

(1) 原著論文(accept)を含む / Original Papers

1. K. Inoue, S. Nihonyanagi, P. C. Singh, S. Yamaguchi, and T. Tahara: "2D heterodyne-detected sum frequency generation study on the ultrafast vibrational dynamics of H₂O and HOD water at charge interfaces", *J. Chem. Phys.*, 142, 212431, (2015).
2. T. Otsu, K. Ishii and T. Tahara, "Microsecond protein dynamics observed at the single molecule level", *Nat. Commun.*, 6, 7685, (2015)
3. S. Tahara, S. Takeuchi, R. Abe-Yoshizumi, K. Inoue, H. Ohtani, H. Kandori, T. Tahara, "Ultrafast photoreaction dynamics of a light-driven sodium-ion-pumping retinal protein from *Krokinobacter eikastus* revealed by femtosecond time-resolved absorption spectroscopy", *J. Phys. Chem. Lett.*, 6, 4481, (2015)
4. M. Iwamura, R. Wakabayashi, J. Maeda, K. Nozaki, S. Takeuchi and T. Tahara, "Coherent vibration and ultrafast dynamics upon bond formation in excited dimers of Au(I) complex", *Phys. Chem. Chem. Phys.*, 18, 5103, (2015)
5. T. Fujisawa, H. Kuramochi, H. Hosoi, S. Takeuchi, T. Tahara, "Role of Coherent Low-Frequency Motion in Excited-State Proton Transfer of Green Fluorescent Protein Studied by Time-Resolved Impulsive Stimulated Raman Spectroscopy", *J. Am. Chem. Soc.*, 138, 3942, (2016)
6. T. Ishiyama, A. Morita, T. Tahara, "Molecular dynamics study of two-dimensional sum frequency generation spectra at vapor/water interface", *J. Chem. Phys.*, 142, 212407, (2015).
7. K. Ishii, T. Tahara, "Correction of the afterpulsing effect in fluorescence correlation spectroscopy using time symmetry analysis", *Opt. Express*, 23, 32387, (2015)
8. M. Yamashina, M. M. Sartin, Y. Sei, M. Akita, S. Takeuchi, T. Tahara, M. Yoshizawa, "Preparation of Highly Fluorescent Host-Guest Complexes with Tunable Color upon Encapsulation", *J. Am. Chem. Soc.*, 137, 9266, (2015)
9. H. Hosoi, R. Tayama, S. Takeuchi, T. Tahara, "Solvent dependence of two-photon absorption spectra of the enhanced green fluorescent protein (eGFP) chromophore", *Chem. Phys. Lett.*, 630, 32, (2015)
10. H. Kuramochi, S. Takeuchi, T. Tahara, "Femtosecond time-resolved impulsive stimulated Raman spectroscopy using sub-7-fs pulses: Apparatus and applications", *Rev. Sci. Instrum.* 87, 043107, (2016)
- 11.

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

1. S. Yamaguchi and T. Tahara, "Development of electronic sum frequency generation spectroscopies and their application to liquid interfaces", *J. Phys. Chem. C*, 119, 14815, (2015) (Feature Article) (2015).

2. 石井邦彦, 乙須拓洋, 田原太平, “Lifetime-weighted FCS and 2D FLCS: Advanced application of time-tagged TCSPC” *Advanced Photon Counting: Applications, Methods, Instrumentation (Springer Series on Fluorescence)*, (2015).
3. 田原太平, 発光の事典, “3.2 時間測定, 3.2.1 時間分解測定の概要”, (pp. 112-118), 朝倉書店 (2015)

(3) 招待講演 / Invited Talks

1. T. Tahara, “Water interfaces studied by steady-state and time-resolved heterodyne detected vibrational sum-frequency generation”, *Sum Frequency Spectroscopy*, Germany, April, (2015).
2. T. Tahara, “Observing nuclear motion of photoreceptor proteins in action by femtosecond time-resolved impulsive stimulated Raman spectroscopy”, *Metals in Biology in Wako*, Japan, June, (2015).
3. T. Tahara, “Ultrafast vibrational dynamics at water interfaces studied by two-dimensional heterodyne-detected sum-frequency generation”, *17th International Conference on Time-Resolved Vibrational Spectroscopy*, USA, June (2015).
4. S. Takeuchi, “Ultimate time-domain Raman study of ultrafast structural dynamics in photoreception”, *27th International Conference on Photochemistry*, Korea, July, (2015).
5. S. Takeuchi, “Probing ultrafast structural dynamics in reacting polyatomic molecules by time-domain Raman spectroscopy”, *Yonsei International Symposium 2015*, Korea, July, (2015).
6. T. Tahara, “Femtosecond vibrational spectroscopy of simple and complex systems”, *8th International Conference on Advanced Vibrational Spectroscopy*, Austria, July (2015).
7. M. Iwamura, K. Nozaki, S. Takeuchi, and T. Tahara, “Structural change dynamics of oligomers of gold(I) complex observed by ultrafast spectroscopy”, *The 5th Asian Spectroscopy Conference*, Australia, October, (2015).
8. 藤澤知績, 倉持光, 竹内佐年, 田原太平 “緑色蛍光タンパク質 GFP の励起状態プロトン移動における非調和な低振動モードの役割: 時間分解インパルスラマン分光法による検証” 第 38 回溶液化学シンポジウム, 高知, 10 月 20 日 (2015).
9. 田原進也, 竹内佐年, 吉住玲, 井上圭一, 神取秀樹, 田原太平, “Na⁺ポンプ型口ドプシン KR2 の超高速光反応” 新学術領域「柔らかな分子系」第 13 回ワークショップ「光駆動ナトリウムポンプからタンパク質の柔らかさと機能のつながりを考える」, 愛知, 11 月 12 日~13 日, (2015).
10. 二本柳聡史, 田原太平 “ヘテロダイン検出和周波発生分光法による界面水の研究” 第 35 回表面科学学術講演会, 茨城, 12 月 1 日~3 日 (2015).
11. M. Iwamura, K. Nozaki, S. Takeuchi, T. Tahara, “Ultrafast structural change of oligomers induced by gold-gold bond formation in excited state”, *Third International Symposium on the Photofunctional Chemistry of Complex Systems*, USA, December, (2015).
12. K. Ishii, T. Tahara, “Application of two-dimensional fluorescence lifetime

correlation spectroscopy to elucidating conformational dynamics of biomolecules”, Pacificchem 2015, USA, December, (2015).

13. T. Tahara, “Ultrafast dynamics at liquid interfaces studied by time-resolved heterodyne-detected vibrational sum-frequency generation spectroscopy”, Pacificchem 2015, Symposium on "Fundamental Science of Photon and Electron Induced Surface Processes (#228)", USA, December, (2015).
14. T. Tahara, “Two-dimensional heterodyne-detected vibrational sum-frequency generation study of water interfaces”, Pacificchem 2015, Symposium on "Recent Experimental and Theoretical Advances in Studies of Liquid Interfaces (#437)", USA, December, (2015).
15. T. Tahara, “Femtosecond time-resolved vibrational spectroscopy at water interfaces”, The 13th Biennial Trombay Symposium on Radiation & Photochemistry and the 6th Asia-Pacific Symposium on Radiation Chemistry, India, January, (2016).
16. S. Takeuchi, “Ultimate time-domain Raman approach to reveal ultrafast nuclear motions in photoreception”, The 13th Biennial Trombay Symposium on Radiation & Photochemistry and the 6th Asia-Pacific Symposium on Radiation Chemistry, India, January, (2016).
17. 田原太平“見えないものを観る Seeing the unseen” 佐賀大学大学院工学系研究科循環物質化学専攻セミナー,佐賀,1月25日~26日, (2016).
18. S. Takeuchi, “Primary structural dynamics of photo-responsive proteins probed by ultrafast time-domain Raman spectroscopy”, 9th Asian Conference on Ultrafast Phenomena, Philippines, February, (2016).

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

1. セミナー, “Development of chiroptical spectroscopies by optical heterodyne detection”, 和光, 4月7日, (2015)
2. セミナー, “Light Activation Mechanism of Retinal Proteins”, 和光, 7月13日, (2015)
3. セミナー, “Proteins at interfaces”, 和光, 8月4日, (2015)
4. セミナー, “Visualizing Au-Au bond formation in solution with femtosecond X-ray scattering”, 和光, 8月6日, (2015)
5. セミナー, “Ultrafast plasmon dynamics by femtosecond near-field microscopy”, 和光, 11月2日, (2015)
6. セミナー, “Amplified spontaneous emission between the ion-pair states of halogen molecules”, 和光, 12月8日, (2015)

(5) 特許出願 / Patent Applications

1. 石井邦彦、田原太平、“光子検出装置、光子検出方法、蛍光相関分光測定装置、蛍光相互相関 分光測定装置、動的散乱測定装置、及び、蛍光顕微鏡”、特願 2015-219557、 2015年11月9日

(6) 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. 日刊工業新聞, “理研 たんぱく質の構造変化追跡 数マイクロ秒の高速計測”, 2015年7月8日

2. 薬事日報, “蛋白質の構造変化観察 新たな計測手法を観察”, 2015 年 7 月 31 日
3. 日経バイオテク ONLINE, “理研の田原研、2D-FLCS 法で折り畳みが速い蛋白質の構造変化を 1 分子計測”, 2015 年 7 月 7 日
4. 日刊工業新聞, “理研、数マイクロ秒の時間解像度でたんぱく質の構造変化追跡できる手法を開発”, 2015 年 7 月 8 日
5. Laser Focus World Japan, “タンパク質の非常に速い構造変化を計測する新手法を開発”, 2015 年 7 月 9 日