

Koichi OKAMOTO

Curriculum Vita, January 2007

PERSONAL

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EDUCATION

- Ph.D. Chemistry, March 1998, Graduate School of Science, Kyoto University
Research Field: Photo-Physical Chemistry, Nonlinear Optics
Thesis Adviser: Prof. Noboru Hirota
- M.S. Chemistry, March 1994, Graduate School of Science, Kyoto University
- B.S. Chemical Engineering, 1991, Faculty of Engineering, Doshisha University

PROFESSIONAL EXPERIENCES

- PRESTO (Sakigake) Researcher (Additional Post), Japan Science and Technology Agency (JST) Oct. 2006 – current
- Senior Research Fellow (Faculty Position), Physics, Caltech Feb. 2005 – current
- Senior Postdoctoral Scholar, Electrical Engineering, Caltech Jun. 2004 – Jan. 2005
- Postdoctoral Scholar, Electrical Engineering, Caltech Jun. 2001 – May.2004
- Research Fellow of the Japan Society for the Promotion of Science, Department of Electronic Science and Engineering, Kyoto University Apr. 2000 – Dec. 2002
- Postdoctoral Researcher, Venture Business Laboratory, Kyoto University Apr. 1998 – Mar. 2000
- Lecturer, Faculty of Integrated Human Studies, Kyoto University Apr. 1997 – Mar. 1998

AWARDS

- Kansai Silicon valley Forum, Venture Business Prize Mar. 2001
- JSPS Research Fellowship for Young Scientists Apr. 2000 – Dec. 2002
- Grant of the Research Foundation for Opto-Science and Technology Apr. 2000 – Mar. 2002
- Kansai Techno-Idea Prize '2000 Nov. 2000
- Konica Imaging Science Prize Jan. 2000
- Kansai techno-Idea Prize '99, Japan Nov. 1999
- Young Researcher Prize in Kyoto University-Venture Business Lab. May 1999
- Kansai Silicon valley Forum, Venture Idea Prize May 1999
- KU-VBL, Techno-Idea Prize Nov. 1998
- KU-VBL, Research Grant for Young Scientists Sep. 1998 – Mar. 2001
- Fellowship of the Japan Scholarship Foundation Apr. 1994 – Mar. 1997

RESEARCH INTERESTS

Main research fields are Solid-State Physics, Quantum Optics, Electrical Engineering, Materials Science, and Photo-Chemistry, etc. Current research interests include design, fabrication, and characterization of novel materials and devices based on Nanophotonics and Plasmonics, and development of highly time-spatial resolved spectroscopy.

TECHNICAL SKILLS

- Optical characterization techniques; Ultra-fast time-resolved laser spectroscopy, Pump & probe spectroscopy, Nonlinear spectroscopy (transient grating technique, etc.), Raman spectroscopy, Near-field scanning optical microscopy, Confocal scanning laser microscopy, Photoluminescence, Electroluminescence, Cathodoluminescence, Photothermal spectroscopy, Time-space resolved spectroscopy, etc.
- Nanofabrication techniques; Electron beam lithography, UV photolithography, Laser beam writing, Reactive ion etching (RIE), Chemically assisted ion etching (CAIBE), Inductively coupled plasma reactive ion etching (ICP/RIE), electrochemical anodization, Sputter deposition, Metal evaporation, Ion milling, chemical etching, etc.

By using these techniques, I can design, fabricate, and characterize nanophotonic devices (photonic crystals, quantum wires/dots, microcavities, waveguides, etc.), plasmonic devices (super bright and high-speed light emitter, etc.), and microfluidic devices (cell sorter, single molecule sensor, DNA sequencer, etc).

TEACHING EXPERIENCE

California Institute of Technology

- Teaching Assistant; Electrical Engineering and Applied Physics 2004 –
Lectured contemporary semiconductor device technology in an undergraduate course; “Solid-State Electronics for Integrated Circuits”.
Managed laboratory sessions of device fabrication; Graded home works and exams.
- Co-Mentor; Senior Thesis of Electrical Engineering 2004 –
Taught nanophotonics, plasmon optics, near-field optics and device fabrication/characterization;
Supervised undergraduate students for their senior thesis projects.
- Co-Mentor; Summer Undergraduate Research Fellowship (SURF) 2002 –
Taught fundamental optics, semiconductor physics and device fabrication/characterization;
Guided undergraduate students for their SURF projects.
- Nominated for the 2005-2006 Associated Students of the California Institute of Technology (ASCIT) Teaching Award.

Ritsumeikan University

- Lecturer; College of Science and Engineering 2000 – 2001
Lectured in an undergraduate course “Optics and Electronics Laboratory”

Kyoto University

• Lecturer; Faculty of Integrated Human Studies 1997 – 1998
Lectured in an undergraduate course “Fundamental Physics Laboratory”
and “Analytical and Environmental Chemistry Laboratory”.

• Teaching Assistant; Faculty of Science, Department of Chemistry 1994 – 1995
Lectured in an undergraduate course “Physical Chemistry Laboratory”

Ryukoku University

• Teaching Assistant; Faculty of Science and Technology 1993 – 1998
Lectured in an undergraduate course “Fundamental Physics Laboratory”

Doshisha University

• Teaching Assistant; Faculty of Engineering 1990 – 1991
Lectured in an undergraduate course “Chemical Engineering Laboratory”

RESEARCH GRANTS

As a Principle-Investigator

• **K. Okamoto**, “Development of super bright light emitting devices based on plasmonics”, Precursory Research for Embryonic Science and Technology (Sakigake), JST, 2006-2010, ¥3,000,000~¥4,000,000 (final value was not decided)

• **K. Okamoto**, “Development of novel time-spatial resolved laser spectroscopy, and application to photonics material”, Research Fellowship for Young Scientists, JSPS, 2000-2002, ¥3900,000.

• **K. Okamoto**, T. Yaoi, J. Shimada, M. Mabuchi, “Development and application of highly spatial resolved femto-second laser spectroscopy”, Grant of the Research Foundation for Opto-Science and Technology, 2000-2001, ¥3100,000.

• **K. Okamoto**, M. Mabuchi, Y. Kawakami, “Development and application of novel imaging technology which has highly time and special resolution with ultra-fast pulse laser system”, Grant of the Konica Imaging Science Prize, 2000, ¥1000,000.

As a Co-Investigator

• A. Scherer, G. DeRose, S. Quake, M. Barbic, **K. Okamoto**, “Characterization of Plasmonic and Optical Microcavity Light Emitters” Defense University Research Instrumentation Program (DURIP), 2004, \$116,139.

• Y. Kawakami, **K. Okamoto**, Y. Nobeyama, S. Fujita, M. Funato, “Elucidation of nonradiative recombination mechanism in wide bandgap semiconductors”, Grant-in-Aid for Scientific Research, Japan Society for the Promotion of Science (JSPS), 2000-2002, ¥1,3600,000.

• Y. Kawakami, M. Funato, **K. Okamoto**, T. Narita, “Elucidation of emission mechanism in nano-structured nitride semiconductors probed by near-field optical spectroscopy”, Grant-in-Aid for Scientific Research, JSPS, 2003-2005, ¥3,1000,000.

PUBLICATION LIST

Journal Papers

- (1) **K. Okamoto**, I. Niki, A. Shvartser, G. Maltezos, Y. Narukawa, T. Mukai, Y. Kawakami, A. Scherer, "Surface plasmon enhanced bright light emission from InGaN/GaN" *Physica Status Solidi*, Accepted 11/29/2006, *in press*
- (2). T. D. Neal, **K. Okamoto**, A. Scherer, M. S. Liu, A. K-Y Jen, C.-F. Shu, "Time-resolved photoluminescence spectroscopy of surface-plasmon-enhanced light emission from conjugate polymers" *Applied Physics Letters*, Vol. 89, Art. No. 221106 (2006).
- (3). B. Min, S. Kim, **K. Okamoto**, L. Yang, A. Scherer, H. Atwater, K. Vahala, "Ultralow threshold on-chip toroidal microcavity nanocrystal quantum dot lasers" *Applied Physics Letters*, Vol. 89, Art. No. 191124 (2006).
- (4). M. Harada, **K. Okamoto**, and M. Terazima, "Diffusion of the Platinum Ions and Platinum Nanoparticles during the Photo-reduction Processes Using the Transient Grating Method" *Langmuir*, (2006) *in press*
- (5). **K. Okamoto**, S. Vyawahare, and A. Scherer, "Surface plasmon enhanced bright emission from CdSe quantum dot nanocrystals" *Journal of the Optical Society of America B*, Vol. 23, No. 8, pp. 1674-1678 (2006).
- (6). E. Ko, J. Choi, **K. Okamoto**, Y. Taka, J. Lee, "Electrochemical conditions for the synthesis of Cu₂O nanowires in alumina template" Vol. 7, No. 7, pp. 1505-1509 (2006).
- (7). **K. Okamoto**, A. Scherer, Y. Kawakami, "Near-field scanning optical microscopic transient lens for carrier dynamics study in InGaN/GaN" *Applied Physics Letters*, Vol. 87, No. 16, Art. No. 161104 (2005).
→ **Highlighted at Editors' Choice, *Science* Vol.310, p.591 (2005).**
- (8). **K. Okamoto**, A. Kaneta, Y. Kawakami, S. Fujita, J. Choi, M. Terazima, T. Mukai, "Confocal micro-photoluminescence of InGaN-based light emitting diodes" *Journal of Applied Physics*, Vol. 98, No. 6, Art. No. 064503 (2005).
- (9). **K. Okamoto**, T. D. Neal, Z. Zhang, D. T. Wei, A. Scherer, "Molecular dynamics study of photochromic molecules probed by the mask pattern transferred transient grating technique" *Chemical Physics Letters*, Vol. 414, pp. 155-160 (2005).
- (10). **K. Okamoto**, I. Niki, A. Scherer, Y. Narukawa, T. Mukai, Y. Kawakami, "Surface plasmon enhanced spontaneous emission rate of InGaN/GaN quantum wells probed by time-resolved photoluminescence spectroscopy" *Applied Physics Letters*, Vol. 87, No. 7, Art. No. 071102 (2005).
- (11). T. D. Neal, **K. Okamoto**, A. Scherer, "Surface plasmon enhanced emission from dye doped polymer layers" *Optics Express*, Vol. 13, No. 14, pp. 5522-5527 (2005).
→ **Highlighted at *Laser Focus World*, September 2005, p. 36.**
- (12). **K. Okamoto**, I. Niki, A. Shvartser, Y. Narukawa, T. Mukai, and A. Scherer, "Surface plasmon enhanced super bright InGaN light emitter" *Physica Status Solidi (c)*, Vol. 2, No. 7, pp. 2841-2844 (2005).
- (13). **K. Okamoto**, Z. Zhang, D. T. Wei, and A. Scherer, "Mask pattern transferred transient grating technique for molecular dynamics study in solutions" *Applied Physics Letters*, Vol. 85, No. 21, pp. 4842-4844 (2004).
- (14). **K. Okamoto**, I. Niki, A. Shvartser, Y. Narukawa, T. Mukai, and A. Scherer, "Surface plasmon enhanced light-emitters based on InGaN quantum wells" *Nature Materials*, Vol. 3, No. 9, pp. 601-605 (2004). → **Highlighted at *Photonics Spectra*, December 2004, p. 105.**
- (15). **K. Okamoto**, Z. Zhang, D. T. Wei, and A. Scherer, "Photothermal molecular sensing by using

metal thin-film nano grating for chemical and biomedical applications” *Thin Solid Films*, Vol. 469-470, pp. 420-424 (2004).

(16). **K. Okamoto**, J. Choi, Y. Kawakami, M. Terazima, T. Mukai, and S. Fujita, “Submicron-scale photoluminescence of InGaN/GaN probed by confocal scanning laser microscopy” *Japanese Journal of Applied Physics*, Vol. 43, No. 2, pp. 839-840 (2004).

(17). M. Lončar, T. Yoshie, **K. Okamoto**, Y. Qiu, J. Vučković, A. Scherer, “Photonic crystal nanolasers (I): Porous cavity lasers” *IEICE Transaction on Electronics*, Vol. E87-C, No. 3, pp. 291-299 (2004).

(18). **K. Okamoto**, S. Fujita, Y. Kawakami, A. Scherer, “Sub-microscopic transient lens spectroscopy of InGaN/GaN quantum wells” *Physica Status Solidi (b)*, Vol. 240, No. 2, pp. 368-371 (2003).

(19). Y. Kawakami, A. Kaneta, K. Omae, A. Shikanai, **K. Okamoto**, G. Marutsuki, Y. Narukawa, T. Mukai, S. Fujita, “Recombination dynamics in low-dimensional nitride semiconductors” *Physica Status Solidi (b)*, Vol. 240, No. 2, pp. 337-343 (2003).

(20). **K. Okamoto**, M. Lončar, T. Yoshie, A. Scherer, Y. Qui, P. Gogna, “Near-field scanning optical microscopy of photonic crystal nanocavities” *Applied Physics Letters*, Vol. 82, No. 10, pp. 1676-1678 (2003).

(21). **K. Okamoto**, Y. Nogami, T. Tominaga, M. Terazima, “Contribution of hydrogen bonding to the slow diffusion of transient radicals” *Chemical Physics Letters*, Vol. 372, pp. 419-422 (2003).

(22). A. Scherer, T. Yoshie, M. Lončar, J. Vučković, **K. Okamoto**, D. Deppe, “Photonic crystal nanocavities for efficient light confinement and emission” *Journal of the Korean Physical Society*, Vol. 42, pp. S768-S773 (2003).

(23). **K. Okamoto**, K. Inoue, Y. Kawakami, Sg. Fujita, M. Terazima, A. Tsujimura, I. Kidoguchi, “Nonradiative recombination processes of carriers in InGaN/GaN probed by the microscopic transient lens spectroscopy” *Review of Scientific Instruments*, Vol. 74, No. 1, pp. 575-577 (2003).

(24). A. Kaneta, **K. Okamoto**, Y. Kawakami, Sg. Fujita, G. marutsuki, Y. Narukawa, T. Mukai, “Spatial and temporal luminescence dynamics in an $\text{In}_x\text{Ga}_{1-x}\text{N}$ single quantum well probed by near field optical microscopy” *Applied Physics Letters*, Vol. 81, No. 23, pp. 4353-4355 (2002).

(25). Z. H. Zheng, **K. Okamoto**, H. C. Ko, Y. Kawakami, Sg. Fujita, Erratum: “Narrow luminescence lines from self-assembled CdSe quantum dots at room temperature” [*Appl. Phys. Lett.* 78, 297 (2001)] *Applied Physics Letters*, Vol. 78, No. 23, p. 3749 (2002).

(26). **K. Okamoto**, T. Tojo, H. Tada, M. Terazima, K. Matsushige, “Microscopic patterning on the polysilane films by the laser induced grating technique” *Molecular Crystals and Liquid Crystals*, 370, pp370-382 (2001).

(27). **K. Okamoto**, A. Kaneta, K. Inoue, Y. Kawakami, M. Terazima, T. Mukai, G. Shinomiya, Sg. Fujita, “Carrier dynamics in InGaN/GaN SQW structure probed by the transient grating method with subpicosecond pulsed laser” *Physica Status Solidi B*, Vol. 228, No. 1, pp. 81-84 (2001).

(28). A. Kaneta, G. Marutsuki, **K. Okamoto**, Y. Kawakami, Y. Nakagawa, G. Shinomiya, T. Mukai, Sg. Fujita, “Spatial inhomogeneity of photoluminescence in InGaN single quantum well structures” *Physica Status Solidi B*, Vol. 228, No. 1, pp. 153-1564 (2001).

(29). Y. Kawakami, K. Omae, A. Kaneta, **K. Okamoto**, Y. Narukawa, T. Mukai, S. Fujita, “Inhomogeneity and emission characteristics of InGaN” *Journal of Physics: Condensed Matter*, Vol. 13, pp. 6993-7010 (2001).

(30). A. Kaneta, T. Izumi, **K. Okamoto**, Y. Kawakami, Sg. Fujita, Y. Narita, T. Inoue, T. Mukai, “Spatial inhomogeneity of photoluminescence in an InGaN-based light-emitting diode structure probed by near-field optical microscopy under illumination-collection mode” *Japanese Journal of Applied Physics*,

Vol. 40 pp. 110-111 (2001).

- (31). Y. Kawakami, K. Omae, A. Kaneta, **K. Okamoto**, T. Izumi, S. Saijo, K. Inoue, Y. Narukawa, S. Nakamura, Sg. Fujita, "Radiative and nonradiative recombination processes in GaN-based semiconductors" *Physica Status Solidi (a)*, Vol. 183, pp. 41-50 (2001).
- (32). **K. Okamoto**, N. Hirota, M. Terazima, T. Tominaga, "Translational diffusion of ion radicals created by electron transfer in charged micellar solutions probed by the transient grating method and the Taylor dispersion method" *The Journal of Physical Chemistry A*, Vol.105, No.27, pp. 6586-6593 (2001).
- (33). **K. Okamoto**, Y. Kawakami, Shigeo Fujita, M. Terazima, "Photothermal processes of wide-bandgap semiconductors probed by the transient grating method" *Analytical Science*, Vol. 17, pp. s312-s314 (2001).
- (34). **K. Okamoto**, H.-C. Ko, Y. Kawakami, S. Fujita, "Time-space resolved photoluminescence from (Zn,Cd)Se -based quantum dots structures" *Journal of Crystal Growth*, 214/215, pp. 639-645 (2000).
- (35). T. Izumi, Y. Narukawa, **K. Okamoto**, Y. Kawakami, Shigeo Fujita, S. Nakamura, "Time-resolved photoluminescence spectroscopy in GaN-based semiconductors with micron special" *Journal of Luminescence*, 87-89, pp. 1196-1198 (2000).
- (36). **K. Okamoto**, N. Hirota, M. Terazima, "Diffusion of photochemically generated intermediate radicals in water-ethanol mixed solvents" *The Journal of Physical Chemistry A*, Vol.102, No.19 pp. 3447-3454 (1998).
- (37). **K. Okamoto**, N. Hirota, M. Terazima, "Diffusion of electrically neutral radicals and anion radicals created by photochemical reaction" *The Journal of Chemical Society Faraday Transaction*, Vol.94, No.1 pp. 185-194 (1998).
- (38). **K. Okamoto**, N. Hirota, M. Terazima, "Diffusion process of the benzyl radical created by photodissociated probed by the transient grating method" *The Journal of Physical Chemistry A*, Vol.101, No.29, pp. 5269-5277 (1997).
- (39). **K. Okamoto**, N. Hirota, M. Terazima, Comment on "Diffusion of free radicals in solution. TEMPO, diphenylpicrylhydrazyl, and nitrosodisulfonate" *The Journal of Physical Chemistry A*, Vol.101, No.29, pp. 5380-5381 (1997).
- (40). **K. Okamoto**, M. Terazima, N. Hirota, "Temperature dependence of diffusion of radical intermediates probed by the transient grating method" *The Journal of Chemical Physics*, Vol.103, No.24, pp. 10445-10452 (1995).
- (41). M. Terazima, **K. Okamoto**, N. Hirota, "Translational diffusion of transient radicals created by the photoinduced hydrogen abstraction reaction in solution: Anomalous size dependence in the radical diffusion" *The Journal of Chemical Physics*, Vol.102, No.6, pp. 2506-2515 (1995).
- (42). M. Terazima, **K. Okamoto**, N. Hirota, "Translational diffusion of transient radicals studied by the transient grating method" *Journal of Molecular Liquids*, Vol.65/66, pp. 401-404 (1995).
- (43). M. Terazima, **K. Okamoto**, N. Hirota, "Molecular dynamics in solution probed by the transient grating method with a nanosecond pulsed Laser" *Laser Chemistry*, Vol.13, pp. 169-185 (1994).
- (44). M. Terazima, **K. Okamoto**, N. Hirota, "Transient radical diffusion in photoinduced hydrogen abstraction reaction of benzophenone probed by transient grating method" *The Journal of Physical Chemistry*, Vol.97, No.50 pp. 13387-13393 (1993).
- (45). M. Terazima, **K. Okamoto**, N. Hirota, "Diffusion process of methyl red in organic solvents studied by the transient grating method" *The Journal of Physical Chemistry*, Vol.97, No.19 pp. 5188-5192 (1993).

Proceedings

- (1). **K. Okamoto**, I. Niki, A. Shvartsner, G. Maltezos, Y. Narukawa, T. Mukai, K. Nishizuka, Y. Kawakami, A. Scherer, "Surface plasmon enhanced InGaN light emitter" Proceedings of SPIE, vol 5733, pp94-103 (2005).
- (2). T. Yoshie, M. Loncar, **K. Okamoto**, Y. Qiu; O. B. Shchekin,, H. Chen, D. G. Deppe, A. Scherer, "Photonic crystal nanocavities with quantum well or quantum dot active material" Proceedings of SPIE, vol 5360, pp16-23 (2004).
- (3). A. Scherer, M. Loncar, **K. Okamoto**, T. Yoshie, M. Adams, J. Witzens, "Light concentration in photonic crystal and plasmon optical cavities" Lasers and Electro-Optics Society, 2004. LEOS 2004. Vol. 2, pp. 815- 816 (2004).
- (4). A. Scherer, M. Loncar,, T. Yoshie, **K. Okamoto**, B. Maune, J. Witzens, "Photonic bandgap microcavities and waveguides" SOI Conference, 2003. IEEE International, pp. 9- 11 (2003)
- (5). A. Scherer, M. Loncar,, T. Yoshie, **K. Okamoto**, "Photonic bandgap microcavity devices" Nanotechnology, 2003. IEEE-NANO 2003. Vol. 1 pp. 275- 276 (2003).
- (8). A. Scherer, T. Yoshie, M. Loncar,, J. Vuckovic, D. Deppe, **K. Okamoto**, "2-D photonic crystal microcavities" 2003 Digest of the LEOS Summer Topical Meetings. Page TuA3.1/47 (2003).
- (7). Y. Kawakami, A. Kaneta, **K. Okamoto**, T. Inoue, F. Satou, Y. Narita, F. Henneberger, G. Marutsuki, Y. Narukawa, T. Mukai, S. Fujita, "Recombination mechanism in low-dimensional nitride semiconductors" Proceedings of SPIE, vol 4986, pp575-588 (2003).
- (8). **K. Okamoto**, S. Saijo, Y. Kawakami, Sg. Fujita, M. Terazima, T. Mukai, G. Shinomiya, S. Nakamura, "Direct observation of the nonradiative recombination processes in InGaN-based LEDs probed by the third-order nonlinear spectroscopy" Proceedings of SPIE, vol 4278, pp150-157 (2001).
- (9). Y. Kawakami, K. Omae, A. Kaneta, **K. Okamoto**, T. Izumi, S. Saijo, K. Inoue, Y. Narukawa, T. Mukai, Sg. Fujita, Dynamics of spontaneous and stimulated emission in GaN-based semiconductors" Proceedings of SPIE, vol 4280, pp45-52 (2001).
- (10). M. Mabuchi, J. Shimada, **K. Okamoto**, Y. Kawakami, Sg. Fujita, K. Matsushige, "Time-resolved fluorescence spectroscopy of dopamine in the single cells" Proceedings of SPIE, vol 4252, pp140-147 (2001).
- (11). **K. Okamoto**, Y. Kawakami, Sg. Fujita, M. Terazima, S. Nakamura, "Nonradiative recombination processes in GaN-based semiconductors probed by the transient grating method" Proc. Int. Workshop on Nitride Semiconductors, IPAP Conf. Series 1 pp. 540-543 (2000).
- (12). T. Izumi, K. Inoue, Y. Narukawa, **K. Okamoto**, Y. Kawakami, Sg. Fujita, A. Tsujimura, I. Kidoguchi, Y. Ban, "Recombination dynamics in GaN and InGaN/GaN multiple quantum wells on air-bridged lateral epitaxial grown GaN layers" Proc. Int. Workshop on Nitride Semiconductors, IPAP Conf. Series 1 pp. 599-602 (2000).
- (13). **(Invited Paper) K. Okamoto**, "Postdoctoral scholars should do research with free style - In case of Kyoto University-Venture Business Laboratory -" Kagaku to Kogyo, Vol. 53, No. 7, pp. 798-800 (2000).

Conference Abstracts

- (1). **(Invited) K. Okamoto**, "Surface plasmon enhanced light emission" Focused Session in International Workshop on Nitride Semiconductors (IWN2006), Kyoto Univ., Japan, 2006
- (2) **K. Okamoto**, I. Niki, A. Shvartsner, G. Maltezos, Y. Narukawa, T. Mukai, Y. Kawakami, A. Scherera,

“Surface Plasmon enhanced bright light emission from InGaN/GaN” International Workshop on Nitride Semiconductors (IWN), Kyoto, Japan, 2006

- (3) **K. Okamoto**, S. Vyawahare, A. Scherer, “Surface Plasmon Enhanced Light Emission from CdSe Quantum Dot Nanocrystals” The Conference on Lasers and Electro-Optics/ Quantum Electronics and laser Science Conference (CLEO/QELS), Long Beach, USA, 2006
- (4) T. D. Neal, **K. Okamoto**, A. Scherer, “Enhanced Light Emission from Dye Doped Polymer Layers Using Surface Plasmons” The Conference on Lasers and Electro-Optics/ Quantum Electronics and laser Science Conference (CLEO/QELS), Long Beach, USA, 2006
- (5) B. Min, S. Kim, **K. Okamoto**, L. Yang, A. Scherer, H. Atwater, K. Vahala, “Ultralow Threshold Nanocrystal Quantum Dot Lasers” The Conference on Lasers and Electro-Optics/ Quantum Electronics and laser Science Conference (CLEO/QELS), Long Beach, USA, 2006
- (6) B. Min, S. Kim, **K. Okamoto**, L. Yang, A. Scherer, H. Atwater, K. Vahala, “Ultralow Threshold On-Chip Toroidal Microcavity Nanocrystal Quantum Dot Lasers” 2006 Material Research Society (MRS) Spring Meeting, San Fransisco, USA, 2005
- (7) **(Invited) K. Okamoto**, “Surface plasmon enhanced super bright solid-state light emitters: Fabrication and characterization” CSU-Long Beach Physics Colloquium, Long Beach, USA, 2005.
- (8) **K. Okamoto**, I. Niki, Y. Narukawa, T. Mukai, Y. Kawakami, A. Scherer, “Surface plasmon enhanced high-speed spontaneous emission of InGaN/GaN” 2005 Material Research Society (MRS) fall meeting, Boston, USA, 2005.
- (9) **K. Okamoto**, A. Scherer, “New applications of nano-structured-metal/semiconductor and -metal/liquid interface” MRS – Spring Meeting 2005, San Fransisco, USA, 2005
- (10) **K. Okamoto**, I. Niki, A. Shvartser, G. Maltezos, Y. Narukawa, T. Mukai, K. Nishizuka, Y. Kawakami, A. Scherer, “Surface plasmon enhanced InGaN light emitter” SPIE Photonics West Optoelectronics 2005, San Jose, California, USA, 2005.
- (11) **K. Okamoto**, Z. Zhang, D. T. Wei, and A. Scherer, “Improved Optical Heterodyne Detected Transient Grating Method by using a Thin Film Grating” AVS, 51st International Symposium & Exhibition, Anaheim, USA, 2004.
- (12) **K. Okamoto**, Y. Kawakami, M. Terazima, A. Scherer, “Temporal and spatial-resolved nonlinear spectroscopy of InGaN/GaN” Frontiers in Optics 2004/ Laser Science XX (FiO/LS) - The 88th OSA annual meeting -, Rochester, USA, 2004.
- (13) **K. Okamoto**, I. Niki, A. Shvartser, Y. Narukawa, T. Mukai, A. Scherer, “Surface plasmon enhanced super bright InGaN light emitter” MRS - International Workshop on Nitride Semiconductors (IWN2004), Pittsburgh, USA, 2004.
- (14) **K. Okamoto**, I. Niki, A. Shvartser, Y. Narukawa, T. Mukai, A. Scherer, “Surface plasmon enhanced internal quantum efficiencies of emission from InGaN/GaN quantum wells” The Conference on Lasers and Electro-Optics/ International Quantum Electronics Conference (CLEO/IQEC), San Francisco, USA, 2004.
- (13) **K. Okamoto**, I. Niki, A. Shvartser, Y. Narukawa, T. Mukai, A. Scherer, “Surface plasmon enhanced internal quantum efficiencies of emission from InGaN/GaN quantum wells” The Conference on Lasers and Electro-Optics/ International Quantum Electronics Conference (CLEO/IQEC), San Francisco, USA, 2004
- (15) **K. Okamoto**, Z. Zhang, D. T. Wei, A. Scherer, “Photothermal molecular sensing by using metal thin-film nano grating for chemical and biomedical applications” The International Conference on Metallurgical Coatings And Thin Films (ICMCTF), San Diego, USA, 2004.

- (16). **K. Okamoto**, M. Lončar, T. Yoshie, A. Scherer, “Near-field Scanning Optical Microscopy of Photonic Crystal Laser” PECS-V: International Workshop on Photonic and Electromagnetic Crystal Structures, Kyoto, Japan 2003.
- (17). **K. Okamoto**, M. Lončar, T. Yoshie, A. Scherer, “Photonic crystal nanocavity modes probed by near-field scanning optical microscopy” 2003 Material Research Society (MRS) fall meeting, Boston, USA, 2003.
- (18). Z. Zhang, **K. Okamoto**, D. T. Wei, A. Scherer, “Nanograting for photo-thermal detection” AVS The Science & Technology Society, Southern California Chapter, Anaheim, USA, 2003.
- (19). **K. Okamoto**, Z. Zhang, D. T. Wei, A. Scherer, “Molecular detection based on the nonlinear optical effect with nano-grating” AVS The Science & Technology Society, Southern California Chapter, Anaheim, USA, 2003.
- (20). Y. Kawakami, A. Kaneta, K. Omae, A. Shikanai, **K. Okamoto**, G. Marutsuki, Y. Narukawa, T. Mukai, S. Fujita, “Recombination dynamics in low-dimensional nitride semiconductors” The 5th International Conference on Nitride Semiconductors (ICNS-5), Nara, Japan. 2003
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