

超高速分子計測研究チーム / Ultrafast Spectroscopy Research Team

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

1. Matsuzaki, K., and Tahara, T.: “Superresolution concentration measurement realized by sub-shot noise absorption spectroscopy”, *Nat. Commun.*, 13, 953/1-8 (2022).
2. Sartin, M. M., Osawa, M., Takeuchi, S., and Tahara, T.: “Ultrafast dynamics of an azobenzene-containing molecular shuttle on rotaxane”, *Chem. Comm.* 58, 961-964 (2022).
3. Chang, C.-F., Kuramochi, H., Singh, M., Abe-Yoshizumi, R., Tsukuda, T., Kandori, H., and Tahara, T.: “A unified view on varied ultrafast dynamics of the primary process in microbial rhodopsin”, *Angew. Chem. Int. Ed.* 61, e202111930/1-9 (2021).
4. Fujisawa, T., Masuda, S., Takeuchi, S., and Tahara, T.: “Femtosecond time-resolved absorption study of signaling state of a BLUF protein PixD from Cyanobacterium *Synechocystis*: Hydrogen bond rearrangement completes during forward proton-coupled electron transfer”, *J. Phys. Chem. B* 125, 44, 12154–12165 (2021).
5. Kumar, P., Fron, E., Hosoi, H., Kuramochi, H., Takeuchi, S., Mizuno, H., and Tahara, T.: “Excited-state proton transfer dynamics in LSSmOrange studied by time-resolved impulsive stimulated Raman spectroscopy”, *J. Phys. Chem. Lett.* 12, 7466-7473 (2021).
6. Kuramochi, H., Takeuchi, S., Kamikubo, H., Kataoka, M., and Tahara, T.: “Skeletal structure of the chromophore of photoactive yellow protein in the excited state investigated by ultraviolet femtosecond stimulated Raman Spectroscopy”, *J. Phys. Chem. B* 125, 23, 6154-6161 (2021).

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

1. Kuramochi, H., Tahara, T., “Tracking ultrafast structural dynamics by time-domain Raman spectroscopy”, *J. Am. Chem. Soc.*, 143, 26, 9699-9717 (2021).

(3) 招待講演 / Invited Talks

1. Tahara, T., “Ultrafast chemical dynamics at the water surface revealed by femtosecond time-resolved phase-sensitive nonlinear spectroscopy”, Symposium “Multiscale Chemistry and Dynamics at Surfaces and Interfaces”, Spring 2022 American Chemical Society (ACS) meeting, U. S. A (Hybrid), March (2022).
2. Tahara, T., “A chemical reaction becomes ultrafast at the water surface”, 16th biennial DAE

- BRNS Trombay Symposium on Radiation & Photochemistry (TSRP-2022), India (Online), January (2022).
3. Tahara, T., “Ultrafast vibrational dynamics of water at aqueous interfaces studied by infrared-excited time-resolved HD-VSFG and 2D HD-VSFG spectroscopy”, Pacificchem 2021, Symposium on “Recent Advances in Coherent Multidimensional Spectroscopy (Physical #391)”, U. S. A. (Online), December (2021).
 4. Tahara, T., “Tracking ultrafast chemical processes at aqueous interfaces by time-resolved heterodyne-detected vibrational sumfrequency generation”, Pacificchem 2021, Symposium on “Advanced Understanding of Soft Interfaces at the Molecular-Scale (Physical #392)”, U. S. A. (Online), December (2021).
 5. Tahara, T., “Revealing chemical reactions at the water surface by phase-sensitive ultrafast nonlinear spectroscopy”, XIOPM-RAP Joint Webinar on Photonics, XIOPM and RAP, China-Japan (Online), November (2021).
 6. Tahara, T., “Dynamics of complex molecular systems unveiled by new ultrafast spectroscopy”, 7th Theme Meeting on Ultrafast Science 2021 (UFS-2021), India (Online), November (2021).
 7. Tahara, T., “Revealing ultrafast reaction dynamics at the water surface by femtosecond time-resolved phase-sensitive nonlinear spectroscopy”, 11th Asian Photochemistry Conference (APC 2021), Korea (Online), October (2021).
 8. Tahara, T., “Ultrafast dynamics at the water surface revealed by time-resolved HD-VSFG spectroscopy”, 20th International Conference on Time-Resolved Vibrational Spectroscopy (TRVS2021), U. S. A. (Online), June (2021).
 9. Tahara, T., “Vibrational dynamics of interfacial water revealed by 2D HD-VSFG spectroscopy”, CMDS Webinar (Online), May (2021).
 10. Mohammed, A., Nihonyanagi, S., Tahara, T., “Femtosecond two-dimensional heterodyne-detected VSFG spectroscopy: A novel technique to probe ultrafast dynamics at aqueous interfaces”, International web-conference “Laser Spectroscopy and Ultrafast Science (LSUS-2021), India (Online), April (2021).

(4) 特筆すべき事項・トピックス (雑誌表紙などの掲載記事) / Topics

1. J. Am. Chem. Chem. Vol. 143, No. 26, Front Cover, 2021 年 7 月 7 日発行.
2. 日本経済新聞 (地方経済面 関西経済), “ 島津賞に理研の田原氏”, 2021 年 12 月 18 日.
3. 京都新聞, “ 島津賞に理研・田原氏 先端分光計測で功績”, 2021 年 12 月 18 日.
4. 電波新聞, “21 年度島津賞受賞者を発表 理化学研の田原氏選ぶ”, 2021 年 12 月 20 日.
5. 日刊工業新聞, “ 島津賞に理研・田原氏 島津科技振興財団 独創的な先端分光計測法

開発”, 2021 年 12 月 23 日.

6. 毎日新聞（京都面）, “理化学研・田原氏「分光計測」評価”, 2022 年 1 月 10 日.