

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. S. Tahara, S. Takeuchi, R. Abe-Yoshizumi, K. Inoue, H. Ohtani, H. Kandori and T. Tahara, "Origin of the reactive and non-reactive excited states in the primary reaction of rhodopsins: pH dependence of femtosecond absorption of light-driven sodium ion pump rhodopsin KR2", *J. Phys. Chem. B*, 122, 4784 (2018).
2. K. Inoue, S. Tahara, Y. Kato, S. Takeuchi, T. Tahara and H. Kandori, "Spectroscopic study of proton transfer mechanism of inward proton pump rhodopsin, *Parvularcula oceani* xenorhodopsin", *J. Phys. Chem. B*, 122, 6453 (2018).
3. H. Kuramochi, S. Takeuchi, and T. Tahara, "Ultrafast photodissociation dynamics of diphenylcyclopropanone studied by time-resolved impulsive stimulated Raman spectroscopy", *Chem. Phys.* 512, 88 (2018).
4. M. Iwamura, K. Kimoto, K. Nozaki, H. Kuramochi, S. Takeuchi, and T. Tahara, "Metal-metal bond formations in $[\text{Au}(\text{CN})_2^-]_n$ ($n = 3-5$) oligomers in water identified by coherent nuclear wavepacket motions", *J. Phys. Chem. Lett.*, 9, 7085 (2018).
5. K. Inoue, A. Mohammed, S. Nihonyanagi, and T. Tahara, "Effect of hydrogen-bond on ultrafast spectral diffusion dynamics of water at charged monolayer interfaces", *J. Chem. Phys.*, 150, 054705 (2019).
6. S. Tahara, M. Singh, H. Kuramochi, W. Shihoya, K. Inoue, O. Nureki, O. Béjà, Y. Mizutani, H. Kandori, and T. Tahara, "Ultrafast dynamics of heliorhodopsins", *J. Phys. Chem. B*, 123, 2507 (2019).

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

1. S. Nihonyanagi and T. Tahara, "Vibrational Sum Frequency Generation Spectroscopy", In *Compendium of Surface and Interface Analysis*, The Surface Science Society of Japan Ed., Springer, 801-807, (2018).
2. 倉持光, "フェムト秒時間分解"時間領域"ラマン分光による光受容体初期構造ダイナミクスの実時間追跡", *光学*, 47, 6, 258 (2018).
3. 倉持光, 藤澤知績, 竹内佐年, 田原太平, "フェムト秒時間領域ラマン分光法を用いた光受容・発光タンパク質の反応ダイナミクスの研究", *生物物理*, 59, 026-029 (2019).

(3) 招待講演 / Invited Talks

1. T. Tahara, "Structural dynamics of photoresponsive proteins by femtosecond time-domain Raman spectroscopy", Les Houches-TSRC Workshop "Protein Dynamics", France, May, (2018).
2. T. Tahara, "Ultrafast vibrational dynamics at lipid/ water interfaces studied by 2D HD-VSFG spectroscopy", The 9th International Conference on Coherent Multidimensional Spectroscopy (CMDS 2018), Korea, June, (2018).
3. T. Tahara, "Ultrafast vibrational dynamics at aqueous interfaces studied by 2D HD-VSFG spectroscopy", Telluride Science Research Center (TSRC) Workshop "Advances of Multidimensional

Vibrational Spectroscopy in Water, Biology and Materials Science”, USA, July, (2018).

4. T. Tahara, “Structure and dynamics of liquid interfaces studied by heterodyne-detected vibrational sum-frequency generation”, Gordon Research Conference 2018 Vibrational Spectroscopy, USA, July, (2018).
5. T. Tahara, “Femtosecond time-domain Raman spectroscopy”, The 26th International Conference on Raman Spectroscopy (ICORS 2018), Korea, August, (2018).
6. 田原太平, “Ultrafast structural dynamics of photoreceptor proteins revealed by femtosecond Raman spectroscopy”, 第 56 回日本生物物理学会年会, 岡山, 9 月 16 日, (2018).
7. S. Takeuchi, “Ultrafast time-domain Raman approach to probe initial events in photoreception”, The 5th Ultrafast Dynamic Imaging of Matter (UFDIM), Greece, September, (2018).
8. T. Tahara, “Catching ultrafast reactions at the water surface by femtosecond time-resolved HD-VSFG spectroscopy”, The 8th SFG Symposium, Japan, October, (2018).
9. S. Takeuchi, “Ultrafast time-domain Raman study of bond strengthening in oligomers of Au(I) complex” Indo-Japan mini workshop “Frontiers in Molecular Spectroscopy: From Fundamentals to Applications in Chemistry and Biology”, Japan, October, (2018).
10. T. Tahara, “Structure and dynamics of water at the interface”, Joint Conference of EMLG/JMLG Meeting 2018 and 41st Symposium on Solution Chemistry of Japan, Japan, November, (2018).
11. S. Nihonyanagi, “Phase-resolved interface-selective spectroscopy of applied interfaces”, 2nd International Workshop on Phase Interfaces for Highly Efficient Energy Utilization, USA, November, (2018).
12. S. Nihonyanagi, “Structure and dynamics of liquid interfaces studied by phase- and time-resolved interface-selective nonlinear spectroscopies”, Seminar, Department of Chemistry, Temple University, USA, November, (2018).
13. 倉持光, “極限的時間領域ラマン分光で迫る光応答性タンパク質の反応初期過程”, 分子科学研究所研究会「2030 年の生命分子科学を語る」, 岡崎, 12 月 5 日, (2018).
14. 二本柳聡史, “Role of hydrogen bonding in ultrafast spectral diffusion dynamics of water at charged lipid interfaces”, 分子研研究会「Water at interfaces」, 岡崎, 1 月 15 日, (2019).
15. 田原太平, “フェムト秒レーザーを用いた複雑な分子系の研究”, PF 研究会「高繰り返し極短パルス光源の未来」, つくば, 1 月 22 日, (2019).
16. 倉持光, “極短パルス光を用いた複雑分子系の実時間構造ダイナミクス追跡”, 非共有結合系の分子科学, 神戸市, 1 月 23 日(2019).
17. 倉持光, “極限的時間領域ラマン分光による反応する分子の超高速実時間構造追跡”, 分子研所長招聘研究会, 岡崎, 1 月 25 日, (2019).
18. 田原太平, “計測系から見た分子集合体の機能計測—超高速分光”, シンポジウム「複雑系の分子科学—集まって立ち現れる分子機能の理解と設計」, 日本化学会第 99 春季年会, 神戸, 3 月 16 日 (2019).
19. H. Kuramochi, “Ultrafast time-domain vibrational spectroscopy of complex molecular systems”, International Symposium for Molecular Science, 99th CSJ Annual Meeting, Japan, March, (2019).

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

1. 理研セミナー, “Injecting electrons into dendritic networks of acceptors: Fast vs slow and hot vs cold”, 和光市, 5月15日, (2018).
2. セミナー, “Ultrafast electrons and molecular dynamics induced by short wavelength novel free-electron laser”, 和光市, 6月22日, (2018).
3. セミナー, “Large Spontaneous Emission Enhancement by a Plasmonic Nanocone Antenna”, 和光市, 7月2日, (2018).
4. セミナー, “Amyloid oligomers: membrane interactions and its dependence on membrane properties”, 和光市, 9月4日, (2018).
5. 理研セミナー, “Application of Raman Spectroscopy from Condense Matter to Biology”, 和光市, 9月14日, (2018).
6. セミナー, “Jones-Ray effect can be explained by charged impurities”, 和光市, 9月26日, (2018).
7. セミナー, “Trajectory based on-the-fly nonadiabatic *ab initio* molecular dynamics with Zhu-Nakamura surface hopping algorithms”, 和光市, 10月3日, (2018).
8. セミナー, “Finding an intrinsic reaction coordinate in excited state by nuclear wave packet spectroscopy and molecular dynamics simulation”, 和光市, 10月4日, (2018).
9. RAP セミナー, “Versatile optical wave manipulation by use of optical frequency comb and its applications”, 和光市, 10月19日, (2018).
10. 理研セミナー, “Water mediated ion pairing at aqueous surfaces”, 和光市, 10月25日, (2018).
11. 理研セミナー, “Life, decoded a few photons at a time”, 和光市, 11月2日, (2018).
12. 理研シンポジウム, “若手研究者による先端的レーザー分光シンポジウム” (分光学会共催), 和光市, 1月16日, (2019).