fund, Binational US-Israel Science Foundation, National Sciences and Engineering Research Council of Canada (NSERC), and The Marsden Fund of New Zealand Government.
- Member of the Editorial Board, Light: Science and Applications (Nature Publishing Group), 2011-
- Member of the Editorial Board, Journal of Optics A: Pure and Applied Optics, 2004-2008.
- Member of the Editorial Board, International Journal of Theoretical Physics, Group Theory, and Nonlinear Optics, 1999-present
- Member of the Editorial Board, The Open Physical Chemistry Journal, 2007-present
- Member of the Advisory Board, Metamaterials Journal (Elsevier), 2007-present.
- Guest Editor of the Topical Issue *Fundamental Aspects of Nanophotonics*, Journal of Optics A: Pure and Applied Optics **7**(4), 2005.

9. List of Selected Publications

This is a list of selected recent publications and new submissions. This list is reverse-chronologically ordered and numbered. A constantly updated List of Publications is available at http://www.phy-astr.gsu.edu/stockman/data/referenc.html. There are currently over **166** publications in this List. Also from this Web site, electronic reprints of the recent published papers are available as PDF files. Preprints of Submitted and Accepted for Publication papers are available upon request.

SUBMITTED

1. Martin Schultze, Elisabeth Bothschafter, Annkatrin Sommer, Simon Holzner, Markus Fiess, Michael Hofstetter, Reinhard Kienberger, Vadym Apalkov, Vladislav S. Yakovlev, Mark I. Stockman, and Ferenc Krausz, *Reversible sub-femtosecond metallization of dielectrics*, Nature (2012) (Under Review).
2. Agustin Schiffrin, Tim Paasch-Colberg, Nicholas Karpowicz, Vadym Apalkov, Daniel Gerster, Sascha Mühlbrandt, Michael Korbman, Joachim Reichert, Martin Schultze, Simon Holzner, Johannes Barth, Reinhard Kienberger, Ralph Ernstorfer, Vladislav S. Yakovlev, Mark I. Stockman, and Ferenc Krausz, *Optical Field-Induced Current in Dielectrics*, Nature (2012) (Under Review).

ACCEPTED FOR PUBLICATION

PUBLISHED

1. S. H. Chew, F. Sussmann, C. Spath, A. Wirth, J. Schmidt, S. Zherebtsov, A. Guggenmos, A. Oelsner, N. Weber, J. Kapaldo, A. Gliserin, M. I. Stockman, M. F. Kling, and U. Kleineberg, *Time-of-Flight-Photoelectron Emission Microscopy on Plasmonic Structures Using Attosecond Extreme Ultraviolet Pulses*, Appl. Phys. Lett. **100**, 051904-4 (2012). doi: 10.1063/1.3670324.
2. M. I. Stockman, *Nanoplasmonics: Past, Present, and Glimpse into Future*, Opt. Express **19**, 22029-22106 (2011). doi: 10.1364/OE.19.022029.
3. I.-Y. Park, S. Kim, J. Choi, D.-H. Lee, Y.-J. Kim, M. F. Kling, M. I. Stockman, and S.-W. Kim, *Plasmonic Generation of Ultrashort Extreme-Ultraviolet Light Pulses*, Nat. Phot. (2011). doi: 10.1038/nphoton.2011.258.
4. M. I. Stockman, *Loss Compensation by Gain and Spasing*, Phil. Trans. R. Soc. A **369**, 3510-3524 (2011). doi: 10.1098/rsta.2011.0143.
5. S. L. Stebbings, F. Süßmann, Y.-Y. Yang, A. Scrinzi, M. Durach, A. Rusina, M. I. Stockman, and M. F. Kling, *Generation of Isolated Attosecond Extreme Ultraviolet Pulses Employing Nanoplasmonic Field Enhancement: Optimization of Coupled Ellipsoids*, New J. Phys. **13**, 073010 (2011). doi:10.1088/1367-2630/13/7/073010.
6. M. Durach, A. Rusina, M. Kling, and M. I. Stockman, *Predicted Ultrafast Dynamic Metallization of Dielectric Nanofilms by Strong Single-Cycle Optical Fields*, arXiv:1104.1642 (2011); Phys. Rev. Lett. **107**, 086602-1-5 (2011).
7. S. Zherebtsov, T. Fennel, J. Plenge, E. Antonsson, I. Znakovskaya, A. Wirth, O. Herrwerth, F. Suessmann, 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. Ruehl, and M. F. Kling, *Controlled near-Field Enhanced Electron Acceleration from Dielectric Nanospheres with Intense Few-Cycle Laser Fields*, Nature Physics (2011). DOI: 10.1038/NPHYS1983.

8. M. I. Stockman, *Nanoplasmonics: The Physics Behind the Applications*, Physics Today **64**, 39-44 (2011).
9. M. I. Stockman, *Spaser Action, Loss Compensation, and Stability in Plasmonic Systems with Gain*, arXiv:1011.3751 [cond-mat.mes-hall], 1-4 (2010); Phys. Rev. Lett. **106**, 156802-1-4 (2011).
10. M. I. Stockman, *A Fluctuating Fractal Nanoworld*, Physics **3**, 90 (2010).
11. M. I. Stockman, *Dark-Hot Resonances*, Nature **467**, 541-542 (2010).
12. M. Durach, A. Rusina, M. F. Kling, and M. I. Stockman, *Metallization of Nanofilms in Strong Adiabatic Electric Fields*, Phys. Rev. Lett. **105**, 086803-1-4 (2010).
13. A. Rusina, M. Durach, and M. Stockman, *Theory of Spoof Plasmons in Real Metals*, Appl. Phys. A **100**, 375-1-4 (2010)
14. T. Utikal, M. I. Stockman, A. P. Heberle, M. Lippitz, and H. Giessen, *All-Optical Control of the Ultrafast Dynamics of a Hybrid Plasmonic System* Phys. Rev. Lett. **104**, 113903-1-4 (2010).
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16. M. I. Stockman, M. F. Kling, Ulf Kleineberg, and F. Krausz, *Attosecond Nanoplasmonic Field Microscope*, in Ultrafast Phenomena XVI (Proceedings of the 16th International Conference, Palazzo Dei Congressi Stresa, Italy, June 9-13, 2008), edited by P. Corkum, S. D. Silvestri, K. A. Nelson, E. Riedle and R. W. Schoenlein (Springer, Heidelberg, London, New York, 2009), p. 696-698.
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18. M. I. Stockman and D. J. Bergman, *Surface Plasmon Amplification by Stimulated Emission of Radiation (SPASER)*, USA Patent No. 7,569,188 (August 4, 2009) (This invention was made with government support under Grant No. DE-FG02-01ER15213 awarded by the U.S. Department of Energy).
19. J. Q. Lin, N. Weber, A. Wirth, S. H. Chew, M. Escher, M. Merkel, M. F. Kling, M. I. Stockman, F. Krausz, and U. Kleineberg, *Time of Flight-Photoemission Electron Microscope for Ultrahigh Spatiotemporal Probing of Nanoplasmonic Optical Fields*, J. Phys.: Condens. Mat. **21**, 314005-1-7 (2009).
20. K. F. MacDonald, Z. L. Samson, M. I. Stockman, and N. I. Zheludev, *Ultrafast Active Plasmonics: Transmission and Control of Femtosecond Plasmon Signals*, arXiv:0807.2542 (2008); *Ultrafast Active Plasmonics*, Nature Photonics, **3**, 55-58 (2009), DOI:10.1038/nphoton.2008.249 (2008).

21. M. I. Stockman, in Plasmonic Nanoguides and Circuits, edited by S. I. Bozhevolnyi, *Adiabatic Concentration and Coherent Control in Nanoplasmonic Waveguides* (World Scientific Publishing, Singapore, 2008).
22. D. K. Gramotnev, M. W. Vogel, and M. I. Stockman, *Optimized Nonadiabatic Nanofocusing of Plasmons by Tapered Metal Rods*, J. Appl. Phys. **104**, 034311-1-8 (2008).
23. A. Rusina, M. Durach, K. A. Nelson, and M. I. Stockman, *Nanoconcentration of Terahertz Radiation in Plasmonic Waveguides*, Opt. Expr. **16,** 18576-18589 (2008); arXiv:0808.1324.
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28. Xiangting Li and Mark I. Stockman, *Time-Reversal Coherent Control in Nanoplasmonics*, arXiv:0705.0553 (2007); *Highly efficient spatiotemporal coherent control in nanoplasmonics on a nanometer-femtosecond scale by time reversal*, Phys. Rev B **77**, 195109-1-10 (2008).
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10. Selected Conference Talks and Lectures

1. *Nanoplasmonics* (Short Course SC727), SPIE Photonics West Meeting, San Francisco, CA, January 25, 2012.
2. *Metallization of Nanofilms in Strong THz and Optical Fields* (Invited Talk), The 42-nd Winter Colloquium on Physics of Quantum Electronics, Snowbird, UT, January 3, 2012.
3. *Nanoplasmonics* (Invited Lecture), "Nonlinear Optics and Complexity in Photonic Crystal Fibers and Nanostructures", International School on Complexity (XIV Corso). Ettore Majorana Foundation and Centre for Scientific Culture, Erice, Italy, 8-13 November 2011.
4. *Quantum Nanoplasmonics and the Spaser* (Invited Talk), 491-st Wilhelm and Else Heraeus Seminar, Physics Center, Bad Honnef, Germany, October 19, 2011.
5. *Quantum Nanoplasmonics and the Spaser* (Invited Talk), Stanford Photonics Research Center (SPRC) 2011 Annual Symposium September 13, 2011.
6. ***S**paser action, Loss Compensation, and Stability in Plasmonic Systems with Gain* (Invited Paper), SPIE 2011 Optics and Photonics Meeting, San Diego, CA, August 23, 2011.
7. *Strongly Driven Electron Emission from Nanoparticles in Few-Cycle Laser Fields* (Keynote Presentation), (Sergey Zherebtsov, Frederik Susmann, Jurgen Plenge, Johannes Passig, Christina Graf, Valerie Mondes, Mark I. Stockman, Eckart Ruhl, Thomas Fennel, and Matthias F. Kling), SPIE 2011 Optics and Photonics Meeting, San Diego, CA, August 23, 2011.
8. *Adiabatic and Nonadiabatic Metallization of Dielectric Nanofilms by Strong Optical Fields* (Invited Paper), (Mark I. Stockman, Maxim Durach, Anastasia Rusina, Matthias F. Kling), SPIE 2011 Optics and Photonics Meeting, San Diego, CA, August 23, 2011.
9. *Nanoplasmonics in Direct Band-Gap Semiconductors*, Nikolaus Dietz, Mark I. Stockman, SPIE 2011 Optics and Photonics Meeting, San Diego, CA, August 23, 2011.

10. *Plasmonics Theory* (Short Course), Ettore Majorana Foundation and Centre for Scientific Culture, International School of Atomic and Molecular Spectroscopy, Nano-Optics for Enhancing Light-Matter Interactions on a Molecular Scale: Plasmonics, Photonic Crystals, Metamaterials and Sub-Wavelength Resolution, a NATO Advanced Study Institute, International School of Atomic and Molecular Spectroscopy, Erice, Sicily, Italy; July 3 – 18, 2011.
11. *Nanoplasmonics: Faster, Smaller, Stronger* (Invited Talk), International Conference on Micro/Nano Optical Engineering (ICOME 2011), Chinese Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Sciences, June 13, 2011, Changchun, China.
12. *Loss compensation and Spasing in Plasmonic Metamaterials* (Talk THD-5), International Conference Surface Plasmon Photonics 5 (SPP5), Busan, S. Korea, May 19, 2011.
13. *Nonlinear Nanoplasmonics* (Invited Talk), SPIE Optics and Optoelectronics Meeting, Prague (Czech Republic), April 18-21, 2011.
14. *Nanoplasmonics (Short Course SC727)*, SPIE 2011 Photonics West Conference, San Francisco, CA, January 26, 2011.
15. *Trends in Nanoplasmonics: Ultrasmall, Ultrafast, Ultrastrong* (Invited Talk), SPIE 2011 Photonics West Conference, San Francisco, CA, January 25, 2011.
16. *Metallization of Nanofilms in Strong Adiabatic Fields* (Breakthrough Talk) (Mark I. Stockman, Maxim Durach, Anastasia Rusina, and Matthias F. Kling), The 3d International Conference on Nanophotonics and Metamaterials, Seefeld, Austria, January 3, 2011.
17. *Trends in Nanoplasmonics: Smaller, Faster, Stronger* (Plenary Talk), European Optical Society Annual Meeting 2010 (EOSAM2010), 26 October 2010 - 29 October 2010, Paris, France
18. *Trends in Nanoplasmonics: Ultrafast, Ultrasmall, Ultrastrong* (Invited talk), Passion for Knowledge International Conference, Donostia International Physics Center, Donostia/San Sebastian, Spain, September 30, 2010.
19. *Implications of Causality on Metamaterial Losses* (Invited Lecture), 16th European Doctoral School on Metamaterials, Karlsruhe, Germany, September 17, 2010.
20. *The SPASER* (Invited Lecture), 16th European Doctoral School on Metamaterials, Karlsruhe, Germany, September 17, 2010.
21. *SPIDER: A new THz nonlinear effect in nanostructures* (Invited talk) (Mark I. Stockman, Anastasia Rusina, Maxim Durach), Fourth International Congress on Advanced Electromagnetic Materials in Microwaves and Optics “Metamaterials 2010”, Karlsruhe, Germany, 13-16 September, 2010.
22. *Nanoplasmonics* (Short Course), SPIE Optics and Photonics Meeting, San Diego, CA, August 5, 2010.
23. *Spaser as Nanoscale Optical Generator and Ultrafast Nano-Amplifier* (Invited Paper), SPIE Optics and Photonics Meeting, San Diego, CA, August 02, 2010, Paper 7754-1.
24. *Nanoplasmonics*, In: Lecture Course CLXXVII - "Advanced Methods in Optical Fluorescence Microscopy Towards Nanoscopy", International School of Physics "Enrico Fermi", Varenna, Lake of Como, Italy, 12 - 16 July 2010; Lecture 1; Lecture 2.
25. *Theory of Spoof Plasmons in Real Metals* (Anastasia Rusina, Maxim Durach, Mark I. Stockman), OSA Photonic Metamaterials and Plasmonics (META) Meeting, June 7-8, 2010, The Westin La Paloma, Tucson, AZ (USA).

26. *Giant Surface-Plasmon-Induced Drag Effect,* (Maxim Durach, Anastasia Rusina, Mark I. Stockman), OSA Photonic Metamaterials and Plasmonics (META) Meeting, June 7-8, 2010, The Westin La Paloma, Tucson, AZ (USA).
27. *Spasers, Nanolasers, and Ultrafast Plasmonics (Invited Talk),* The Royal Society (London) Theo Murphy Meeting "Metallic Metamaterials and Plasmonics", Kavli Center, Wednesday 2 - Thursday 3 June, 2010.*Ultrafast Dynamics of the Spaser as a Quantum Generator and Nanoamplifier* (Invited Talk), Gordon Research Conference "Ultrafast Phenomena in Cooperative Systems", Galveston, TX, February 28-March 5, 2010.
28. *Nanoplasmonics: Phenomena and Applications* (Plenary Talk), 2010 Korean Nanooptics Society Winter Workshop, Muju, S. Korea, February 25, 2010.
29. *Nanoplasmonics* (Short Course SC-727), 2010 SPIE Photonics West Meeting, San Francisco, CA, January 25, 2010.
30. *New Horizons of Nanoplasmonics: SPASER, Nanolasers, and Attoseconds* (Tutorial Talk), Conference on Nanolasers, IEEE Photonics Society Winter Topicals, 11-13 January 2010, Mallorca, Spain.
31. *Nanoplasmonics* (Short Course), Instrument Technology Research Center (ITRC), Hsinchu, Taiwan, December 14, 2009.
32. *Nanoplasmonics* (Short Course), International Conference COMCAS 2009, Tel Aviv, Israel, November 12, 2009
33. *Nanoplasmonics* (Short Course), Italian Institute of Technology, October 23, 2009
34. *Nanoplasmonics: From Spaser to Attoseconds* (Invited Talk), International Conference on Theoretical and Computational Nanophotonics (TaCoNa), Bad Honnef, Germany, October 26, 2009.
35. *Nanoplasmonics* (Short Course), International Summer School *Dissipation at Surfaces*, University of Duisburg-Essen, Germany, September 30, 2009.
36. *Nanoplasmonics* (Short Course), International Summer School *New Frontiers in Optical Technologies*, Tampere University of Technology, Finland, August 14, 2009.
37. *Ultrafast Active Nanoplasmonics* (Invited Talk), 2009 SPIE Optics and Photonics Meeting, San Diego, CA, August 3, 2009.
38. *Nanoplasmonics* (Short Course), SPIE Optics and Photonics Meeting, San Diego, CA, August 6, 2009.
39. *New Horizons of Nanoplasmonics: From SPASER to Attoseconds* (Invited Lecture), International Conference on Materials for Advanced Technologies (ICMAT 2009), Singapore, 2009.
40. *New Horizons of Nanoplasmonics: From Attoseconds to Terahertz* (Keynote Talk), World of Photonics Congress, CLEO/Europe 2009, International Congress Center Munich, Munich, Germany, Tuesday, June 16, 2009, 4:30-5:30 pm.
41. *New Horizons of Nanoplasmonics* (Tutorial Talk), CLEO/IQEC 2009 Conference, Baltimore Convention Center, Baltimore, Md, June 2, 2009, 4:45-5:45 pm.
42. *New Horizons of Nanoplasmonics* (Keynote Talk), 6th Annual Charlotte Research Institute. Conference, Center for Optoelectronics and Optical Communications, UNC Charlotte, NC, USA, Thursday, May 28, 2009, 8:30-9:30 am.
43. *Ultrafast Nonlinear, and Active Nanoplasmonics: Fundamentals and Applications* (Tutorial), 2009 APS March Meeting, Pittsburgh, PA, March 15, 2009, http://www.aps.org/meetings/march/events/tutorials/3.cfm.
44. *Ultrafast, Nonlinear, and Quantum Nanoplasmonics* (Invited Talk), Conference "Nano and Photonics", Mauterndorf, Austria, March 11, 2009, http://www.nanoandphotonics.at/download/NaP2009_programm.pdf.

45. *Ultrafast Nonlinear, and Active Nanoplasmonics* (Invited Talk), 5th ADLIS Workshop, March 2-4, 2009, Munich, Germany.
46. *Nanoplasmonics: Trends and Progress* (Keynote Presentation), Korean Symposium on Nanooptics, Muju, S. Korea, February 24-27, 2009.
47. *Nanoplasmonics from Attoseconds to Terahertz* (Invited Talk), Mark Stockman, International Conference FRISNO-10, Ein Gedi, Israel, February 10, 2009, http://www.weizmann.ac.il/frisno/pdf/abstracts.pdf.
48. *Nanoplasmonics* (Short Course), SPIE Photonics West Conference, San Jose, Ca, January 29, 2009.
49. *Nanoplasmonics from Attoseconds to Terahertz* (Invited Talk), Mark Stockman, NanoMeta International Conference, Seefeld, Austria, January 7, 2009, http://www.nanometa.org/documents/prog.pdf.
50. *Highly Efficient Spatio-Temporal Coherent Control in Nanoplasmonics on Nanometer-Femtosecond Scale by Time-Reversal* (Invited Talk), Mark Stockman and Xiangting Li, Nanoplasmonics and Metamaterials Conference at 2008 OSA Frontiers in Optics Meeting, Rochester (NY), October 21, 2008.
51. *Attosecond Nanoplasmonic-Field Microscope* (Invited Paper), M.I. Stockman, U. Kleineberg, M. Kling, F. Krausz, AVS 55th International Symposium and Exhibition, Boston (MA), Monday, October 20, 2008, 2:00pm.
52. *Ultrafast, Nonlinear, and Quantum Nanoplasmonics* (Invited Talk), Workshop "Advances in Nonlinear Optics", University of Rome "La Sapienza", October 8-10, 2008.
53. *Ultrafast and Quantum Nanoplasmonics* (Keynote Talk), 2nd Metamaterials International Congress, Pamplona, Spain, September 24, 2008.
54. *Nanoplasmonics,* Lecture Course, University of Stuttgart and Max Plank Institute for Solid State Physics, Stuttgart, Germany, September-November, 2008.
55. *Nanoplasmonics,* Lecture Course, Center for Functional Nanostructures (CFN), University of Karlsruhe, Summer School on Nanophotonics, Bad Herrenalb, Germany, August 21, 2008.
56. *Terahertz Plasmonic Energy Concentration* (Invited Paper), Mark I. Stockman, Maxim Durach, Anastasia Rusina. Paper [7029-22], SPIE Optics and Photonics Meeting, San Diego, CA, August 11, 2008.
57. *Femtosecond Modulation of Surface Plasmon-Polariton Propagatio*n, Kevin F. MacDonald, Zsolt Samson, Nikolay I. Zheludev, Mark I. Stockman. Paper [7032-14], SPIE Optics and Photonics Meeting, San Diego, CA, August 10, 2008.
58. *Nanoplasmonic Renormalization and Enhancement of Coulomb Interactions,* Maxim Durach, Anastasia Rusina, Victor I. Klimov, Mark I. Stockman, Paper. [7032-18], SPIE Optics and Photonics Meeting, San Diego, CA, August 11, 2008.
59. *Attosecond Nanoplasmonic Field Microscope* (Invited Paper), Mark I. Stockman, Matthias F. Kling, Ulf Kleineberg, Ferenc Krausz. Paper [7033-12], SPIE Optics and Photonics Meeting, San Diego, CA, August 10, 2008.
60. Short Course SC727 *Nanoplasmonics,* Mark I. Stockman, Thursday, August 14, 2008, 8:30 am to 5:30 pm, SPIE Optics and Photonics Meeting, San Diego, CA.
61. *Nanoplasmonics,* Short Lecture Course, l'Ecole Supérieure de Physique et de Chimie Industrielles de la ville de Paris (France), June 29-July 1, 2008.
62. *Nanoplasmonics and Molecules,* Short Lecture Course, MONABIPHOT 2008 Summer School, Erasmus Mundus Program, Porquerolles Island (France), June 19-27, 2008.
63. *Attosecond Nanoplasmonic Field Microscope,* XVI International Conference on Ultrafast Phenomena, Stresa, Italy, June 9-13, 2008.

64. *Ultrafast and Quantum Plasmonics* (Invited Talk), International Conference on Ultrafast Phenomena, San Sebastian, Spain, May, 2008.
65. *Terahertz Plasmonics* (Invited Talk), The International IEEE Conference on Microwaves, Communications, Antennas and Electronic Systems (COMCAS 2008), Tel Aviv, Israel, May 13-14, 2008.
66. *Coherent, Nonlinear, and Ultrafast Nanoplasmonics* (Invited Talk) (Paper number: 266), Session: Spectroscopy, Chemistry, and Imaging through Nanophotonics, 2008 National Meeting of the American Chemical Society in New Orleans, April 6-10, 2008.
67. *Nanoplasmonics I: Theory*, Tutorial at MRS Spring Meeting, San Francisco, CA, March 14, 2008.
68. *Ultrafast Nanoplasmonics and Coherent Control on Nanoscale*, International Workshop on Nanooptics, Muju, South Korea, February, 2008.
69. *Ultrafast Phenomena in Metal-Dielectric and Metal-Semiconductor Nanostructures* (Invited Talk), Mark I. Stockman, SPIE 2008 Photonics West Conference, San Jose, CA, Talk #6892-17
70. *Energy Transfer and Spaser in Semiconductor Quantum Dots on Metal Nanoparticles*, (Invited Talk), Mark I. Stockman, SPIE 2008 Photonics West Conference, San Jose, CA, Talk #6889-22.
71. *Nanoplasmonics in Biology and Medicine* (Keynote Talk), Workshop on Plasmonics in Biology and Medicine, l'Ecole Supérieure de Physique et de Chimie Industrielles de la ville de Paris (France), December 14, 2007.
72. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields* (Invited Talk), Mark I. Stockman, CIFAR (Canadian Institute for Advanced Research) Nanoelectronics Program Meeting, Vancouver (BC, Canada), November 9, 2007.
73. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields* (Invited Talk), Mark I. Stockman, LEOS Workshop on Nanoplasmonics, Boston (MA, USA), November 7, 2007.
74. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields* (Invited Talk), Mark I. Stockman, First International Congress on Advanced Electromagnetic Materials in Microwaves and Optics (Metamaterials 2007), Rome (Italy), October 22, 2007.
75. *Ultrafast Coherent Control of Surface Plasmons*, (Invited Talk), Mark I. Stockman AVS 54th International Symposium and Exhibition, Seattle (WA. USA), October 15, 2007.
76. *Full Coherent Control on Nanoscale* (Invited Talk), Mark I. Stockman 2007 Frontiers in Optics Conference, OSA, September 29, 2007, San Jose (CA, USA) Paper #FThI2.
77. *Causality Principle and Negative Refraction with Illustrations From Surface Plasmon Polaritonic*s (Invited Paper), M. I. Stockman, 2007 SPIE Optics and Photonics Meeting, San Diego (CA, USA), August 26, 2007, Talk # [6638-09].
78. *Ultrafast nanoplasmonics* (Invited Paper)**,** M. I. Stockman, 2007 SPIE Optics and Photonics Meeting, San Diego (CA, USA), August 27, 2007, Talk #[6641-22].
79. *Attosecond Nanoplasmonic Field Microscope*, Mark I. Stockman (Invited Talk), Workshop *Attosecond Physics*, Institute of Complex Systems, Dresden (Germany
80. *Coherent, Nonlinear, and Ultrafast Nanoplasmonics*, Mark I. Stockman (Invited Talk), Third International Conference on Surface Plasmon Photonics, Université de Bourgogne, Dijon, June 17-2, 2007 (Talk MoO18).
81. *Ultrafast and Nonlinear Nanoplasmonics*, Mark I. Stockman (Invited Talk), Workshop on Properties and Applications of Random Electromagnetic Fields 2007, University of Central Florida, Orlando, May 3-4, 2007
82. *Slow Propagation, Anomalous Absorption and Total External Reflection of Surface Plasmon Polaritons in Nanolayer Systems*, Mark I. Stockman; CLEO/QELS 2007,

Baltimore Convention Center, Baltimore, MD, May 6-11, 2007 (Talk QThB5, Thursday, May, May 10, 2007 at 9:15 am).

83. *Fundamental Causality and a Criterion of Negative Refraction with Low Optical Losses*, Mark I. Stockman; CLEO/QELS 2007, Baltimore Convention Center, Baltimore, MD, May 6-11, 2007 (Talk QMJ2, Monday, May, May 7, 2007 at 4:15 pm).
84. *Nanoplasmonics and Optics of Metamaterials*, Invited talk at the March Meeting of American Physical Society, Denver, CO, March 9, 2007.
85. *Nanoscale Energy Concentration in Nanosystems*, Invited talk at Workshop Energy Transfer from Microscale to Nanoscale, DOE, Santa Fe, NM, March 12, 2007.
86. *Ultrafast Nanoplasmonics*, Invited Talk at the Spring Meeting of German Physical Society, Regensburg, Germany, March 25, 2007.
87. *Causality and Negative Refraction* (Invited talk), International Workshop "Plasmonics and Applications for Nanotechnologies" in Singapore; 5-7 December 2006.
88. *Nanoplasmonics* (Invited Short Course), Photonics West 2007, San Jose, CA, January 21-26 (Short Course given on Thursday, January 25)
89. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields* (Invited Talk), First European Topical Meeting on Nanophotonics and Metamaterials (NANOMETA 2007), Seefeld, Tirol, Austria, January 8-11, 2007.
90. *Fundamental Causality and Negative Refraction Metamaterials*, (Invited Talk), First European Topical Meeting on Nanophotonics and Metamaterials (NANOMETA 2007), Seefeld, Tirol, Austria, January 8-11, 2007.
91. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields* (Invited talk) International Workshop "Plasmonics and Applications for Nanotechnologies" in Singapore; 5-7 December 2006.
92. *Extreme Nanoplasmonics: Spatio-Temporal Limits of Optical Processes in Nanostructured Systems* (Invited Talk), The 36th Winter Colloquium on the Physics of Quantum Electronics, January 2-6 2006, in Snowbird, Utah.
93. *Nanoplasmonics* (Invited Short Course), Photonics West 2006, San Jose, CA, January 25-27 (Short Course given on Thursday, January 26)
94. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields* (Invited Talk), ETOPIM 7 Conference, July 9-12, 2006, Dockside, Cockle Bay, Darling Harbour, Sydney, Australia.
95. *Nanoplasmonics* (Invited Short Course), University of Technology Sydney, July 13, 2006 (University of Sydney and University of Technology Sydney), Sydney, Australia.
96. *Spasers, Tapers and Hot Spots* (Invited talk), Gordon Research Conference “Plasmonics – optics at the nanoscale” in Keene State College, Keene, NH, USA, July 23-28, 2006.
97. *Nanolocalized Ultrafast Processes under Coherent Control* (Invited talk) 15th International Conference on Ultrafast Phenomena, Asilomar Conference Grounds, Pacific Grove, California, USA, July 31 - August 4 2006
98. *Theory and Modeling of Ultrafast Photoprocesses and Coherent Control in Metal Nanoplasmonics* (Invited Talk), Optics & Photonics 2006 SPIE Annual Meeting, 13-17 August 2006, San Diego, California USA.
99. *Nanoplasmonics* (Invited Short Course), Optics & Photonics 2006 SPIE Annual Meeting, 13-17 August 2006, San Diego, California USA.
100. *Nonlinear Processes in Nanoplasmonics* (Invited talk), Nonlinear Dynamics of Nanosystems, 28th-30th of August in Chemnitz, Germany
101. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields* (Invited talk) International Workshop "Plasmonics and Applications for Nanotechnologies" in Singapore; 5-7 December 2006.

102. *Causality and Negative Refraction* (Invited talk), International Workshop "Plasmonics and Applications for Nanotechnologies" in Singapore; 5-7 December 2006.
103. *Plasmonic Enhancing Nanoantennas for Photodetection* (Prabath Hewageegana and Mark I. Stockman, Invited talk), International Conference on Quantum Well Infrared Photodetectors, June 21-24, 2006, Sri Lanka.
104. *Nanolocalized Ultrafast Processes under Coherent Control*, 15th International Conference on Ultrafast Phenomena, Asilomar Conference Grounds, Pacific Grove, California, USA, July 31 - August 4 2006.
105. *Extreme Nanoplasmonics*, Optics & Photonics 2006 SPIE Annual Meeting, 13-17 August 2006, San Diego, California USA.
106. *Ultrafast, Nonlinear, and Active Nanoplasmonics*, 2005 Workshop of the Center of Excellence for the 21st Century (COE21) (Invited Talk), Tokyo, Japan, October 1-2, 2005.
107. *Coherent, Nonlinear, and Active Nanoplasmonics*, (Invited Talk), M. I. Stockman and D. J. Bergman, Progress In Electromagnetics Research Symposium 2005, Hangzhou, China, August 22-26, Abstracts, p. 230 (Electromagnetics Academy, Boston, 2005).
108. *Nano-Concentration of Optical Energy in Graded Nanoplasmonic Waveguides* (Invited Talk), M. I. Stockman, Progress In Electromagnetics Research Symposium 2005, Hangzhou, China, August 22-26, Abstracts, p. 109 (Electromagnetics Academy, Boston, 2005).
109. *Coherent, Nonlinear, and Active Nanoplasmonics* (Invited Talk), M. I. Stockman, IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting 2005, Washington, DC, July 3-8, 2005 *Ultrafast Nonlinear Photoprocesses in Nanoplasmonics*, M. I. Stockman, 2006 Conference on Ultrafast Optics V and Applications of High Field and Short Wavelength Sources XI, , Nara, Japan, September 25-30, 2005.
110. *Coherent, Nonlinear, and Active Nanoplasmonics* (Invited Talk), M. I. Stockman, IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting 2005, Washington, DC, July 3-8, 2005.
111. *Coherent, Nonlinear, and Active Nanoplasmonics* (Invited Talk), M. I. Stockman, Workshop DFG-SPP: Electrodynamic Metamaterials, Bad Honnef, Germany, June 27, 2005.
112. *Adiabatic Energy Concentration in Graded Nanoplasmonic Waveguides*, M. I. Stockman, CLEO/QELS 2005, Baltimore, MD, May 22-27, Talk **QMK2**.
113. *Ultrafast Processes in Nanoplasmonics* (Invited Talk), Workshop on Attosecond Science: Future Applications in Physics and Chemistry, ITAMP, Harvard University, May 1-4, 2005.
114. *Semiconductor Quantum Dots in Metal Nanostructures* (Invited talk), 2005 APS March Meeting, Los Angeles, CA, 2005.
115. *Theory of Nanoplasmonics: Optical Properties of Plasmonic Nanosystems* (Invited Lecture Course), Winter College *Optics and Photonics in Nanoscience and Nanotechnology*, The Abdus Salam International Center for Theoretical Physics, Trieste, Italy, 7-18 February, 2005.
116. *Coherent, Nonlinear, and Active Nanoplasmonics* (Invited Talk), 8th French-European/Israeli Conference on Nonlinear Optics (FRISNO8), Ein Bokek, Israel, February 20-25, 2005
117. *Coherent, Nonlinear, and Active Nanoplasmonics* (Invited Talk), 35th Winter Conference Physics of Quantum Electronics, Snowbird, UT, January 2-9, 2005.

118. *Computational Nanophotonics* (Invited paper), DOE Contractors Meeting *Condensed Phase and Interfacial Molecular Science*, October 24–27, 2004, Airlie Conference Center, Warrenton, VA.
119. *Surface Plasmon Lasers and Ultrafast Nonlinear Nanoplasmonic Effects* (Invited Talk), M. I. Stockman, OSA Frontiers in Optics Meeting, Rochester, New York, 10-14 October 2004, Paper #FThS4.
120. *Coherent, Nonlinear, and Active Nanoplasmonics* (Invited Talk), DOE Contractors Meeting *Atomic, Molecular and Optical Sciences*, September 12-15, 2004, Airlie Conference Center, Warrenton, VA
121. *Plasmon Laser,* (Invited Talk), M. I. Stockman, International Conference on Quantum Electronics and Photonics (Photon04), 6-9 September 2004, Glasgow, Great Britain.
122. *Nanophotonics in Metal-Semiconductor Nanostructures: Spaser and Other Phenomena* (Invited Talk), M. I. Stockman, Colorado Meeting on Fundamental Optical Properties of Semiconductors (FOPS), August 8–13, 2004 at the Stanley Hotel in Estes Park, Colorado.
123. *An Efficient Nanolens: Self-Similar Chain of Metal Nanospheres*, M. I. Stockman, K. Li, and D. J. Bergman, Optical Science and Technology (2004 SPIE Annual Meeting), 2-6 August 2004, Denver, Colorado, Paper #[5512-20].
124. *Delivering Energy to Nanoscale: Rapid Adiabatic Transformation, Concentration, and Stopping of Radiation in Nano-Optics* (Invited Paper), M. I. Stockman, Optical Science and Technology (2004 SPIE Annual Meeting), 2-6 August 2004, Denver, Colorado, Paper #[5512-05].
125. *Enhanced Second Harmonic Generation by Nanorough Surfaces: Nanoscale Depolarization, Dephasing, and Correlations* (Invited Paper), M. I. Stockman, D. J. Bergman, S. Brasselet, and J. Zyss, Optical Science and Technology (2004 SPIE Annual Meeting), 2-6 August 2004, Denver, Colorado, Paper # [5508-29].
126. *Coherent Control of Ultrafast Linear and Nonlinear Phenomena in Nanostructures*, M. I. Stockman, D. J. Bergman, and T. Kobayashi, International Conference on Ultrafast Phenomena, Niigata, Japan, July 25-30, 2004, Paper # TuC6.
127. *Enhanced, Ultrafast, and Stimulated Processes In Nanophotonics* (Invited Talk), M. I. Stockman, International Conference on Cooperative Phenomena in Optics and Transports in Nanostructures (CoPhen04) at Dresden (Germany), June 10-16, 2004.
128. *An Efficient Nanolens: Self-Similar Chain of Metal Nanospheres*, Mark I. Stockman, Kuiru Li, David J. Bergman, APS 2004 March Meeting, Montreal, Canada, March 22-26, 2004, Talk # DP34.002.
129. *Dipolar Emitters in Nanoscale Proximity of Metal Surface: Giant Enhancement of Relaxation* (Ivan Larkin, Mark Stockman, Marc Achermann, and Victor Klimov), APS 2004 March Meeting, Montreal, Canada, March 22-26, 2004, Talk # J36.013.
130. *Self-Similar Chain of Metal Nanospheres: Efficient Nanolens and Spaser* (M. I. Stockman, D.J. Bergman, K. Li, and X. Li) (Invited Talk), Progress in Electromagnetic Research Symposium (PIERS) 2004, Pisa, Italy, March 28-31, 2004.
131. *Localized Eigenstates of the Electromagnetic Field: Beyond The Quasi-Static Regime* (D. J. Bergman, K. Li, X. Li; M.I. Stockman) (Invited Talk), Progress in Electromagnetic Research Symposium (PIERS) 2004, Pisa, Italy, March 28-31, 2004.
132. *Excitons and Surface Plasmons in Metal-Semiconductor Nanosystems: SPASER and other Phenomena* (Invited Talk), (Mark I. Stockman), Photonic, Excitonic, and Spintronic Processes in Nanostructures, Dallas, Texas, January 22-24, 2004.

133. *Metal/Semiconductor Nanosystems: Spaser and other Phenomena* (Invited Talk), (Mark I. Stockman), The 34th Winter Conference on the Physics of Quantum Electronics, Snowbird, Utah, January 4-8, 2004.

134. *Nano-Localized Surface Plasmon States Near a Metallic Cluster* (Invited Talk) (David J. Bergman and Mark I. Stockman), Progress in Electromagnetics Research Symposium 2003 (PIERS2003), Honolulu, Hawaii, October 13-16, 2003.

135. *Quantum Nanoplasmonics: Surface Plasmon Amplification by Stimulated Emission of Radiation (SPASER) and Other Phenomena* (Invited Talk) (Mark I. Stockman and David J. Bergman), Progress in Electromagnetics Research Symposium 2003 (PIERS2003), Honolulu, Hawaii, 13-16 October, 2003.

136. *Surface Plasmon Amplification through Stimulated Emission of Radiation (SPASER)* (Mark I. Stockman and David J. Bergman), paper [5218-12], Optical Science and Technology (2003 SPIE Annual Meeting), San Diego, California, 3–8 August 2003. In: Complex Mediums IV: Beyond Linear Isotropic Dielectrics (Martin W. McCall, Graeme Dewar; Eds.), *Proceedings of SPIE* Vol. **5218**, pp. 93-102 (2003).

137. *Coherent Control of Ultrafast Nanoscale Localization of Optical Excitation Energy* (Invited Paper) (Mark I. Stockman, David J. Bergman, and Takayoshi Kobayashi), paper [5221-34], Optical Science and Technology (2003 SPIE Annual Meeting), San Diego, California, 3–8 August 2003. In: Plasmonics: Metallic Nanostructures and Their Optical Properties (Naomi J. Halas, Ed.), *Proceedings of SPIE* Vol. **5221**, pp. 182-196 (2003).

138. *Ultrafast Nanoscale Optical Fields: Spaser and Other Phenomena* (Invited Talk) (Mark I. Stockman), Gordon Research Conference "Nonlinear Optics and Lasers, July 27 - August 1, 2003, Colby-Sawyer College, New London, NH.

139. *Ultrafast Nanoplasmonics: Surface Plasmon Amplification by Stimulated Emission of Radiation (SPASER*) (Mark I. Stockman and David J. Bergman), Ultrafast Optics IV, June 29 - July 3, 2003, Vienna, Austria.

140. *Coherent control of nanoscale localization of ultrafast optical excitation in nanostructures*, (David J. Bergman, Mark I. Stockman and Takayoshi Kobayashi), Ultrafast Optics IV, June 29 - July 3, 2003, Vienna, Austria.

141. *Quantum Nanoplasmonics: Surface Plasmon Amplification by Stimulated Emission of Radiation (SPASER)* (Mark I. Stockman and David J. Bergman), QELS 2003 (Baltimore, Maryland June 1-6, 2003), Postdeadline Papers Book, Talk #QThPDA10, OSA (2003).

142. *Near-Field Phase-Sensitive Spectroscopy of Metal Nanoassemblies* (Alexander Mikhailovsky, Melissa Petruska, Mark I. Stockman, Andrew Bartko, Marc Achermann, Mark Stockman, and Victor Klimov), QELS 2003 (Baltimore, Maryland June 1-6, 2003), Technical Digest, Talk #QtuA2, OSA (2003).

143. *Coherent Control of Nanoscale Localization of Ultrafast Optical Excitation in Nanostructures* (Mark I. Stockman, David J. Bergman, and Takayoshi Kobayashi), QELS 2003 (Baltimore, Maryland June 1-6, 2003), Technical Digest, Talk #QMJ4, OSA (2003).

144. *Coherent Control of Linear and Nonlinear Ultrafast Optical Excitation of Nanosystems* (David J. Bergman, Takayoshi Kobayashi, and Mark I. Stockman) APS March 2003 Meeting (Austin, Texas, March 3-7, 2003), Bulletin of American Physical Soc. **48**, 1060 (2003).

145. *Quantum Nanoplasmonics: Surface Plasmon Amplification through Stimulated Emission of Radiation (Spaser)* (Mark I. Stockman and David J. Bergman), APS March 2003 Meeting (Austin, Texas, March 3-7, 2003), Bulletin of American Physical Soc. **48**, 976 (2003).

146. *Near-Field Interference Spectroscopy of Individual Metal Nanostructures* (Alexander Mikhailovsky, Melissa Petruska, Andrew Bartko, Marc Achermann, Mark Stockman, and Victor Klimov), APS March 2003 Meeting (Austin, Texas, March 3-7, 2003), Bulletin of American Physical Soc. **48**, 852 (2003).
147. *Ultrafast Processes in Metal-Insulator and Metal-Semiconductor Nanocomposites* (Mark I. Stockman), Photonics West 2003 Conference, SPIE, January 25-31, 2003 (Invited talk). Proceedings of SPIE Vol. **4992**, 60-74 (2003) (K. F. Tsen, J. Song, and H. Jiang, eds.).
148. *Femtosecond Energy Concentration in Nanosystems: Coherent Control*, (Mark I. Stockman, Sergey V. Faleev, and David J. Bergman), 6-th International Conference on Electronic Transport and Optical Properties of Inhomogeneous Media (ETOPIM-6) Abstracts, Salt Lake City, Utah, 14-19 July, 2002, p. 160 (University of Utah, 2002).
149. *Femtosecond Energy Concentration in Nanosystems Controlled by Excitation Phase*, (Mark I. Stockman, Sergey V. Faleev, and David J. Bergman), Proceedings of the Progress in Electromagnetics Research Symposium 2002 (PIERS 2002) (July 1 - 5, 2002, Cambridge, Massachusetts, USA), p. 842 (Invited Talk).
150. *Anderson Localization vs. Delocalization of Surface Plasmons in Nanosystems* (David J. Bergman, Mark I. Stockman, and Sergey V. Faleev), Proceedings of the Progress in Electromagnetics Research Symposium 2002 (PIERS 2002) (July 1 - 5, 2002, Cambridge, Massachusetts, USA), p. 841 (Invited Talk).
151. *Anderson Localization vs. Delocalization of Surface Plasmons in Nanosystems* (David J. Bergman, Mark I. Stockman, and Sergey V. Faleev), QELS 2002 (Long Beach, CA, May 19-24, 2002), Talk QF86, QELS 2002 Technical Digest, pp. 259-260, OSA, 2002.
152. *Femtosecond Energy Concentration in Nanosystems Coherently Controlled by Excitation Phase* (Mark I. Stockman, Sergey V. Faleev, and David J. Bergman), The Thirteenth International Conference on Ultrafast Phenomena (Vancouver, BC, Canada, May 12-17, 2002), Talk ME41-1, Technical Digest, pp. 135-136, OSA, 2002.
153. *Femtosecond Energy Concentration in Nanosystems Coherently Controlled by Excitation Phase Modulation* (Mark I. Stockman, Sergey V. Faleev, and David J. Bergman), In: Technical Proceedings of the Second International Conference on Computational Nanoscience and Nanotechnology (NanoTech 2002 - ICCN 2002), pp. 380-382 (Computational Publications, Boston, Geneva, San Francisco, 2002).
154. *Anderson Localization vs. Delocalization of Surface Plasmons in Nanosystems* (David J. Bergman, Mark I. Stockman, and Sergey V. Faleev), APS March 2002 Meeting (Indianapolis, Indiana, March 18-22, 2002), Bulletin of American Physical Soc. **47**, 1265 (2002).
155. *Self-Consistent Random-Phase Approximation for Interacting Electrons in Quantum Wells and Intersubband Absorption* (Sergey V. Faleev and Mark I. Stockman), APS March 2002 Meeting (Indianapolis, Indiana, March 18-22, 2002), Bulletin of American Physical Soc. **47**, 1189 (2002).
156. *Femtosecond Energy Localization on Nanoscale Controlled by Pulse Phase* (Mark I. Stockman, Sergey V. Faleev, and David J. Bergman, APS March 2002 Meeting (Indianapolis, Indiana, March 18-22, 2002), Bulletin of American Physical Soc. **47**, 734 (2002).
157. *Experimental and Many-Body Theoretical Investigations of Intersubband Far Infrared Absorption in Quantum Well Photodetectors* (Mark I. Stockman, Sergey V. Faleev, Steven G. Matsik, A. G. Unil Perera, and H. C. Liu), APS March 2002 Meeting (Indianapolis, Indiana, March 18-22, 2002), Bulletin of American Physical Soc. **47**, 59 (2002).

158. *Self-Consistent RPA for two-Dimensional Electron Gas: Kadanoff-Baym-Keldysh Approach* (S. V. Faleev and M. I. Stockman), APS March 2001 Meeting, Bulletin of American Physical Soc., **46**(1), 1147 (2001).
159. *Ultrafast Laser-Induced Processes in Nanostructured Materials*, APS March 2001 Meeting, Bulletin of American Physical Soc., **46**(1), 687 (2001).
160. *Coherently-Controlled Femtosecond Energy Localization on Nanoscale* (M. I. Stockman, S. V. Faleev, and D. J. Bergman), Gordon Research Conference *"Nonlinear Optics and Lasers"*, Colby-Sawyer College, New London, NH, 2001.
161. *Coherently-Controlled Femtosecond Energy Localization on Nanoscale* (M. I. Stockman, S. V. Faleev, and D. J. Bergman), Ultrafast Optics 2001 Conference, Montebello, Quebec, Canada, 2001, Abstracts (NRC-CNRC, Ottawa, Ontario, Canada, 2001), pp. 227-231.
162. *Ultrafast Laser-Induced Processes in Nanostructured Systems*, Eleventh Conference on Computational Research on Materials, Morgantown, West Virginia, 2001.
163. *Ultrafast Processes in Clusters and Nanocomposites*, Tenth Conference on Computational Research on Materials, Morgantown, West Virginia, 2000 (Invited talk).
164. *Femtosecond and Attosecond Giant Optical Responses and Fluctuations in Disordered Clusters, Nanocomposites and Rough Surfaces*, The Twelfth International Conference on Ultrafast Phenomena, Charleston, South Carolina, July 9-13, 2000 (Optical Society of America). Published in Technical Digest, pp. 318-320.
165. *Chaos of Excitations, Giant Fluctuations, and Nonlinear Optical Enhancement in Large Clusters and Nanocomposites*, Progress in Electromagnetics Research Symposium, Cambridge, Massachusetts, 5-14 July 2000 (PIERS 2000) (Invited Talk). Published in PIERS 2000 Proceedings (The Electromagnetics Academy, Cambridge, MA, 2000), p. 1006.
166. *Quantum Chaos and Correlation of Currents in Oscillator in Magnetic Field (A Model for a Quantum Dot with Soft Confining Potential)*, Ninth Conference on Computational Research on Materials, Morgantown, West Virginia, May 18-21, 1999 (Invited Talk).
167. *Nonlinear Optical Susceptibilities of Composites*, 1999 APS March Meeting, Atlanta, Georgia (1999) (M. I. Stockman and K. B. Kurlayev). Bull Amer. Phys. Soc. **44**(1), part II, 1055 (1999).
168. *Chaos and Turbulence of Quantum Currents for Nonlinear Oscillator in Magnetic Field*, 1999 APS March Meeting, Atlanta, Georgia (1999) (J. R. Evans and M. I. Stockman). Bull Amer. Phys. Soc. **44**(1), part II, 1789 (1999).
169. *Theory of Photon Drug Effect in Quantum Wells Based on Baym-Kadanoff-Keldysh Approach*, 1999 APS March Meeting, Atlanta, Georgia (1999) (M. I. Stockman and S. V. Faleev). Bull Amer. Phys. Soc. **44**(1), part II, 1900 (1999).
170. *Manifestations of Quantum Chaos in Nonlinear Optical Properties of Composites*, Eighth Conference on Computational Research on Materials, Morgantown, West Virginia, May 20-22, 1998 (Invited Talk).
171. *Chaos in Dipolar Eigenproblems*, 1998 APS March Meeting, Los Angeles, California, 1998. Bulletin of the American Physical Society (1998).
172. *Mesoscopic Computational Investigation of Optical Properties of Cluster Composites*, Seventh Conference on Computational Research on Materials, Morgantown, West Virginia, May 14-16, 1997 (Invited Talk).
173. *Singularities and Scaling of Optical Responses in Cluster Composites*, APS 1997 Spring Meeting, Kansas City, Missouri, 1997. Bulletin of the American Physical Society, **42**(1), 132 (1997).

174. *Nonlinear Photoprocesses and Scaling and Singularities of Local Fields in Nanocomposite Materials,* Third International Conference on Organic Nonlinear Optics (ICONO'3), Marco Island, Florida, December 16-20, 1996. University of Central Florida and CREOL, Orlando, Florida, 1996, p.195.

175. *Enhanced Nonlinear-Optical Responses of Disordered Clusters and Composites* (An Invited Lecture),Workshop *Mathematical Methods in Materials Science*, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, Minnesota, March 4-8, 1996. Bulletin of American Phys. Soc. **41**(1), 387 (1996).

176. *Inhomogeneous Localization and Enhanced Fluctuations and Responses in Disordered Clusters and Nanocomposites,* APS 1996 Spring Meeting, St. Louis, Missouri, 1996.

177. *Giant Fluctuations of Local Optical Fields in Fractal Clusters,* APS 1995 Spring Meeting, San Jose, California, 1995.

178. *Intersubband Optical Bistability in an Asymmetric Double Quantum Well,* APS 1995 Spring Meeting, San Jose, California, 1995.

179. *Giant Local-Field Fluctuations and Productions of Plasmas at Rough Surfaces by Femtosecond Pulses*, Optical Society of America Annual Meeting/Interdisciplinary Laser Science Conference-10 (Dallas, Texas, 1994), Bulletin of the American Physical Society, **39**, 1364 (1994) [Also in: Program and Abstracts of the 1994 Optical Society of America Annual Meeting/10-th Interdisciplinary Laser Science Conference (Paper #ThKK2)].

180. *Absorption Saturation Study of Landau Levels in Quasi-Two-Dimensional Systems,* Seventh International Conference on Superlattices, Microstructures and Microdevices, Banff, Alberta, Canada, 1994.

181. *Optics of Fractals,* Conference on Emerging Issues in Mathematics and Computation from the Materials Science, Pittsburgh, PA, 1994.

182. *Subband-Landau-Level Relaxation in Single and Coupled-Double Quantum-Well Structures,* Sixth International Conference on Modulated Semiconductor Structures, Garmish-Partenkirchen, Germany, 1993.

183. *Saturation Spectroscopy of Hot Carriers in Coupled-Double Quantum-Well Structures,* Eighth International Conference on Hot Carriers in Semiconductors, Oxford, England, 1993.

184. *Light-Induced Drift of Electrons in Double Quantum Wells,* 1993 March Meeting of American Physical Society, Seattle, Washington, Bull. Am. Phys. Soc. **38** (1), 592 (1993).

185. *Light-Induced Counter-Field Electron Transfer in Asymmetric Double Quantum Wells,* 1993 March Meeting of American Physical Society, Seattle, Washington, Bull. Am. Phys. Soc. **38** (1), 592 (1993).

186. *Scaling and Enhanced Raman Scattering from Fractal Clusters,* 1993 March Meeting of American Physical Society, Bull. Am. Phys. Soc. **38** (1), 62 (1993).

187. *Optical Responses of Fractal Media,* International Conference *Progress in Nonlinear Optics: Organic and Polymeric Materials,* Washington State University, Pullman, Washington, July 16-17, 1992.

188. *Photoinduced Electron Transfer Counter to the Bias Field in Coupled Quantum Wells,* Materials Research Society Spring Meeting, San Francisco, California, 1992.

189. *Theoretical Studies of (1) Semiconductor Heterostructures and (2) Silicon Clusters and Metallic Fractal Clusters,* Office of Naval Research Solid-State and Surface Chemistry Program Contractors Meeting, Arlington, Virginia, 1991.

190. *Scale-Invariant Theory of Optical Properties of Fractal Clusters,* Materials Research Society 1990 Fall Meeting, Boston, Massachusetts.

191. *Monte-Carlo Simulation of Polarization-Selective Spectral Hole Burning in Fractal Clusters,* Materials Research Society 1990 Fall Meeting, Boston, Massachusetts.

192. *Theory and Numerical Simulation of Optical Properties of Fractal Clusters.* First Canadian Conference on Computational Chemistry, Quebec, Canada, 1991 (Invited Talk).

193. *Scale-Invariant Theory of Optical Properties of Fractals,* Vavilov Conference on Nonlinear Optics, USSR Academy of Sciences, Novosibirsk, Russia, 1990.

194. *Nonlinear Optics of Metallic Fractal Clusters: Giant Nonlinearities and Optical Information Recording,* in: *Abstracts of the Sixth Interdisciplinary Laser Science Conference (ILS-VI),* Minneapolis, Minnesota, 1990, Bull. Am. Phys. Soc. **35** (7), 1513 (1990).

195. *Laser Nanomodification of Surfaces and Superdense Optical Memory,* International Workshop on the Optical Information Processing, Novosibirsk, Russia, 1989.

196. *Giant Optical Nonlinearities of Fractal Clusters,* Second European Conference on Quantum Electronics, Dresden, 1989, Europhysical Conference Abstracts, **13D**, Part 1, #I16 (1989).

197. *Optics of Fractals,* International School on Laser Applications, Sayanogorsk, Russia, 1989.

198. *Nanomodification of Surfaces and Macromolecules,* International School on Laser Applications, Sayanogorsk, Russia, 1989.

199. *Fractal Clusters and Light-Scattering from Biological Objects,* Second International Conference on Laser Scattering Spectroscopy of Biological Objects, Book of Summaries, Pecs, Hungary, Janus Pannonius University, pp. 41-42 (1988).

200. *Nonlinear Optics of Metallic Fractal Clusters,* Abstracts of the 13-th International Conference on Coherent and Nonlinear Optics, Minsk, USSR, p.141-142 (1988).

201. *Site-Specific Laser Photomodification of Macromolecules and Surfaces,* 13-th International Conference on Coherent and Nonlinear Optics, Minsk, USSR (1988).

11. Invited Colloquium Talks

1. *Nanoplasmonics: Linear, Nonlinear, and Quantum,* Zhong-Guan-Cun Forum on Condensed Matter Physics – the 232th Lecture at Beijing Institute of Physics, Chinese Academy of Sciences, Beijing, November 23, 2011.
2. *Nanoplasmonics: The Physics behind the Applications,* Colloquium at the Italian Institute of Technology, June 28, 2011.
3. *Spaser and Gain Nanoplasmonics,* Colloquium of the Department of Physics, King's College, London, UK, June 21, 2012.
4. *Nanoplasmonics: Smaller, Stronger, Faster!,* Colloquium at the Mechanical Engineering Division, Korean Advanced Institute of Science and Technology, Daejeon, S. Korea, May 12, 2011.
5. *Nanoplasmonics: The Physics behind the Applications,* Colloquium of the Department of Physics and Astronomy, University of Central California, 15 April, 2011, Los Angeles, CA, USA.

6. *Nanoplasmonics: The Physics behind the Applications,* Center for Revolutionary Solar Photoconversion (CRSP) Seminar at the University of Colorado, 14 April 2011, Boulder, CO, USA.
7. *Nanoplasmonics: Citius, Minimius, Fortius!*. Science at the Edge Seminar, Michigan State University, East Lansing. MI, January 14, 2011.
8. *Metallization of Dielectric Nanofilms in Strong Adiabatic Fields,* Special Seminar at the Max Plank Institute for Quantum Optics (MPQ), Garching, Germany, November 17, 2010.
9. *Nanoplasmonics: Smaller, Stronger, Faster!,* Colloquium of the Department of Physics and Center for Materials Research, Norfolk State University, Norfolk, VA, November 12, 2010.
10. *Nanoplasmonics: Smaller, Stronger, Faster!,* Colloquium at Institute of Electronics Materials Technology, Warsaw, Poland, November 5, 2010.
11. *Nanoplasmonics: The Physics behind Applications,* Colloquium at Institute of Electronics Materials Technology, Warsaw, Poland, November 4, 2010.
12. *Nanoplasmonics: Smaller, Stronger, Faster!* Seminar of the Institute of Physics, Wroclaw Polytechnic University, Wroclaw, Poland, November 2, 2010.
13. *Nanoplasmonics: Phenomena and Applications,* Applied Physics Colloquium, School of Engineering and Applied Science, Harvard University, March 12, 2010
14. *Nanoplasmonics: Phenomena and Applications,* Samsung Advanced Institute of (SAIT), S. Korea (February 23, 2010).
15. *Nanoplasmonics: Applications and Phenomena,* Colloquium of the Department of Electrical Engineering, University of Michigan, Ann Arbor, MI, January 20, 2010.
16. *Present and Future Trends of Nanoplasmonics,* Colloquium of the Department of Physics, University of Michigan, Ann Arbor, MI, January 19, 2010.
17. *New Horizons of Nanoplasmonics: From SPASER to Attoseconds,* Seminar of Condensed Matter Physics, Tel Aviv University, December 24, 2009.
18. *New Horizons of Nanoplasmonics: From SPASER to Attoseconds,* Colloquium of the Department of Physics, Taiwan National University, Taipei, Taiwan, December 19, 2009.
19. *New Horizons of Nanoplasmonics: From SPASER to Attoseconds,* University of Colorado at Boulder Physics Colloquium, November 4, 2009.
20. *SPIDER (Surface-Plasmon-Induced Drag-Effect Rectification),* Italian Institute of Technology, Genoa (Italy), October 26, 2009.
21. *New Horizons of Nanoplasmonics: From SPASER to Attoseconds,* University of Georgia at Athens Physics Colloquium, September 10, 2009.
22. *New Horizons of Nanoplasmonics: From SPASER to Attoseconds,* Texas A&M University Physics Colloquium, September 3, 2009.
23. *New Horizons of Nanoplasmonics: From Attoseconds to Terahertz,* SFB 613 Seminar, University of Bielefeld, Germany, Monday, May 11,2009, 4-5 pm.
24. *New Horizons of Nanoplasmonics: From Attoseconds to Terahertz,* Colloquium at University of Vigo, Spain, Department of Chemistry, Monday, April 27, 2009, 12:30-1:30 pm.*New Horizons of Nanoplasmonic,* Colloquium of Max Plank Institute for Quantum Optics (MPQ), Garching, Germany, Wednesday, March 11, 2009, 3:40-4:10 pm.
26. *Plasmonics: From Attoseconds to Terahertz,* University of Southampton, UK, December 10, 2008.
27. *Fundamentals and Applications of Nanoplasmonics,* University Magna Grecia, Catanzaro, Italy, November 19, 2008.

28. *Fundamentals and Applications of Nanoplasmonics*, Fresnel Institute, Marseille, France, October 15, 2008.
29. *Trends in Nanoplasmonics*, Institut d'Alembert, l'Ecole Normale Supérieure de Cachan, France, July 2008.
30. *Ultrafast and Quantum Nanoplasmonics*, l'Ecole Supérieure de Physique et de Chimie Industrielles de la ville de Paris (ESPCI), France, June 17, 2008.
31. *Ultrafast and Quantum Nanoplasmonics*, ICFO - Institute of Photonic Sciences, Castelldefels (Barcelona) Spain, May 15, 2008.
32. *Ultrafast and Quantum Nanoplasmonics*, Instituto de Optica – CSIC, Madrid, Spain.
33. *Ultrafast and Quantum Nanoplasmonics*, Department of Physics, University of Texas at Austin, May 1, 2008.
34. *Ultrafast and Quantum Nanoplasmonics*, Korea National University, Seoul, S. Korea, February 25, 2008.
35. *Ultrafast and Quantum Nanoplasmonics*, Seoul National University, Seoul, S. Korea, February 26, 2008.
36. *Coherent, Nonlinear, and Ultrafast Nanoplasmonics*, Physics Department, Queens College CUNY, December 10, 2007.
37. *Nanoplasmonics: Phenomena and Applications*, Chemistry Division Colloquium, Argonne National Laboratory, December 3, 2007.
38. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields*, Monthly Seminar of the Russell Berry Nanotechnology Institute, Technion City (Haifa, Israel), November 28, 2007.
39. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields*, Weizmann Institute of Technology (Rehovot, Israel), November 21, 2007.
40. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields*, Bar Ilan University (Tel Aviv, Israel), November 20, 2007.
41. *Fundamentals and Applications of Nanoplasmonics*, Colloquium of the Materials Science and Engineering Program, Tel Aviv University, (Tel Aviv, Israel), November 20, 2007.
42. *Nanoplasmonics under Coherent Control*, Colloquium of the Department of Physics, Tel Aviv University, (Tel Aviv, Israel) November 18, 2007.
43. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields*, Stevens Institute of Technology, Hoboken (NJ, USA), February 28, 2007
44. *Ultrafast Nanoplasmonics*, Colloquium of the Max Plank Institute for Quantum Optics, Garching at Munich, Germany, February 2007
45. *Nanoplasmonics*, Colloquium at the Department of Physics, National Taiwan University, Taipei, December 19, 2007.
46. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields*, Colloquium at Ecole Normale Supérieure de Cachan (France), March 17, 2006.
47. *Nanoplasmonics: Generation and Control of Nanoscale Optical Fields*, Colloquium of the Department of Electrical Engineering at Columbia University, May 1, 2006.
48. *Nonlinear Nanoplasmonics and Coherent Control on Nanoscale*, Colloquium of Department of Electrical Engineering, University of California at San Diego, August 18, 2006.
49. *Coherent, Nonlinear, and Ultrafast Nanoplasmonics*, Colloquium of the Department of Physics, National Taiwan University, December 12, 2006.
50. *Nanoplasmonics and its Applications*, Chemistry Division, Los Alamos National Laboratory, November 9, 2005.
51. *Coherent, Nonlinear, and Active Nanoplasmonics*, Sonderseminar des Centrums für Angewandte Photonik – CAP, University of Konstanz, Germany, June 29, 2005.

52. *Coherent, Nonlinear, and Active Nanoplasmonics*, Institut für Angewandte Physik /Photophysik, Technische Universität Dresden, Germany, July 26, 2005.
53. *Coherent, Nonlinear, and Active Nanoplasmonics*, Optics Seminar, University of North Carolina at Charlotte, Friday, March 4, 2005.
54. *Coherent, Nonlinear, and Active Nanoplasmonics (Nanolocalization of Optical Energy)*, Colloquium of Nanoscience Program, University of Pittsburgh, January 21, 2005.
55. *Coherent, Nonlinear, and Active Nanoplasmonics*, Colloquium at the Department of Chemical Physics, Weizmann Institute of Sciences, Rehovot, Israel, December 28, 2004.
56. *Coherent, Nonlinear, and Active Nanoplasmonics*, Colloquium at the Department of Electrical Engineering, Technion – Israel Institute of Technology, Technion City, Haifa, Israel, December 28, 2004.
57. *Coherent, Nonlinear, and Active Nanoplasmonics*, Colloquium at the Department of Physics, Tel Aviv University, Tel Aviv, Israel, 18 December, 2004.
58. *Coherent, Nonlinear, and Active Nanoplasmonics*, Colloquium of the Department of Computer Engineering at University of Illinois at Urbana-Champaign, December 2-3, 2004.
59. *Coherent, Nonlinear, and Active Nanoplasmonics*, Rice University, Houston, TX, October 21-22, Colloquium of the Nanoscience Program.
60. *Plasmonic Laser (Coherent, Ultrafast, and Nonlinear Nanoplasmonics)*, Seminar of the Nanophotonics Centre of the University of Southampton, UK, 2.00 pm, 9 September 2004.
61. *Coherent, Ultrafast, and Nonlinear Nanoplasmonics*, Colloquium of the Department of Physics, Imperial College, London, UK, September 6, 2004.
62. *Nanophotonics: Ideas and Phenomena*, Colloquium of the Steacie Institute for Molecular Sciences, NRC, Ottawa, Canada, August 19, 2004.
63. *Nanophotonics: Ideas and Phenomena*, Oberseminar der Sektion Physik und der Center for Nanoscience, Ludwig Maximilan University, Munich, Germany, 25 June 25, 2004.
64. *Nanophotonics: Ideas and Phenomena*, Colloquium Ehrenfestii, University of Leiden, The Netherlands, June 9, 2004.
65. *Nanophotonics: Ideas and Phenomena*, Institute for Physics and Nanotechnology, Aalborg University, Denmark, June 2, 2004.
66. *Enhanced, Ultrafast, Coherent, and Active Nanoplasmonics*, Colloquium of the Theoretical Department of Los Alamos National Laboratory, May 26, 2004.
67. *Plasmonic Nanophotonics*, Colloquium of the Department of Chemistry, University of Rochester, Rochester, NY, March 1, 2004.
68. *Nanophotonics: Ideas and Phenomena*, MRSEC Seminar, The James Franck Institute and The Materials Research Center, University of Chicago, Chicago, IL, February 10, 2004.
69. *Nanophotonics: Ideas and Phenomena*, Biomolecular Nanotechnology Seminar, Department of Physics and Astronomy, Arizona State University, Tempe, AZ, December 4, 2003.
70. *Nanofocusing and Generation in Nanooptics*, Colloquium of the Department of Chemistry, GaTech, Atlanta, Georgia, December 1, 2003.
71. *Novel Nanooptics*, Nanophysics Seminar, Department of Physics, Vanderbilt University, Nashville, Tennessee, October 31, 2003.
72. *Nanoscale Photoprocesses*, Colloquium at Illinois Institute of Technology, Chicago, Illinois, September 18, 2003.
73. *Novel Nanooptics*, Colloquium of the Department of Physics, University of Utah, Salt Lake City, Utah, September 11, 2003.

74. *Second Harmonic Generation on Nanostructured Surfaces*, Colloquium of Laboratory for Quantum and Molecular Photonics, École Normale Supérieure de Cachan, Paris, France, July 10, 2003.
75. *Ultrafast and Coherent Photoprocesses on Nanoscale*, Seminar of the Department of Polymer Science, University of Akron, Ohio, November 21, 2002.
76. *Ultrafast and Nonlinear Optical Processes in Nanosystems*, Colloquium of the Department of Physics, University of Wisconsin-Stevens Point (November 1, 2002).
77. *Ultrafast Laser-Induced Processes in Nanosystems*, Softmatter Nanotechnology and Advanced Spectroscopy Colloquium of the Chemistry Division, Los Alamos National Laboratory, Los Alamos, NM, June 13, 2002.
78. *Ultrafast Concentration and Transfer of Energy in Nanostructures: Optical Excitation and Control*, Center for Engineering Science Advanced Research and Computer Science and Mathematics Division Colloquium, Oak Ridge National Laboratory, Oak Ridge, TN, April 19, 2002.
79. *Ultrafast Processes in Nanosystems: "Ninth-Wave" Effect, Anderson Localization/Delocalization of Surface Plasmons, and Coherent Control of the Spatial Localization on Nanoscale*, Condensed Matter Seminar, Department of Physics, Georgia Tech, March 14, 2002.
80. *Ultrafast Processes in Nanosystems*, Colloquium of the Department of Physics, University of Georgia at Athens, October 4, 2001.
81. *Giant Fluctuations, Enhancement and Ultrafast Optical Responses in Disordered Clusters, Composites and Rough Surfaces*, Department of Physics, Emory University, Atlanta, Georgia, February 21, 2000.
82. *Femtosecond and Attosecond Chaos, Giant Fluctuations and Nonlinear Optical Enhancement in Disordered Clusters, Nanocomposites and Rough Surfaces*, Colloquium of the Department of Electrical Engineering, Washington University, Saint Louis, February 11, 2000.
83. *Femtosecond and Attosecond Chaos, Giant Fluctuations of Local Optical Fields and Nonlinear Optical Enhancement In Disordered Clusters, Nanocomposites and Rough Surfaces*, Colloquium of the Department of Physics, University of Toronto, Ontario, Canada, January 24, 2000.
84. *Femtosecond and Attosecond Chaos, Giant Fluctuations of Local Optical Fields and Nonlinear Optical Enhancement In Disordered Clusters, Nanocomposites and Rough Surfaces*, Colloquium of the Department of Physics, Georgia Tech, January19, 2000.
85. *Nonlinear Optical Enhancement and Eigenmode Chaos in Nanocomposites* Colloquium of the Department of Physics, University of Georgia at Athens, October 29, 1999.
86. *Nonlinear Optical Enhancement in Clusters and Nanocomposites*, Colloquium of the Department of Physics and Astronomy, Alabama State University, Tuscaloosa, Alabama, February 10, 1999.
87. *Field-Theoretical Approach to Light-Induced Drift (Photon-Drag) Effect in Semiconductor Quantum Wells*, University of Georgia, Athens, Georgia, October 10, 1998
88. *Enhanced Nonlinear Responses, Chaos, and Correlation of Eigenmodes in Large Disordered Clusters*, University of Georgia, Athens, Georgia, October 4, 1997
89. *Inhomogeneous Plasmon Localization, Chaos, and Correlations in Large Disordered Clusters*, Georgia State University, Atlanta, GA, 1997.
90. *Electron Dynamics and Nonlinear Optical Responses in Confined Systems (Heterostructures, Clusters And Composites)*, Georgia State University, Atlanta, Georgia, 1996.

91. *Fluctuations, Scaling, and Enhanced Nonlinear-Optical Processes in Fractals*, James Frank Institute, University of Chicago, Chicago, Illinois, 1993.
92. *New Photoinduced Electron-Transfer Effects in Semiconductor Quantum Wells*, Department of Physics and Astronomy, State University of New York at Buffalo, Amherst, New York, 1993.
93. *Enhanced Nonlinear Photoprocesses and Fluctuations in Fractal Media*, Institute of Optics, College of Engineering and Applied Science, University of Rochester, Rochester, New York, 1993.
94. *Enhanced Nonlinear Photoprocesses and Fluctuations in Fractal Media*, Department of Physics and Astronomy and Ames Laboratory, Iowa State University, Ames, Iowa, 1993.
95. *Enhanced Nonlinear Photoprocesses and Fluctuations in Fractal Media*, Department of Chemistry, University of Toronto, Toronto, Ontario, Canada, 1993.
96. *Concept of Multifractality in Physics*, Department of Pure and Applied Mathematics, Washington State University, Pullman, Washington, 1992.
97. *Surface-Enhanced Raman Scattering from Fractals: Scale-Invariant Theory*, Department of Physics, Washington State University, Pullman, Washington, 1992.
98. *Counter-Field Electron Transfer in Coupled Semiconductor Quantum Wells*, Department of Physics, Washington State University, Pullman, Washington, 1992.
99. *Optics of Fractals*, Department of Physics, University of Idaho, Moscow, Idaho, 1992.
100. *Fractal Clusters and Enhanced Optical Processes*, Department of Chemistry, Washington State University, Pullman, Washington, 1992.
101. *Theoretical Studies of (1) Semiconductor Heterostructures and (2) Silicon Clusters and Metallic Fractal Clusters*, Molecular Science Research Center, Battelle Pacific Northwest Laboratories, Richland, Washington, 1991.
102. *Light-Induced Drift of Electrons in Semiconductor Quantum Wells*, Department of Physics, Washington State University, Pullman, Washington, 1991.
103. *Nonlinear Optics of Fractals*, Department of Physics, University of Michigan, Ann Arbor, Michigan, 1990.
104. *Nonlinear Photoprocesses in Macromolecules*, Department of Physics and Astronomy, University of New Mexico, Albuquerque, New Mexico, 1990.
105. *Optical Properties of Fractal Structures*, Department of Chemistry, University of Washington, Seattle, Washington, 1990.
106. *Light-Induced Drift of Electrons in Semiconductor Quantum Wells*, Department of Physics and Astronomy, State University of New York at Buffalo, Buffalo, New York, 1990.