Samuel CHOI, Dr. Eng.

Assistant Professor

Program: Electrical and Information Engineering

Area: Electrical and Electronic Engineering

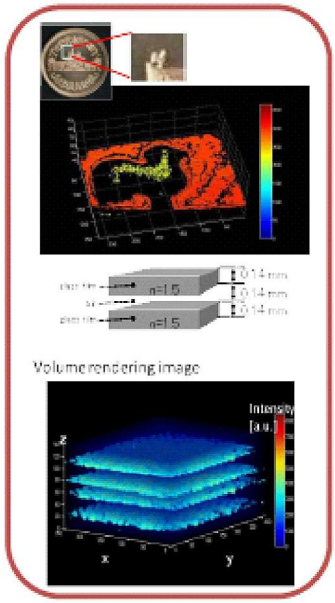
Undergraduate: Dept. of Electrical and Electronic Engineering

Professional Expertise

He has been working on a research area including the supercontinuum optical frequency comb generation and its application for novel interferometry during a doctoral student and the JSPS research fellow in TUAT. He joined Prof. Osami Sasaki's group of Niigata University in 2009. He and his group engage in research in optical metrology and optoelectronics. His present research topic encompasses three dimensional surface measurement using optical comb interferometry with sinusoidal phase modulation (SPM) method and nano-scale thickness measurement based on multi-wavelength back-propagating (MWB) method using spectral interferometry.

He and his research group succeeded in measuring of tomographic view of nano structure, such as glass plate, dielectric thin film and bio-tissue, and developed novel optical interferometric system.

Research Fields of Interest



Optoelectronics

- Optical frequency comb generation
- Voltex-beam generation and its application
- Development of spatial-comb light source

Nonlinear optics

- Supercontinumm generation
- Pulse shaping and phase control

Optical metrology

- Optical coherence tomography
- Optical comb interferometry
- Multi-wavelength spectral interferometry

Education

2007: Doctor Eng. degree, Tokyo University of Agriculture and Technology, Japan

2004: Master Eng. degree, Graduated School of Engineering, Tohoku University, Japan.

Professional Societies and Activities

1. Member of Optical Society of America (OSA), 2010 to now
2. Member of Japan Society of Applied Physics (JJAP), 2008 to now
3. Member of SPIE, 2010 to now

Awards

1. 21st Century COE Award, 2005

Major Publications

Papers

[1] S. Choi, N. Tamura, K. Kashiwagi, T. Shioda, Y. Tanaka, and T. Kurokawa, "Supercontinuum comb generation using optical pulse synthesizer and highly-nonlinear dispersion shifted fiber," JJAP, Vol.48, pp.09LF01, 2009.

[2] T. Shioda, D. Moteki, S. Choi, Y. Tanaka, and T. Kurokawa, "Application of Faraday rotator reflector and Faraday rotator transmitter to profilometry and tomography," JJAP, Vol. 46 No. 10A, pp. 6848-6852, 2007.

[3] S. Choi, T. Shioda, Y. Tanaka, and T. Kurokawa, "Frequency-comb-based Interference Microscope with a Line-type Image Sensor," JJAP, Vol. 46 No. 10A, 6842-6847, 2007.

[4] S. Choi, M. Yamamoto, D. Moteki, T. Shioda, Y. Tanaka, and T. Kurokawa, "Frequency-comb-based Interferometer for Profilometry and Tomography," Optics.Letters, Vol. 31 No. 13, pp. 1976.-1978, July, 2006.

[5] S.choi, T. Yoshida, M. Nakazawa, "Measurements of Longitudinal Linewidths of 10 GHz, Picosecond Mode-locked Erbium-Doped Fiber Lasers Using a Heterodyne Detection Method," J. IEICE (C), vol. J86-C, No. 10, pp.1054-1062, Mar., 2003.

Proceedings of international conference

[1] K. Kashiwagi, H. Ishizu, Y. Kodama, S. Choi, T. Kurokawa, "Highly Precise Optical Pulse Synthesis for Flat Spectrum Supercontinuum Generation with Wide Mode Spacing," 36th European conference on optical communication (ECOC 2010), [to be published].

[2] S.Choi, T. Kurokawa,"Profilometry using optical frequency comb," Pacific Rim Conference on Lasers and Electro-Optics 2009 (CLEO-PR2009), Shanghai, WE2-2, Aug., 2009.

[3] N. Tamura, S. Choi, K. Kashiwagi, T. Shioda, Y. Tanaka, T. Kurokawa, "Supercontinuum comb generation using optical pulse synthesizer and highly-nonlinear dispersion-shifted-fiber," International Topical Meeting on Information Photonics 2008 (IP2008), Hyogo, 3-P5, Nov., 2008.

[4] S. Choi, N. Tamura, R. Kobe, T. Shioda, Y. Tanaka, T. Kurokawa, "Three-dimensional microscopic interferometer by frequency sweep of supercontinuum frequency comb," Conference on lasers and electro-optics 2008（CLEO'08）, CMEE4, San Jose, May, 2008.

[5] S. Choi, T. Shioda, Y. Tanaka, and T. Kurokawa, "Frequency-comb-based Interference Microscope with a Line-type Image Sensor," Pacific Rim Conference on Lasers and Electro-Optics 2007 (CLEO-PR2007), ThG1-5, Seoul, Aug., 2007.

[6] S. Choi, D. Moteki, T. Sugimoto, T. Shioda, Y. Tanaka, and T. Kurokawa, "Interferometer for profilometry and tomography using waveguide-type frequency comb generator," Conference on lasers and electro-optics 2006 (CLEO'06), CMY-7, Long Beach, May, 2006.

[7] S. Choi, M. Yamamoto, D. Moteki, T. Shioda, Y. Tanaka, M. Takeda and T. Kurokawa, "A novel profilometry using frequency comb light source," Pacific Rim Conference on Lasers and Electro-Optics 2005 (CLEO-PR2005), CFK3-2, Tokyo, July., 2005.