

テラヘルツイメージング研究チーム / Terahertz Sensing and Imaging Research Team

(1) 原著論文 (accept を含む) / Original Papers

1. H. Momiyama, Y. Sasaki, I. Yoshimine, S. Nagano, T. Yuasa, C. Otani, "Improvement of the depth resolution of swept-source THz-OCT for non-destructive inspection", *Optics Express*, vol. 28, 12279, (2020).
2. S. Yamazaki, C. Gerhold, K. Yamamoto, Y. Ueno, R. Grosse, K. Miyamoto, M. Harata, "The actin-family protein Arp4 is a novel suppressor for the formation and functions of nuclear F-actin", *Cells*, *Cells* 2020, 9(3), 758, (2020).
3. H. Hoshina, T. Kanemura, M. T. Ruggiero, "Exploring the Dynamics of Bound Water in Nylon Polymers with Terahertz Spectroscopy", *Journal of Physical Chemistry B*, vol. 124 pp.422-429, (2020).
4. H. Hoshina, Y. Saito, T. Furuhashi, T. Shimazaki, M. Sawada, Y. Hioki, C. Otani, "Terahertz Spectroscopy for Characterization of Hydrogen Bonding and Cross-linked Structure Dynamics in Polyurethane", *Journal of Infrared, Millimeter, and Terahertz Waves*, vol. 41 pp.265-275, (2020).
5. M. Naruse, T. Ando, Y. Waga, R. Kubota, S. Mima, C. Otani, T. Taino, H. Myoren, "Superconducting resonators with niobium and YBa₂Cu₃O_{7-d} for Alpha-particle detectors", *J. Low Temp. Phys.*, in press, (2020). (DOI 10.1007/s10909-020-02373-x).
6. R. Smith, M. Ohno, Y. Miura, N. Nakada, Y. Mitsuya, H. Takahashi, T. Ikeda, C. Otani, M. Sakama, N. Matsufuji, T. Irimatsugawa, S. Kohjiro, H. Yamamori, F. Hirayama, "Microcalorimetry of carbon ion beam for medical treatment by transition edge sensor", *J. Low Temp. Phys.*, in press, (2020).
7. (招待)小栗秀悟, 鈴木惇也, 本多俊介, "CMB 偏光観測実験 GroundBIRD のファーストライト", *高エネルギーニューズ*, Vol 38, Number 4, 107-123, 1 月, (2020).
8. C. H. Feng, J. F. García-Martín, M. B. Lavado, M. C. López-Barrera, P. Álvarez-Mateos, "Evaluation of different solvents on flavonoids extraction efficiency from sweet oranges and ripe and immature Seville oranges", *International Journal of Food Science & Technology*, in press, (2020).
9. C. H. Feng, Y. Makino, "Colour analysis in sausages stuffed in modified casings with different storage days using hyperspectral imaging – A feasibility study", *Food Control*, vol. 111, 107047, (2019).
10. J. F. García-Martín, J. R. Carrión, M. G. Torres, C. H. Feng, P. Álvarez-Mateos, "Esterification of free fatty acids with glycerol within the biodiesel production framework", *Processes*, 7, 832, (2019).
11. A. Endo, K. Karatsu, Y. Tamura, T. Oshima, A. Taniguchi, T. Takekoshi, S. Asayama, T. J. L. C. Bakx, S. Bosma, J. Bueno, K. W. Chin, Y. Fujii, K. Fujita, R. Huiting, S. Ikarashi, T. Ishida,

- S.Ishii, R. Kawabe, T. M. Klapwijk, K. Kohno, A. Kouchi, N. Llombart, J. Maekawa, V. Murugesan, S. Nakatsubo, M. Naruse, K. Ohtawara, A. P. Laguna, J. Suzuki, K. Suzuki, D. J. Thoen, T. Tsukagoshi, T. Ueda, P. J. de Visser, P. P. van der Werf, S. J. C. Yates, Y. Yoshimura, O. Yurduseven, J. J. A. Baselmans – Show fewer authors, “First light demonstration of the integrated superconducting spectrometer”, *Nature Astronomy*, 3, pages989–996, (2019).
12. H. Kutsuma, M. Hattori, R. Koyano, S. Mima, C. Otani, S. Oguri, T. Taino, O. Tajima, “Novel measurement method for responsivity of microwave kinetic inductance detector by changing a power of readout microwaves,” *Applied Physics Letters*, 115, 032603, (2019).
 13. 山崎祥他, “高強度テラヘルツ光による生体内高分子「アクチン繊維」の操作”, *光学*, Vol. 48 No. 10 pp. 402-406, (2019).
 14. D. Marlina, H. Hoshina, Y. Ozaki, H. Sato, “Crystallization and crystalline dynamics of poly(3-hydroxybutyrate) / poly(4-vinylphenol) polymer blends studied by low-frequency vibrational spectroscopy”, *Polymer*, vol. 181 121790, (2019).
 15. F. Nishimura, H. Hoshina, Y. Ozaki, H. Sato, “Isothermal crystallization of poly(glycolic acid) studied by terahertz and infrared spectroscopy and SAXS/WAXD simultaneous measurements”, *Polymer Journal*, vol. 51 237-245, (2019).
 16. S. Yamamoto, E. Ohnishi, H. Sato, H. Hoshina, D. Ishikawa, Y. Ozaki, “Low-Frequency Vibrational Modes of Nylon 6 Studied by Using Infrared and Raman Spectroscopies and Density Functional Theory Calculations”, *Journal of Physical Chemistry B*, vol. 123 pp.5368-5376, (2019).
 17. H. Suzuki, M. Ishida, C. Otani, K. Kawachi, Y. Kasama, E. Won, Y. Miyazaki, M. Nakano, “The thermodynamics properties and molecular dynamics of [Li+@C60](PF6-) associated with structural phase transitions,” *Phys. Chem. Chem. Phys.*, vol. 21, pp. 16147-16153, (2019).
 18. T. Notake, K. Kamata, T. Iyoda, C. Otani, H. Minamide, “Simultaneous Generation of Various Polarization Effects by using Spirulina-Templated Metal Coils at Terahertz Frequency Region”, *Jap. J. Appl. Phys.*, vol. 58, 032007, (2019).
 19. N. Yaekashiwa, S. Otsuki, S. Hayashi, K. Kawase, “Verification of non-thermal effects of 0.3-0.6 THz-waves on human cultured cells”, *Photonics*, vol. 6, 33, (2019).
 20. C. Otani, J. Choi, R. T. Genova--Santos, M. Hattori, M. Hazumi, S. Honda, T. Ikemutsu, H. Ishida, H. Ishitsuka, Y. Jo, K. Karatsu, K. Kiuchi, J. Komine, R. Koyano, H. Kutsuma, K. Lee, S. Mima, M. Minowa, J. Moon, M. Nagai, T. Nagasaki, M. Naruse, S. Oguri, M. Peel, R. Rebolo, J. A. Rubino-Martin, Y. Sekimoto, Y. Sueno, J. Suzuki, T. Taino, K. Takahashi, O. Tajima, N. Tomota, Y. Tsuji, T. Uchida, E. Won, M. Yoshida, “宇宙マイクロ波背景放射偏光観測実験 GroundBIRD,” *信学技報*, vol. 119, no. 353, ED2019-89, pp. 53-56, (2019).
 21. 佐々木芳彰, 碓 智文, 大谷知行, “FMCW 方式を用いたテラヘルツボディスキャナの開発,” *信学技報*, vol. 119, no. 353, ED2019-91, pp. 61-64, (2019).

(2) 招待講演 / Invited Talks

1. [Plenary] C. Otani, “Terahertz sensing, imaging and applications”, Philippine-Japan Conference on Photonics and Optical Materials, Quezon City, Philippines, December, (2019).
2. C. Otani, “Development of terahertz radar imaging technology and systems”, Opto-X-Nano 2019: Current challenges of key enabling nanomaterials for emerging technologies: Optical, X-ray metrology and rational material design, Okayama, December, (2019).
3. C. Otani, “Active structural change of polymer and protein by THz irradiation”, The 5th International Symposium of Microwave/THz Science and Applications (MTSA 2019), Busan, South Korea, September, (2019).
4. [Plenary] C. Otani, “Terahertz Sensing, Imaging and Beyond”, The 37th Samahang Pisika ng Philipinas International Conference and Annual Meeting (SPP-37), Tagbilaran, Bohol, Philippines, May, (2019).
5. 大谷知行, “テラヘルツ応用と概観と展望,” 第11回テラヘルツビジネスセミナー (THz-biz 2020) , 展示会All About Photonics, 東京, 1月29日, (2020).
6. 大谷知行, “テラヘルツ応用とマイクロコイル利用の可能性”, パナックセミナー, 東京, 1月15日, (2020).
7. C. Otani, J. Choi, R. T. Génova-Santos, M. Hattori, M. Hazumi, S. Honda, T. Ikemitsu, H. Ishida, H. Ishitsuka, Y. Jo, K. Karatsu, K. Kiuchi, J. Komine, R. Koyano, H. Kutsuma, K. Lee, S. Mima, M. Minowa, J. Moon, M. Nagai, T. Nagasaki, M. Naruse, S. Oguri, M. Peel, R. Rebolo, J. A. Rubiño-Martin, Y. Sekimoto, Y. Sueno, J. Suzuki, T. Taino, K. Takahashi, O. Tajima, N. Tomota, Y. Tsuji, T. Uchida, E. Won, M. Yoshida, “宇宙マイクロ波背景放射偏光観測実験 GroundBIRD”, 電子情報通信学電子デバイス研究会「ミリ波・テラヘルツ波デバイス・システム」, 仙台, 12月23日, (2019).
8. [特別講演] 大谷知行, “テラヘルツ光センシング・イメージングで切り拓くイノベーション,” 同志社大学ハリス理化学研究所研究発表会, 京都, 11月26日, (2019).
9. 大谷知行, “理研におけるテラヘルツ科学技術研究、ならびにテラヘルツイメージングの最近の進展”, 東北大学&理研 第1回連携ワークショップ, 仙台, 10月23日, (2019).
10. 大谷知行, “テラヘルツセンシング・イメージングの近未来展望”, 第166回電波利用懇話会「テラヘルツセンシング・イメージングの最新技術動向と実用化に向けた近未来展望」, 東京, 4月18日, (2019).
11. 保科宏道, “テラヘルツスペクトルの解析”, THz波に関する非破壊検査協会・材料学会・電気学会合同シンポジウム, 東京, 3月5日, (2019).
12. 保科宏道, “テラヘルツ光照射が誘起する高次構造の変化と生命科学への応用”, テラヘルツ波科学技術と産業開拓第182委員会, 仙台, 1月9日, (2020).
13. 保科宏道, “高強度テラヘルツ光が誘起する高分子高次構造の変化”, 日本物理学会第74

回年次大会, 福岡, 3月16日, (2019).

14. 保科宏道, “テラヘルツ光照射が誘起する高次構造の変化と生命科学への応用”, 第3回 RIKEN-RAP and QST-KPSI Joint Seminar, 伊勢, 2月13日, (2020).

(3) 会議、シンポジウム、セミナー主催 / Meeting, Symposiums and Seminars

1. 第11 回テラヘルツビジネスセミナー(THz-Biz 2020), 展示会「All About Photonics 2020」, 東京, 1 月 29 日, (2020).
2. 理研セミナー, Prof. Jian Chen (Research Institute of Superconductor Electronics (RISE), Nanjing University (NJU)), Sendai, August 19, (2019).
3. 理研セミナー, Prof. Elmer Estacio (University of the Philippines Diliman), Sendai, July 17, (2019).

(4) 特許出願 / Patent Applications

1. 榎山誉, 佐々木芳彰, 吉峯功, 大谷知行, 湯浅哲也, “光干渉測定装置および光干渉測定方法”, 特願2019-100827, 5月30日, (2019).
2. 榎山誉, 佐々木芳彰, 吉峯功, 大谷知行, 湯浅哲也, “光干渉測定装置および光干渉測定方法”, 特願2019-100828, 5月30日, (2019).

(5) 特筆すべき事項・トピックス / Topics

1. 日本経済新聞, “宇宙急膨張 証拠をつかめ”, 4月7日, (2019).
2. 河北新報, “先端科学 親子で触れる”, 8月6日, (2019).