

チーム名: 超高速分子計測研究チーム

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

1. H. Kuramochi, S. Takeuchi and T. Tahara, "Femtosecond time-resolved impulsive stimulated Raman spectroscopy using sub-7-fs pulses: Apparatus and applications," *Rev. Sci. Instrum.*, 87, 043107/1-10 (2016).
2. K. Inoue, T. Ishiyama, S. Nihonyanagi, S. Yamaguchi, A. Morita and T. Tahara, "Efficient spectral diffusion at the air/water interface revealed by femtosecond time-resolved heterodyne-detected vibrational sum frequency generation spectroscopy," *J. Phys. Chem. Lett.*, 7, 1811-1815, (2016).
3. K. Matsuzaki, R. Kusaka, S. Nihonyanagi, S. Yamaguchi, T. Nagata, and T. Tahara, "Partially hydrated electrons at the air/water interface observed by UV-excited time-resolved heterodyne-detected vibrational sum frequency generation spectroscopy," *J. Am. Chem. Soc.*, 138, 7551-7557 (2016).
4. P. Singh, K. Inoue, S. Nihonyanagi, S. Yamaguchi, and T. Tahara, "Femtosecond hydrogen-bond dynamics of bulk-like and bound water at positively and negatively charged lipid interfaces revealed by 2D HD-VSFG spectroscopy," *Angew. Chem. Int. Ed.*, 55, 10621–10625 (2016).
5. Y. Harabuchi, R. Yamamoto, S. Maeda, S. Takeuchi, T. Tahara, and T. Taketsugu, "Ab initio molecular dynamics study on photoreaction of 1,1'-dimethylstilbene upon $S_0 \rightarrow S_1$ excitation," *J. Phys. Chem. A*, 120, 8804-8812 (2016).
6. M. Sartin, K. Kondo, M. Yoshizawa, S. Takeuchi, and T. Tahara, "Local environment inside a novel aromatic micelle investigated by steady-state and femtosecond fluorescence spectroscopy of an encapsulated solvatochromic probe," *Phys. Chem. Chem. Phys.*, 19, 757 - 765 (2017).
7. F. Shin, K. Hanaoka, W. Piao, T. Miyakawa, T. Fujisawa, S. Takeuchi, S. Takahashi, T. Komatsu, T. Ueno, T. Terai, T. Tahara, M. Tanokura, T. Nagano, Y. Urano, "Development of an azoreductase-based reporter system with synthetic fluorogenic substrates," *ACS Chem. Biol.*, 12, 558-563 (2017).
8. H. Kuramochi, S. Takeuchi, K. Yonezawa, H. Kamikubo, M. Kataoka and T. Tahara, "Probing the early stages of photoreception in photoactive yellow protein with ultrafast time-domain Raman spectroscopy," *Nat. Chem.*, in press (2017).
9. H. Kuramochi, T. Fujisawa, S. Takeuchi and T. Tahara, "Broadband stimulated Raman spectroscopy in the deep ultraviolet region," *Chem. Phys. Lett.*, in press (2017).

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

1. S. Nihonyanagi, S. Yamaguchi and T. Tahara, "Ultrafast dynamics at water interfaces studied by vibrational sum-frequency generation spectroscopy," *Chem. Rev.* in press

(2017).

2. 竹内佐年, “発光タンパク質に振動コヒーレンスは寄与しているのか?,” 化学と工業, 70, 250 (2017).
3. 倉持光, “光反応生成物・無輻射遷移後において観測される振動コヒーレンス,” 分光研究, 65, 310 (2016).

(3) 招待講演 / Invited Talks

1. T. Tahara, “Ultrafast dynamics at water interfaces studied by novel interface-selective femtosecond vibrational spectroscopy,” 18th Korean Raman Workshop, Seoul, May, (2016).
2. T. Tahara, “Ultrafast dynamics at water interfaces revealed by novel interface-selective femtosecond vibrational spectroscopy,” International Symposium: Recent Progress in Molecular Spectroscopy and Dynamics, Fukuoka, July, (2016).
3. S. Takeuchi, “Ultimate time-domain Raman approach to reveal ultrafast nuclear motions in photo-responsive proteins,” EMN Meeting on Ultrafast 2016, Melbourne, October, (2016).
4. T. Tahara, “Ultrafast dynamics at water interfaces revealed by novel interface-selective femtosecond vibrational spectroscopy,” Seminar, Indian Association for Cultivation of Science (IACS), Kolkata, November, (2016).
5. T. Tahara, “Ultrafast dynamics at water interfaces revealed by novel interface-selective femtosecond vibrational spectroscopy,” Fudan physics colloquium, Shanghai, November, (2016).
6. T. Tahara, “Tracking structural dynamics of complex molecules by femtosecond time-domain Raman,” International Workshop on Present and Future of Ultrafast Spectroscopy, Wako, March, (2017).
7. S. Takeuchi, “Primary dynamics of photo-responsive proteins probed by femtosecond absorption and Raman spectroscopy,” 26th IUPAC International Symposium on Photochemistry, Osaka, April, (2016).
8. H. Kuramochi, S. Takeuchi, and T. Tahara, “Primary structural dynamics of photoresponsive proteins studied by ultrafast time-domain Raman spectroscopy using few-cycle pulses,” 9th Asian Photochemistry Conference, Singapore, December, (2016).
9. 田原太平, “見えなかったものを観たいんです,” 第3回ジンパ・セミナー, 岡山, 4月28日, (2016).
10. 田原太平, “分子系フェムト秒分光の最前線,” 強光子場科学研究懇談会・平成27年度第3回懇談会, 和光, 7月13日, (2016).
11. 田原太平, “新しい超高速非線形分光の開発による水表面の水和電子の観測,” 第13回エクストリームフォトニクス研究会, 蒲郡, 11月14日~11月15日, (2016).

12. 田原太平, 森田明弘, “実験と理論の協奏で拓く水表面の和周波分光研究の最先端,” 日本化学会第 97 春季年会, 中長期企画講演「複雑系のための分子科学—理論、計測、合成の連携で拓く柔らかな分子の新機能」, 横浜, 3 月 16 日～3 月 19 日, (2017).
13. 竹内佐年, “反応分子の超高速構造ダイナミクス追跡,” 京都大学大学院理学研究科 化学専攻 研究セミナー, 京都, 11 月 30 日, (2016).
14. 竹内佐年 “反応分子の超高速構造ダイナミクス追跡,” 第 3 回 森野ディスカッション, 東京, 8 月 31 日, (2016).
15. 二本柳聡史, 井上賢一, 田原太平, “新しい界面選択的な非線形分光法による水界面の超高速分光,” 理研シンポジウム 第 4 回「光量子工学研究 - 若手・中堅研究者から見た光量子工学の展開, 和光, 10 月 31 日～11 月 1 日, (2016).

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

1. International Workshop on Present and Future of Ultrafast Spectroscopy, Wako, March, (2017).

(5) 特許出願 / Patent Applications

なし

(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. 理研プレスリリース, “水表面の電子を観測—界面の超高速光化学が観測できる新手法を開発—”, 2016 年 6 月 10 日
2. 理研プレスリリース, “光受容タンパク質が応答する瞬間の動きを分子レベルで解明”, 2017 年 2 月 7 日