

Publications

D V Martyshkin, V V Fedorov, C Kim, I S Moskalev and S B Mirov, “Mid-IR random lasing of Cr-doped ZnS Nanocrystals” **Journal of Optics** **12**, 024005, pp1-5, 2010

Sergey Mirov, Vladimir Fedorov, Igor Moskalev, Dmitri Martyshkin, and Changsu Kim “Progress in Cr²⁺ and Fe²⁺ doped mid-IR laser materials” **Laser & Photonics Reviews**, 4, No. 1, pp21–41, 2010

C. Kim, D. V. Martyshkin, V.V.Fedorov, and S.B.Mirov, “Middle-infrared random lasing of Cr²⁺ doped ZnSe, ZnS, CdSe powders, powders imbedded in polymer liquid solutions, and polymer films” **Optics Communications**, **282**, pp2049-2052, 2009

C. Kim, J. M. Peppers, D. V. Martyshkin, V. V. Fedorov, S.B. Mirov, “Chromium doped ZnSe and ZnS gain media for optically and electrically pumped mid-IR lasers” The international Society for Optical Engineering (**SPIE**), 7193-110, pp1-5, 2009

C. Kim, D.V. Martyshkin, V.V. Fedorov, S.B. Mirov, “Mid-Infrared Cr²⁺:ZnSe Random Powder Lasers” Optical Society of America, **Optics Express**, Vol. 16, pp 4952-4959, 2008

C. Kim, D. V. Martyshkin, V. V. Fedorov, S.B. Mirov, “Room-temperature, mid-infrared Cr²⁺:ZnSe and Cr²⁺:ZnS random powder lasers” The international Society for Optical Engineering (**SPIE**), 6871-88 V.4 pp1-8, 2008

D.V. Martyshkin*, C. Kim, I.S. Moskalev, V.V. Fedorov, S.B. Mirov, “Mid-IR photoluminescence and lasing of Chromium doped II-VI Quantum Dots” The international Society for Optical Engineering (**SPIE**) 6879B-65 V.3 pp1-5, 2008

J. M. Peppers, C. Kim, D. V. Martyshkin, V. V. Fedorov, S.B. Mirov,” Study of Cr-doped ZnSe and ZnS bulk and powder media for middle infrared random lasing and lasing under electrical excitation” The Journal of Research Experiences for Undergraduates (**J-REU**), Vol. 10, pp 1210-1220, 2008

C. Kim, D. V. Martyshkin, V. V. Fedorov, R. Tsuji, S.B. Mirov, “Room temperature, Mid-IR luminescence and lasing of Quantum Dots II-VI semiconductor doped with transition metal ions” **ISCIU** **4**, Mechanics 1, pp 19-24, 2008

C. Kim, D. V. Martyshkin, V. V. Fedorov, R. Tsuji, S.B. Mirov, “Mid-IR random lasing in a chromium doped ZnSe and ZnS gain media for liquid and polymer thin film” (**ISCIU 4**), Mechanics 1, pp 25-31, 2008

C. Kim, D. V. Martyshkin, V.V. Fedorov, I. S. Moskalev, S. B. Mirov, “Mid-IR Luminescence of Nanocrystalline II-IV Semiconductors Doped with Transition Metal Ions” **Spectroscopy** Vol 22(9), pp30-35, 2007

Sergey B. Mirov, Vladimir V. Fedorov, Igor S. Moskalev, Dmitri Martyshkin, Andrew Gallian and Changsu Kim, “Recent progress in transition metal doped II-VI mid-IR lasers” The international Society for Optical Engineering (**SPIE**) 65520-33 V.1 pp1-13, 2007

W. Mallory, C. Kim, V. V. Fedorov, S.B. Mirov,” Iron doped $Cd_xMn_{1-x}Te$ crystals, a new gain media for Mid-IR room temperature lasers” The Journal of Research Experiences for Undergraduates (**J-REU**), Vol. 7, pp 740-748, 2007

Takuhei Yokoyama, Changsu Kim, and Kan-ichi Fujii “Measurement of liquid concentration by thermal lens method for medical applications” The 1st International student Conference at Ibaraki University (**ISCIU 1**), Optical Topography Session, pp263-266, 2005

Changsu Kim, Ryusuke Tsuji, and Kan-ichi Fujii “Development of liquid sensor for diagnostics of human health” The 1st International student Conference at Ibaraki University (**ISCIU 1**), Measurement System 2, pp254-257, 2005

Changsu Kim, Toshio Kubota, Ryusuke Tsuji, Masatake Shiraishi and Kanichi Fujii “Diagnostics for liquid samples by laser pumped photo thermal method” **Jan. J. Appl. Phys.** Vol. 44, pp. 3077-3079, 2005

Norimasa Sakurai, changsu kim, Kouji Azuma, Syusaku Kawano, and Kanichi Fujii” Measurement of transient temperature with Mach-Zahnder interferometer employing the polarization maintaining fiber” **The Laser Society of Japan**, Vol.33, No 12, pp863-867, 2005

Changsu Kim, Kaichi Fujii, “Internal for penetration type Photothermal Transformation diagnosis: Distinction of liquid and transition measurement of impurity mixing by Thermal lens method” Center for Cooperative Research and Development (**CCRD**), pp 116-117, 2003

Changsu Kim, Takehiro Takahashi, Norimasa Sakurai, Kanichi Fujii, “Transient measurement of high sensitivity by Opto-thermal transform method” High-tech market in Hitachi (D-3 Information, control, and technology related to measurement) P-44, pp 50-53, 2003

Conference Presentations

S.B. Mirov, V.V. Fedorov, I.S. Moskalev, D. Martyshkin, C. Kim, “Progress in Cr²⁺:II-VI gain materials for high power and random mid-IR lasers,” **invited talk** presented to 3rd International Conference on Middle Infrared Coherent Sources – MICS’2009, Trouville, France, June 8-12, 2009.

C. Kim, D.V. Martyshkin, V.V. Fedorov, S.B. Mirov, “RT Mid-IR random lasing of Cr²⁺ doped ZnS, ZnSe, CdSe powders, polymer liquid and polymer films” Conference on Laser and Electro-Optics/ Quantum Electronics and Laser Science Conference, (**CLEO/QELS**), Baltimore, Maryland, May 31-June 5, 2009.

C. Kim, J. Peppers, V. V. Fedorov, S.B. Mirov, “Mid-IR Electroluminescence of Cr:ZnSe crystals co-doped with Donor and Acceptor impurities,”(**CLEO/QELS**), Baltimore, Maryland, May 31- June 5, 2009.

C. Kim, J. M. Peppers, D. V. Martyshkin, V. V. Fedorov, S.B. Mirov, “Chromium doped ZnSe and ZnS gain media for optically and electrically pumped mid-IR lasers” The international Society for Optical Engineering (**SPIE**), San Jose, CA, Jan. 24-29, 2009

C. Kim, D. V. Martyshkin, V. V. Fedorov, R. Tsuji ,S.B. Mirov, “Room temperature, Mid-IR luminescence and lasing of Quantum Dots II-VI semiconductor doped with transition metal ions” The 4th International Student Conference at Ibaraki University (**ISCIU 4**), Nov. 1-2, 2008

S. Mirov, C. Kim, D. V. Martyshkin, V. V. Fedorov, “New frontiers of middle-infrared lasers based on transition metal doped II-VI semiconductors, **invited talk** presented to 21st International Commission for Optics Congress, Sydney, Australia, July 7-10, 2008.

S. Mirov, C. Kim, D. V. Martyshkin, V. V. Fedorov, “Recent Advances in Cr²⁺ and Fe²⁺ doped ZnSe and ZnS mid-IR ceramic laser materials,” **invited talk** presented to the 4th Laser Ceramic Symposium, Shanghai, China, November 10-14, 2008.

C. Kim, D. V. Martyshkin, V. V. Fedorov, R. Tsuji, S.B. Mirov, “Room temperature, Mid-IR luminescence and lasing of Quantum Dots II-VI semiconductor doped with transition metal ions” The 4th International Student Conference at Ibaraki University (**ISCIU 4**), Nov. 1-2, 2008

J. M. Peppers, C. Kim, D. V. Martyshkin, V. V. Fedorov, S.B. Mirov,” Study of Cr-doped ZnSe and ZnS bulk and powder media for middle infrared random lasing and lasing under electrical excitation” Research Experiences for Undergraduates at UAB (**REU**), Birmingham, AL, July 28-29, 2008

C. Kim, D. V. Martyshkin, V.V. Fedorov, S.B. Mirov, “Middle-Infrared random lasing of Cr²⁺ doped II-VI powders: a simple and cost affective route” Alabama EPSCoR Annual Conference in Montgomery, AL, July. 22-24, 2008

C. Kim, D.V. Martyshkin, V.V. Fedorov, S.B. Mirov, “Room Temperature Mid-IR Cr²⁺:ZnSe Random powder laser” Conference on Laser and Electro-Optics/ Quantum Electronics and Laser Science Conference, (**CLEO/QELS**), San Jose, CA, May. 4-9, 2008

D.V. Martyshkin, C. Kim, I.S. Moskalev, V.V. Fedorov, S.B. Mirov, “ Middle-IR Random lasing of Cr:ZnS nanocrystalline powder - from diffusion to photon localization regimes”, Conference on Laser and Electro-Optics/ Quantum Electronics and Laser Science Conference, (**CLEO/QELS**), San Jose, CA, May. 4-9, 2008

W. Mallory, C. Kim, V. V. Fedorov, S.B. Mirov,” Iron doped Cd_xMn_{1-x}Te crystals, a new gain media for Mid-IR room temperature lasers” Research Experiences for Undergraduates at UAB (**REU**), Birmingham, AL, July 27-28, 2007

C. Kim, D. V. Martyshkin, V. V. Fedorov, S.B. Mirov, “Room-temperature, mid-infrared Cr²⁺:ZnSe and Cr²⁺:ZnS random powder lasers” The international Society for Optical Engineering (**SPIE**), San Jose, CA, Jan. 19-24, 2008

D.V. Martyshkin, C. Kim, I.S. Moskalev, V.V. Fedorov, S.B. Mirov, “Mid-IR photoluminescence and lasing of Chromium doped II-VI Quantum Dots” The international Society for Optical Engineering (**SPIE**), San Jose, CA, Jan. 19-24, 2008

C. Kim, D. V. Martyshkin, V.V. Fedorov, S.B. Mirov, “Mid-IR Luminescence of Nanocrystalline II-VI Semiconductors Doped With Transition Metal Ions” Optical Society of America- Conference on Laser and

Electro-Optics/ Quantum Electronics and Laser Science Conference, (CLEO/QELS), Baltimore, Maryland, May 6-11,2007

C. Kim, D. V. Martyskin, V.V. Fedorov, S.B. Mirov, “Mid-IR Luminescence of Nanocrystalline II-VI Semiconductors Doped With Transition Metal Ions” Alabama EPSCoR Annual Conference in UAH, Mar. 15-17, 2005

Presentations in Japanese

Changsu Kim, Syoei Kawasima, Katsuhiko Uno, Kaichi Fujii, “Diffusion wave and real time three-laser method dimension measurement - Examination about Pulse Waveform –“ Center for Cooperative Research and Development (CCRD), Sep. 24, 2002

Changsu Kim, Katsuhiko Uno, Kaichi Fujii, Katsunori Ishii, Masahiro Suzuki, “ Analysis of liquid sample by Thermal lens method” The Institute of Electrical Engineers of Japan. (IEEJ), Dec. 7, 2002

Changsu Kim, Syoei Kawasima, Katsuhiko Uno, Kaichi Fujii, Masahiro Suzuki, “Analysis of liquid sample by Thermal lens method: Examination about Pulse Waveform” The Laser Society of Japan, Jan. 30-31, 2003

Changsu Kim, Syoei Kawasima, Chitose Tamaki, Katsuhiko Uno, Kaichi Fujii, Katsunori Ishii, Masahiro Suzuki, “Analysis of liquid sample by thermal lens spectrometry” Hitachi technology showcase A02, P-30, Feb. 20, 2003

Changsu Kim, Syoei Kawasima, Katsuhiko Uno, Kaichi Fujii, Katsunori Ishii, Masahiro Suzuki, “Development of internal diagnosis and surface measurement method of MOX (oxide mixture) particle” Consortium Type Society, Mar. 24, 2003

Changsu Kim, Kaichi Fujii, “Internal for penetration type Photothermal Transformation diagnosis: Distinction of liquid and transition measurement of impurity mixing by Thermal lens method” Center for Cooperative Research and Development (CCRD), Sep. 18, 2003

Changsu Kim, Takehiro Takahashi, Norimasa Sakurai, Kanichi Fujii, “Transient measurement of high sensitivity by Opto-thermal transform method” High-tech market in Hitachi (D-3 Information, control, and technology related to measurement) P-44, Oct. 24-25, 2003

Norimasa Sakurai, Changsu Kim, Takehiro Takahashi, Kanichi Fujii, Katsunori Ishii, Masahiro Suzuki, “Transition measurements of densities of impurities of liquid by Thermal lens method” The Institute of Electrical Engineers of Japan. (IEEJ), Nov. 27, 2003

Changsu Kim, Norimasa Sakurai, Takehiro Takahashi, Kanichi Fujii, Katsunori Ishii, Masahiro Suzuki, Shusaku Kouno, “Transient measurement of the penetrative sample by the thermal lens method” The Laser Society of Japan, Jan. 24-25, 2003

Changsu Kim, Takuhei Yokoyama, Arumugam Anitha, Norimasa Sakurai, Toshio Kubota, Masatake Shiraishi, Kanichi Fuji, Katsunori Ishii, “Measurement of concentration and diffusion of impurities in liquid by opto-thermal transform method” The Laser Society of Japan, Jan. 28-30, 2004

Norimasa Sakurai, Changsu Kim, Kosuke Kamiguchi, Kanichi Fuji, Katsunori Ishii, Masahiro Suzuki, Shusaku Kouno, “Development of infrared sensor using polarization maintaining fiber and Mach-Zehnder interferometer” The Laser Society of Japan, Jan. 20-21, 2005