

先端レーザー加工研究チーム / **Advanced Laser Processing Research Team**

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

1. D. Wu, C. Wang, L. Yang, C. Zhang, S. Rao, Y. Wang, S. Wu, J. Li, Y. Hu, J. Chu, and K. Sugioka, "Multi-layered skyscraper microchips fabricated by hybrid "all-in-one" femtosecond laser processing", *Microsystems Nanoengin.* 5, 17, (2019).
2. S. Bai, Y. Du, C. Wang, J. Wu, and K. Sugioka, "Reusable surface-enhanced Raman spectroscopy substrates made of silicon nanowirearray coated with silver nanoparticles fabricated by metal-assisted chemical etching and photonic reduction", *Nanomaterials*, 9, 1531, (2019).
3. D. Serien and K. Sugioka, "Three-dimensional printing of pure proteinaceous microstructures by femtosecond laser multi-photon crosslinking", *ACS Biomater. Sci. Eng.* 6, 1279-1287, (2020).
4. D. Zhang, B. Ranjan, T. Tanaka, and K. Sugioka, "Carbonized Hybrid Micro/Nanostructured Metasurfaces Produced by Femtosecond Laser Ablation in Organic Solvents for Biomimetic Antireflective Surfaces", *ACS Appl. Nano Mater.*, 3, 1855-1871, (2020).
5. D. Zhang, B. Ranjan, T. Tanaka, and K. Sugioka, "Underwater persistent bubble-assisted femtosecond laser ablation for hierarchical micro/nanostructuring", *Int. J. Extrem. Manuf.* 2, 015001, (2020).
6. B. Xu, S. Ji, D. Pan, W. Hu, S. Zhu, Y. Hu, J. Li, D. Wu, J. Chu, and K. Sugioka, "Hybrid femtosecond laser fabrication of a size-tunable microtrap chip with a high-trapping retention rate", *Opt. Lett.*, 45, 1071-1074, (2020).

## (2) 著書・解説など / Book Editions, Review Papers

1. K. Sugioka, "Hybrid femtosecond laser three-dimensional micro-and nanoprocessing: a review", *Int. J. Extrem. Manuf.* 1, 012003, (2019).
2. M. Farsari, A. Piqué, and K. Sugioka, "Laser Writing: feature introduction". *Opt. Mater. Express*, 9, 4237-4238, (2019).
3. J. Xu, Y. Cheng, and K. Sugioka, "Optics for beam shaping in laser processing", K. Sugioka (Ed.), *Handbook of Laser Micro- and Nano-Engineering*, (Springer, Berlin) p. 1-17, (2020).
4. 杉岡幸次, "2.7 レーザ加工分野の市場動向: 2.7.1 はじめに", 平成30年度光産業技術に関する報告書(財)光産業技術振興協会編) p.179-182, (2019).
5. 杉岡幸次, "2.7 レーザ加工分野の市場動向: 2.7.3 おわりに", 平成30年度光産業技術に関する報告書(財)光産業技術振興協会編) p.213-214, (2019).
6. 杉岡幸次, "超短パルスレーザーによる微細加工—この10年の進展—", *レーザー加工学会誌*, 26, 4-9, (2019).

7. 杉岡幸次, “全フェムト秒レーザー加工による超高感度三次元マイクロ流体SERSセンサーの作製”, 光アライアンス, 30, 39-42, (2019).
8. 杉岡幸次, “LASE 2019 報告”, Photonics West 2019 報告書 (オプトロニクス社、東京) 4-11, (2019).

(3) 招待講演 / Invited Talks

1. Koji Sugioka, “Femtosecond laser three-dimensional micro and nanoprocessing”, Int.Symp. on Extreme Manufacturing, Chengdu, China, May, (2019). Plenary Talk.
2. K. Sugioka, “Femtosecond laser 3D processing for fabrication of functional micro/nanodevices”, 3rd Int. Conf. on Applied Surface Science (ICASS-2019), Pisa, Italy, June, (2019). Plenary Talk
3. Koji Sugioka, “Femtosecond Laser 3D Processing for Fabrication of Functional Micro and Nanosystems”, Fundamentals of Laser Assisted Mico- and Nanotechnologies 2019 (FLAMN-19), St. Petersburg, Russia, June-July, (2019). Plenary Talk.
4. Koji Sugioka, “Femtosecond laser 3D processing fabricating functional micro and nanodevices”, Int. Conf. on Ultrafast Optical Science (UltrafastLight-2019), Moscow, Russia, September-October, (2019). Plenary Talk.
5. Koji Sugioka, “Femtosecond laser 3D micro and nanofabrication for micro, nano and bio systems”, Int. Summit on Photonics & Laser Technol. (Optics & Lasers2019), San Francisco, USA, June, (2019). Keynote Talk.
6. Koji Sugioka, “Femtosecond laser 3D processing for functional biochip fabrication”, 41th Photonics & Electromagnetics Research Symp (41th PIERS), Rome, Italy, June, (2019). Keynote Talk.
7. K. Sugioka and F. Sima, “Analytical study of cancer cell migration in nanofluidics fabricated by femtosecond laser 3D processing”, 7th Int. Academy of Photon. and Laser Engin. (IAPLE) Conference, Shari, Japan, August, (2019). Keynote Talk.
8. D. Serien, Hi. Kawano, A. Miyawaki, and K. Sugioka, “Recent advancements in femtosecond laser-induced fabrication of pure 3D proteinaceous microstructures”, 28th Int. Cong. on Applications of Lasers & Electro-Optics (ICALEO 2019), Orlando, USA, October, (2019).
9. K. Sugioka, “Ultrafast lasers: Reliable tools for advanced materials processing”, SPIE Int. Conf. on Laser Applications in Microelectronic and Optoelectronic Manufacturing XXV (LAMOM XXV), San Francisco, USA, February, (2020).
10. F. Sima, H. Kawano, A. Miyawaki, K. Obata, D. Serien, and K. Sugioka, “3D glass nanofluidics fabricated by femtosecond laser processing for study of cancer cell metastasis and invasion”, SPIE Int. Conf. on Laser Applications in Microelectronic and Optoelectronic

Manufacturing XXV (LAMOM XXV), San Francisco, USA, February, (2020).

11. D. Serien, H. Kawano, A. Miyawaki, and K. Sugioka, “Recent advances in 3D printing of pure proteinaceous microstructures by femtosecond laser direct write”, SPIE Int. Conf. on Laser-based Micro- and Nanoprocessing XIV (LBMN XIV), San Francisco, USA, February, (2020).
12. D. Zhang and K. Sugioka, “Nanomaterial synthesis and surface nanostructuring by femtosecond laser ablation in liquids”, SPIE Int. Conf. on Synthesis and Photonics of Nanoscale Materials XVII (SPnsM-XVII), San Francisco, USA, February, (2020).
13. K. Sugioka, F. Sima, H. Kawano, and A. Miyawaki, “Nanofluidics fabricated by femtosecond laser 3D processing for mechanism study of cancer cell metastasis”, SPIE Int. Conf. on Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XX, San Francisco, USA, February, (2020).
14. 杉岡幸次, “フェムト秒レーザー 3次元加工とその応用”, 最先端レーザー加工技術に関する講演会, 5月, 松江, (2019). 特別公演.
15. 杉岡幸次, “レーザ加工分野の最新動向”, 平成31年光産業技術振興協会光産業動向セミナー, 4月, 横浜, (2019).
16. 杉岡幸次, “フェムト秒レーザー 3次元マイクロ・ナノ加工”, レーザー学会九州支部セミナー, 8月, 福岡, (2019).
17. 杉岡幸次, “フェムト秒レーザー 3次元マイクロ・ナノ加工”, 2020年第1回極限ナノ造形・構造物性研究会講演会, 東京, 1月, (2020).
18. 杉岡幸次, “フェムト秒レーザーによる3次元バイオチップの作製とがん細胞転移メカニズム解明への応用”, レーザー学会学術講演会第40回年次大会, 仙台, 1月, (2020).

#### (4) 会議、シンポジウム、セミナー主催 / Meetings, Symposiums and Seminars

1. 8th Int. Congress on Laser Advanced Materials Processing (LAMP2019), Hiroshima, Japan, May, (2019).
2. 15th Int. Conf. on Laser Ablation (COLA'19), Maui, USA, Sept., (2019).
3. Nano Manufacturing Conference in 29th Int. Cong. on Applications of Lasers & Electro-Optics (ICALEO 2019), Orlando, USA, Oct., (2019).
4. 先端レーザー加工セミナー, Dr. Udo Klotzbach (Fraunhofer-Institut für Werkstoff- und Strahltechnik, Germany), “Brief overview of the micro-technologies of the Fraunhofer IWS Dresden / Universal lab-on-a-chip platform for complex, perfused 3D tissues generated by 3D printing”, 和光, 6月, (2019).
5. 先端レーザー加工セミナー, Dr. Mangirdas Malinauskas (Vilnius University, Lithuania), “Laser 3D Mesoscale Printing: From Renewable Organics to Crystalline Inorganics”, 和光,

2 月, (2020).

6. 先端レーザー加工セミナー, 中田芳樹准教授 (大阪大学), “Recent progress on fine beam shaping technique and interference laser processing”, 和光, 3 月, (2020).

(5) 特筆すべき事項・トピックス／ Topics

1. D. Serien and K. Sugioka, Best Paper Award for 2018/2019, in recognition of the high impact of the excellent paper by Opto-Electronic Advances (2019) 受賞.
2. 化学工業日報, “たんぱく質微小体を3D プリンティング- 理研、光活性剤使わず” , 1 月9 日, (2020).
3. 電波新聞, “タンパク質の3D プリンティング- 理研が新技術” , 1 月22 日, (2020).
4. ACS Appl. Nano Mater., 3, 1855-1871, (2020). がACS (American Chemical Society) Editors' Choice に選定.
5. D. Serien, 電気学会研究会奨励賞受賞.