

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. S. Inada, M. Mizuno, Y. Kato, A. Kawanabe, H. Kandori, Z. Wei, S. Takeuchi, T. Tahara, and Y. Mizutani, "Primary structural response in tryptophan residues of Anabaena Sensory Rhodopsin to photochromic reactions of the retinal chromophore," *Chem. Phys.*, **419**, 65-73 (2013).
2. P. C. Singh, S. Nihonyanagi, S. Yamaguchi, and T. Tahara, "Ultrafast vibrational dynamics of hydrogen bond network terminated at the air/water interface: A two-dimensional heterodyne-detected vibrational sum frequency generation study," *J. Chem. Phys.* **139**, 161101-161104 (2013).
3. M. Iwamura, S. Takeuchi, and T. Tahara, "Substituent effect on the photoinduced structural change of Cu(I) complexes observed by femtosecond emission spectroscopy," *Phys. Chem. Chem. Phys.* **16**, 4143-4154 (2014).
4. Y. Sudo, M. Mizuno, Z. Wei, S. Takeuchi, T. Tahara and Y. Mizutani, "The early steps in the photocycle of a photosensor protein Sensory Rhodopsin I from *Salinibacter ruber*," *J. Phys. Chem. B*, **118**, 1510-1518 (2014).

(2) 著書、解説等 / Book Editions, Review Papers

1. 二本柳聡史、P. C. Singh、山口祥一、田原太平、"定常および時間分解ヘテロダイン検出と周波発生分光法の開発と界面水への応用"、*分光研究*、**62(6)**, 253-263 (2013).

(3) 招待講演 / Invited Talk

1. 二本柳聡史、"ヘテロダイン検出振動と周波発生分光法の開発と界面水分子の構造とダイナミクスの解明、" 第7回分子科学討論会、京都テルサ (京都)、2013年9月
2. 田原太平、"光受容蛋白質のフェムト秒ダイナミクスの観測と理解" 分子研研究会ーロドプシン研究の故きを温ねて新しきを知る、岡崎コンファレンスセンター (岡崎)、2013年11月
3. 倉持光、"フェムト秒ラマン分光法で観るイエロープロテイン励起状態における超高速構造ダイナミクス" 日本分光学会・若手先端レーザー分光シンポジウム、鈴木梅太郎記念ホール、理研(和光)、2013年12月
4. 田原太平、"新しい界面選択的な非線形分光で知る界面の水の静的・動的性質" 鶴田フォーラム、東京工業大学大岡山キャンパス蔵前会館 (東京)、2013年12月
5. 二本柳聡史、Prashant Chandra Singh、山口祥一、田原太平、"先端的非線形分光法の開発と水界面の分子科学"、2013年度日本分光学会北海道支部シンポジウム、北海道大学理学研究院5号館3-01講義室 (札幌)、2014年1月
6. T. Tahara, "Ultrafast structural change and coherent nuclear dynamics of metal complexes studied by femtosecond optical spectroscopy," Symposium on Ultrafast Excited-state Processes in Transition Metal-containing Systems, the 245th ACS National Meeting, New Orleans, LA, USA, April (2013).
7. S. Takeuchi, and T. Tahara, "Femtosecond Raman tracking of initial structural evolution in reacting molecules," IMS Workshop on "Hierarchical Molecular Dynamics: From Ultrafast Spectroscopy to Single Molecule Measurements," Okazaki Conference Center, Okazaki, Japan, May (2013).
8. T. Tahara, "Photochemical dynamics revealed by multi-pulse femtosecond spectroscopy," Gordon Research Conference on Photochemistry, Stonehill College, Easton, MA, USA, July (2013).
9. S. Takeuchi, H. Kuramochi, H. Kamikubo, M. Kataoka, and T. Tahara, "Femtosecond Raman tracking of initial structural evolution in photoreceptor protein," 7th International Conference on Advanced Vibrational Spectroscopy, Kobe Convention Center, Kobe, Japan, August (2013).
10. T. Tahara, "Structure and dynamics of water interfaces revealed by heterodyne detected sum-frequency generation," International Symposium for the 70th Anniversary of the Tohoku Branch of the Chemical Society of Japan, Hagi-Hall, Tohoku University, Sendai, Japan, September (2013).
11. T. Tahara, "Seeing the unseen with ultrashort optical pulses," Department Seminar, Department of Chemistry, University of Alberta, Edmonton, Canada, November (2013).
12. T. Tahara, "Structure and dynamics of water interfaces studied by novel interface-selective nonlinear

- spectroscopy,” AMO Seminar, University of British Columbia, Vancouver, Canada, November (2013).
13. T. Tahara, “Seeing the unseen with ultrashort optical pulses,” Department Seminar, Department of Chemistry, University of Victoria, Victoria, Canada, November (2013).
 14. T. Tahara, “Complex molecular systems studied by novel ultrafast and nonlinear spectroscopy,” The 4th Asian Spectroscopy Conference, Nanyang Technological University, Singapore, December (2013).
 15. T. Tahara, “Electronic/vibrational heterodyne-detected sum-frequency generation and its extension to ultrafast 2D spectroscopy at liquid interfaces,” Trombay Symposium on Radiation & Photochemistry (TSRP) - 2014, Multipurpose Hall, BARC Training School Hostel, Anushaktinagar, Mumbai, India, January (2014).
 16. T. Tahara, “Ultrafast dynamics of simple and complex molecules studied by multi-pulse femtosecond spectroscopy,” Seminar, Indian Association for the Cultivation of Science, India, January (2014).
 17. S. Takeuchi and T. Tahara, “Femtosecond Raman study of structural evolution in reacting molecules,” 8th Asian Conference on Ultrafast Phenomena, ホテル北野プラザ六甲荘, Kobe, Japan, January (2014).
 18. S. Yamaguchi, “Heterodyne-detected SFG spectroscopy for liquid interfaces” Symposium on Molecular Science and Synthesis of Functional Molecules for Next Generation, Hiroshima University, Hiroshima, March (2014).

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

1. 第 16 回時間分解振動分光に関する国際会議 The Sixteenth International Conference on Time-Resolved Vibrational Spectroscopy (TRVS2013), Oita, Japan, May 19-24 (2013).
2. 日本分光学会・若手先端レーザー分光シンポジウム、和光市、12月3日(2013)
3. “Time-Resolved Terahertz Studies of Carrier Dynamics in P3HT and Zinc-Phthalocyanine/C60 Nanolayered Organic Films”
Dr. Edwin J. Heilweil (NIST, USA)
平成 25 年 5 月 17 日
4. “Nanocrystal excitonics; novel insights from hyperspectral ultrafast spectroscopy”
Prof. Sanford Ruhman (Hebrew University, Israel)
平成 25 年 5 月 28 日
5. “Raman Optical Activity of Single Molecules and the Symmetry of “Plasmonic Molecules”
Prof. Gilad Haran (Weizmann Institute of Science, Israel)
平成 25 年 5 月 30 日
6. “Energy transfer in proteins and DNA investigated by ultrafast time resolved IR-spectroscopy”
Mr. Dominik B. Bucher (Ph. D student, Univ. Munich, Germany)
平成 25 年 5 月 31 日
7. “Peptide folding and aggregation studied with light-switchable azobenzene peptides”
Mr. Andreas Deeg (Ph. D student, Univ. Munich, Germany)
平成 25 年 5 月 31 日
8. “Vibrational spectroscopic response at water/vapor and ice/vapor interfaces: Effect of charge transfer”
Dr. Tatsuya Ishiyama (Assistant Professor, Tohoku University)
平成 25 年 6 月 13 日
9. “Hydrogen bond induced non-adiabatic coupling”
Prof. Naresh Patwari (Professor, Indian Institute of Technology, Bombay, India)
平成 25 年 8 月 16 日
10. “Surface-induced orientation and conformational changes of biomolecules as revealed by nonlinear vibrational spectroscopy and molecular modelling”
Dr. Dennis Hore (Assistant Professor, University of Victoria, Victoria, Canada)
平成 25 年 9 月 2 日
11. “Time Resolved Confocal Microscopy in a Live Cell and Binary Mixtures: Conformational and Solvation Dynamics and Gene Silencing”
Prof. Kankan Bhattacharyya (Professor, Indian Association for Cultivation of Science, India)

平成 25 年 10 月 1 日

12. “Understanding the interaction of amyloid beta with living cells”
Mr. Bidyut Sarkar (Ph. D student, Tata Institute of Fundamental Research, India)
平成 25 年 10 月 16 日
13. “Nucleation and growth of hemozoin (malaria pigment) crystals at the surface of synthetic neutral lipid droplets”
Prof. Timothy J. Egan (Professor, University of Cape Town, South Africa)
平成 25 年 10 月 17 日
14. “Self-Assembled DNA Nanosystems for Energy and Electron Transfer Applications”
Prof. Bo Albinsson (Professor, Calmers University of Technology, Sweden)
平成 25 年 10 月 22 日
15. “Flexible hydrogen bonds in gas-phase molecular clusters”
Dr. Yoshiteru Matsumoto (Assistant Professor, University of Hyogo)
平成 25 年 12 月 2 日
16. “Spectroscopic analysis on cytochrome c oxidase”
Dr. Miyuki Sakaguchi (University of Hyogo)
平成 26 年 1 月 16 日
17. “The role of water molecules on the interaction between polymer surfaces and proteins”
Prof. Takashi Aoki (Kyoto Institute of Technology)
平成 26 年 1 月 22 日
18. “Visualization of hydrogen-bonding dynamics using scanning tunneling microscopy”
Dr. Takashi Kumagai (Fritz-Haber Institute of the Max-Planck Society)
平成 26 年 1 月 31 日
19. “Single-molecule study of biochemical processes in real time”
Prof. Seong Keun Kim (Seoul National University)
平成 26 年 2 月 5 日
20. “Dynamical chemistry captured with ultrafast two-dimensional infrared spectroscopy”
Prof. Kevin J. Kubarych (University of Michigan)
平成 26 年 3 月 24 日