



7TH ASIAN SPECTROSCOPY CONFERENCE (ASC 2020)

8 – 10 December 2020, Zoom (Singapore)

Programme Booklet

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Chairs' Message

The Asian Spectroscopy Conference (ASC) has a relatively long history. It was initiated by Asian Raman spectroscopists and was held in odd numbered years, while the International Conference on Raman spectroscopy (ICORS) was held in the even numbered years. The last ASC, sixth in its series, was held in Taiwan in 2017, chaired by I-Chia Chen. Prior to that, ASC had been held in 2007 (India), 2009 (South Korea), 2011 (China), 2013 (Singapore) and 2015 (Australia).

Due to the unfortunate COVID-19 pandemic, the 7th ASC 2019, Hong Kong (Chair: David Phillips) could not be held as a face-to-face meeting and has been postponed to be the 9th ASC, 2023, Hong Kong (Chair: David Phillips). To fill the vacuum between the 6th and the 8th ASC, the International Steering Committee has kindly consented to holding the 7th ASC 2020, through Singapore (Chair: Edwin Yeow; Co-Chair: Soo-Ying Lee), as an online conference. It convenes on 8 - 10 December 2020, and is organised by the Institute of Advanced Studies (IAS), Nanyang Technological University (NTU), Singapore.

The scientific programme of 7th ASC 2020 consists of 50 oral presentations (15 esteemed plenary lectures, 30 invited and 5 contributed talks), covering a wide range of topics including ultrafast spectroscopies, time-resolved spectroscopies, surface-enhanced and tip-enhanced Raman spectroscopy, microwave spectroscopy, infrared spectroscopy and microscopy; on top of the traditional topic of Raman spectroscopy. 27 abstracts for the 3-minute video poster presentations, an innovative format of poster presentation that replaces the traditional one for this online conference, have also been received.

We are grateful to the conference sponsors of 7th ASC – *EINST Technology Pte Ltd*, *Laser 21 Pte Ltd*, *Newport Opto-Electronics Technologies (Singapore) Pte Ltd* and *Thermo Fisher Scientific Pte Ltd* for their generous contributions towards the poster awards. Appreciation also goes to Singapore National Institute of Chemistry (SNIC) and IAS, NTU (particularly the Secretariat, Ms Eileen So) for the co-organising support. Finally, and most importantly, we thank all members of the Local Organising Committee and International Steering Committee for seeking conference sponsors and much helpful conference organisational advice.

We hope all of you enjoy this special ASC 2020!

Edwin Yeow

Chair, ASC 2020

Nanyang Technological University (NTU), Singapore

Soo-Ying Lee

Co-Chair, ASC 2020

Nanyang Technological University (NTU), Singapore

Organising Committee

Conference Chair

YEOW Edwin, Nanyang Technological University, Singapore

Conference Co-Chair

LEE Soo Ying, Nanyang Technological University, Singapore

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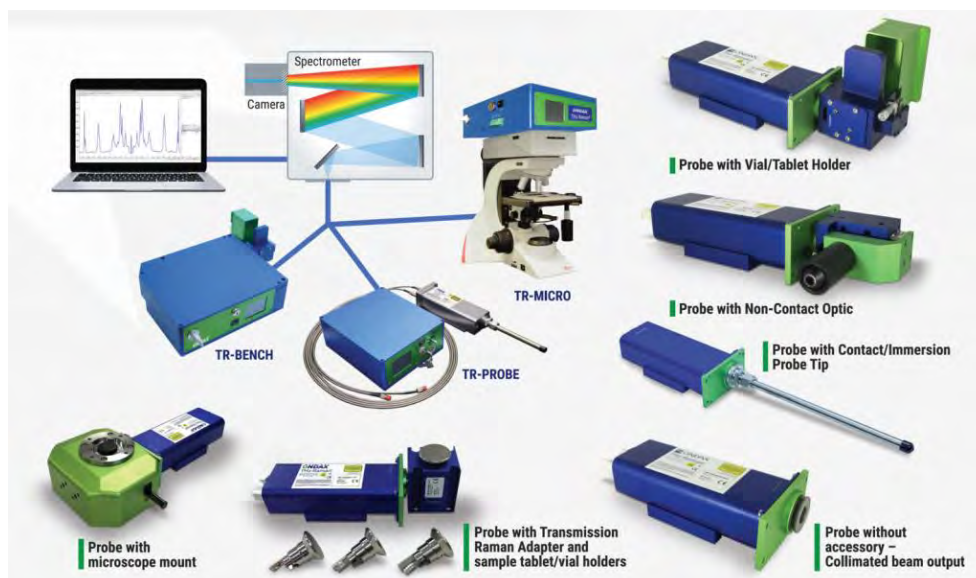
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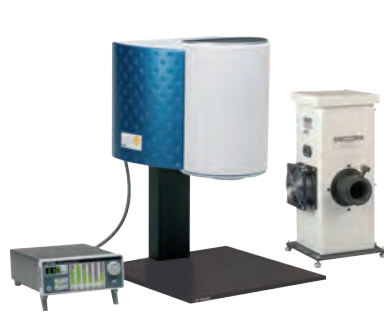
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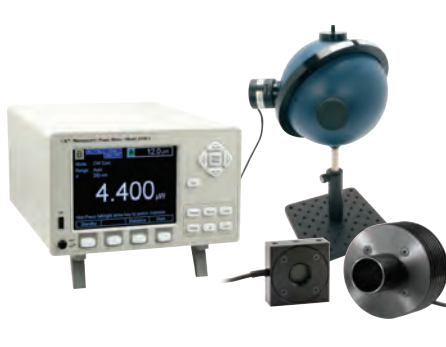
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PROGRAMME SCHEDULE
8 Dec 2020 (Day 1)

*Please click on presentation titles to access the abstracts

Time (GMT+8)	Day 1 (8 December 2020, Tuesday)	Zoom Links
10:00 - 10:05	Welcome Address by Conference Co-Chair, Prof Soo-Ying LEE	https://ntu-sg.zoom.us/j/99518892428 (Passcode: ASC2020)
Session 1a Chair: Soo-Ying LEE (Nanyang Technological University, Singapore)		
10:05 - 10:30	Plenary Talk 1: Water Liquid Structure as Studied by Raman and Hyper Raman Spectroscopy Hiro-o HAMAGUCHI (National Chiao Tung University, Taiwan)	
10:30 - 10:55	Plenary Talk 2: Time-Resolved Spectroscopy Studies of Selected Photoredox Reactions David Lee PHILLIPS (The University of Hong Kong, Hong Kong)	
10:55 - 11:00	Group Photo (Screenshot) & Short Break	https://ntu-sg.zoom.us/j/99518892428 (Passcode: ASC2020)
Session 1b Chair: Qing-Hua XU (National University of Singapore, Singapore)		
11:00 - 11:20	Invited Talk 1: Interplay of MLCT and ILCT states in rhenium(I) complexes Keith GORDON (University of Otago, New Zealand)	
11:20 - 11:40	Invited Talk 2: Properties of lipid biayer membranes exminaed with time-resolved fluorescence and Raman spectroscopies Koichi IWATA (Gakushuin University, Japan)	
11:40 - 12:00	Invited Talk 3: Unique Structure of the Retinal Chromophore Enabling Sodium Ion Transport in the Sodium Ion-Pumping Protein KR2 Yasuhisa MIZUTANI (Osaka University, Japan)	
12:00 - 12:20	Invited Talk 4: Capturing Transient Species in Ionized Liquid Water and Aqueous Solutions Zhi Heng LOH (Nanyang Technological University, Singapore)	
12:20 - 12:40	Invited Talk 5: Insight into Two-Dimensional MoS₂ by Raman and DFT Study Mark R. WATERLAND (Massey University, New Zealand)	
12:40 - 12:55	Contributed Talk 1: Mining Large Raman Spectroscopic Data Beyond the Shot Noise Limit Rintaro SHIMADA (University of Tokyo, Japan)	
12:55 - 14:00	Break / International Steering Committee Meeting Day 1 (By Invitation)	
Session 1c Chair: Edwin YEOW (Nanyang Technological University, Singapore)		https://ntu-sg.zoom.us/j/92191033166 (Passcode: ASC2020)
14:00 - 14:25	Plenary Talk 3: Photocatalytic Activation of Inert Bonds and Their Functionalization via Hydrogen-Evolution Cross-Couplings Chen-Ho TUNG (Chinese Academy of Sciences, China)	
14:25 - 14:50	Plenary Talk 4: Ultrafast Structural Dynamics in Various π-Conjugated Molecular Systems Probed by Time-resolved Electronic and Vibrational Spectroscopy Dongho KIM (Yonsei University, South Korea)	
14:50 - 15:15	Plenary Talk 5: Charge Transfer and Charge Separation Dynamics in Efficienct Non-fullerene Solar Cells Kam Sing WONG (Hong Kong University of Science and Technology, Hong Kong)	
15:15 - 15:35	Invited Talk 6: Reaction Dynamics by Time-Resolved Wave Packet Spectroscopies & Molecular Dynamics Simulation Taiha JOO (Pohang University of Science and Technology (POSTECH), South Korea)	
15:35 - 15:45	Short Break	
Session 1d Chair: Elangannan ARUNAN (Indian Institute of Science Bangalore, India)		https://ntusg.zoom.us/j/94085010129 (Passcode: ASC2020)
15:45 - 16:05	Invited Talk 7: Raman Spectroscopy Applications for Bacterial Detection: Potential & Challenges towards Development of Field Deployable System Sanchita SIL (Defence Bioengineering and Electromedical Laboratory, India)	
16:05 - 16:25	Invited Talk 8: Ultrafast Time-resolved Fluorescence Study on Formation and Excitation Dynamics of Human Telomeric and Homo-oligomeric i-Motifs at Neutral pH Chensheng MA (Shenzhen University, China)	
16:25 - 16:45	Invited Talk 9: Transient Raman Snapshots of the Twisted Intramolecular Charge Transfer State Jyotishman DASGUPTA (Tata Institute of Fundamental Research, India)	
16:45 - 17:05	Invited Talk 10: Investigation on Photodeprotection Mechanisms of Selected Photolabile Protecting Groups Jiani MA (Northwest University, China)	
17:05 - 17:20	Contributed Talk 2: Mitochondria specific Raman microspectroscopy of fission yeast cells with simultaneous Raman/GFP observation Nungnit Wattanavichean (National Chiao Tung University, Taiwan)	
17:20	Conclusion for Day 1	

PROGRAMME SCHEDULE
9 Dec 2020 (Day 2)

*Please click on presentation titles to access the abstracts

Time (GMT+8)	Day 2 (9 December 2020, Wednesday)	Zoom Links
Session 2a Chair: Zhi Heng LOH (Nanyang Technological University, Singapore)		https://ntu-sg.zoom.us/j/93266723869 (Passcode: ASC2020)
10:00 - 10:25	Plenary Talk 6: Spectroscopy, Kinetics, and Dynamics of Criegee Intermediates Yuan-Pern LEE (National Chiao Tung University, Taiwan)	
10:25 - 10:55	Plenary Talk 7: Tracking Ultrafast Chemical Reactions at the Aqueous Interface with Femtosecond Time-Resolved HD-VSFG Spectroscopy / Announcement of ASC 2021 Tahei TAHARA (RIKEN, Japan)	
10:55 - 11:20	Plenary Talk 8: Continuous Tunable Lasing Characteristics of Blended Polymer System Kok-Wai CHEAH (Hong Kong Baptist University, Hong Kong)	
11:20 - 11:25	Short Break	
Session 2b Chair: Howe-Siang TAN (Nanyang Technological University, Singapore)		https://ntu-sg.zoom.us/j/93266723869 (Passcode: ASC2020)
11:25 - 11:45	Invited Talk 11: Laser spectroscopy of nicotine and related analogues - perturbations and puckering in pyridine and pyrrolidine rings Evan G. ROBERTSON (La Trobe University, Australia)	
11:45 - 12:05	Invited Talk 12: Mechanism and Application of Oxygen-Independent Photocleavage of Blebbistatin as a Blue or Near-Infrared Light-Gated Hydroxyl Radical Photocage Ming-De LI (Shantou University, China)	
12:05 - 12:25	Invited Talk 13: Excited State (?) Proton Transfer in Benzimidazole Homodimer – An Experimental and Ab-Initio Study Sanjay WATEGAONKAR (Tata Institute of Fundamental Research, India)	
12:25 - 12:45	Invited Talk 14: Steady-State Spectroscopy and Ultrafast Dynamics of Flavylum Derivatives in the Red and Near-Infrared Spectral Region Muhammad Faisal bin KHYASUDEEN (University of Malaya, Malaysia)	
12:45 - 13:00	Contributed Talk 3: Synchrotron Macro ATR-FTIR Microspectroscopy for High-Resolution Chemical Mapping of Single Cells Jitraporn (Pimm) VONGSVIVUT (ANSTO - Australian Synchrotron, Australia)	
13:00 - 14:00	Break / International Steering Committee Meeting Day 2, if Necessary (By Invitation)	
Session 2c Chair: Kam Sing WONG (Hong Kong University of Science and Technology, Hong Kong)		https://ntu-sg.zoom.us/j/99959665694 (Passcode: ASC2020)
14:00 - 14:25	Plenary Talk 9: Scanning Raman Microscopy: a new technique that can visually determine the chemical structure of a single molecule Yi LUO (University of Science and Technology of China, China)	
14:25 - 14:50	Plenary Talk 10: THz Molecular Science in Condensed Phases Keisuke TOMINAGA (Kobe University, Japan)	
14:50 - 15:10	Invited Talk 15: Autofluorescence Lifetime Microscopy in Normal and Cancer Cells and Nanosecond Pulsed Electric Field Effects Nobuhiro OHTA (National Chiao Tung University, Taiwan)	
15:10 - 15:30	Invited Talk 16: Single-Particle Tracking of the Formation of a Pseudo-Equilibrium State Prior to Interfacial Charged Microgel Cluster Formation Edwin YEOW (Nanyang Technological University, Singapore)	
15:30 - 15:40	Short Break	
Session 2d Chair: Donald MCNAUGHTON (Monash University, Australia)		https://ntu-sg.zoom.us/j/94170169699 (Passcode: ASC2020)
15:40 - 16:00	Invited Talk 17: Domain Structures and Photoinduced Dynamics of Electronic Ferroelectrics Investigated by Terahertz-Emission Microscopy Hirotake ITOH (Tohoku University, Japan)	
16:00 - 16:20	Invited Talk 18: Multispectral Manifestation of Redox Dynamics and Pathological Progression Based on Integrated NIR Fluorescent Paradigms Bengang XING (Nanyang Technological University, Singapore)	
16:20 - 16:40	Invited Talk 19: Single Particle Spectroscopy Studies on Plasmon Coupling Enhanced Two-photon Photoluminescence and Photo-thermal Responses Qing-Hua XU (National University of Singapore, Singapore)	
16:40 - 17:00	Invited Talk 20: Super-Resolution Fluorescence Microscopy Reveals Nanoscale Catalytic Heterogeneity on Single Copper Nanowires Zhengyang ZHANG (Nanyang Technological University, Singapore)	
17:00 - 17:15	Contributed Talk 4: Accurate wavenumber and intensity calibration for standardization of Raman Spectroscopy Ankit RAJ (National Chiao Tung University, Taiwan)	
17:15	Conclusion for Day 2	

PROGRAMME SCHEDULE
10 Dec 2020 (Day 3)

*Please click on presentation titles to access the abstracts

Time (GMT+8)	Day 3 (10 December 2020, Thursday)	Zoom Links
Session 3a Chair: Bin REN (Xiamen University, China)		https://ntu-sg.zoom.us/j/94902679434 (Passcode: ASC2020)
10:00 - 10:25	Plenary Talk 11: Rotationally Resolved Spectroscopy for Interstellar Chemistry and Precise Molecular Structure Determination Donald MCNAUGHTON (Monash University, Australia)	
10:25 - 10:50	Plenary Talk 12: Spectroscopy and Dynamics of the Bond, Inter- and Intra- Molecular! Elangannan ARUNAN (Indian Institute of Science, India)	
10:50 - 11:15	Plenary Talk 13: Designing SERS Platforms Beyond Hotspot Engineering: The Cases of Analyte Manipulations for Analytical and Medical Applications Xing Yi LING (Nanyang Technological University, Singapore)	
11:15 - 11:25	Short Break	
Session 3b Chair: David Lee PHILLIPS (University of Hong Kong, Hong Kong)		https://ntu-sg.zoom.us/j/94902679434 (Passcode: ASC2020)
11:25 - 11:45	Invited Talk 21: Singlet Pathway to the Ground State of Ultracold Polar Molecules Kai DIECKMANN (National University of Singapore, Singapore)	
11:45 - 12:05	Invited Talk 22: Time-Resolved Reaction Dynamics in Photo-dissociation and Photo-detachment Sang Kyu KIM (KAIST, South Korea)	
12:05 - 12:25	Invited Talk 23: Spectroscopic Study on Luminescent Mechanochromic Transition Metal Complexes Vincent KO (City University of Hong Kong, Hong Kong)	
12:25 - 12:45	Invited Talk 24: Direct Observation of Resonant Energy Transfer in Lanthanide Complexes from Multidisciplinary Perspectives Xuebo CHEN (Beijing Normal University, China)	
12:45 - 13:00	Contributed Talk 5: Time-Resolved Spectroscopy Studies to Understand Aggregation Induced Emission Properties and Phenomena Lili DU (The University of Hong Kong, Hong Kong)	
13:00 - 14:00	Break	
Session 3c Chair: Xing Yi LING (Nanyang Technological University, Singapore)		https://ntu-sg.zoom.us/j/98557435757 (Passcode: ASC2020)
14:00 - 14:25	Plenary Talk 14: Core-Shell Nanoparticle-Based Plasmon-Enhanced Molecule Spectroscopies: from methodology to theory Zhong-Qun TIAN (Xiamen University, China)	
14:25 - 14:45	Invited Talk 25: Applying Nanoparticle@MOF Interface to Activate and Monitor Chemical Reactions at Ambient Conditions Hiang Kwee LEE (Nanyang Technological University, Singapore)	
14:45 - 15:05	Invited Talk 26: Electrochemical Tip-enhanced Raman Spectroscopy for in situ Characterization of Materials and Reactions Bin REN (Xiamen University, China)	
15:05 - 15:25	Invited Talk 27: DNA-Pt Complex Interactions Investigated by Single-Molecule Force Spectroscopy and Surface-enhanced Raman Spectroscopy Jinqing HUANG (The Hong Kong University of Science and Technology, Hong Kong)	
15:25 - 15:35	Short Break	
Session 3d Chair: Edwin YEOW (Nanyang Technological University, Singapore)		https://ntu-sg.zoom.us/j/96148306473 (Passcode: ASC2020)
15:35 - 15:55	Invited Talk 28: Studying Ultrafast Spectral Diffusion and Correlation Dynamics using Two-Dimensional Electronic Spectroscopy Howe-Siang TAN (Nanyang Technological University, Singapore)	
15:55 - 16:15	Invited Talk 29: Resonant Vibrational-Electronic Coupling between Photosynthetic Excitons is Inadequately Described by Reduced Basis Sets Vivek TIWARI (Indian Institute of Science Bengaluru, India)	
16:15 - 16:35	Invited Talk 30: Fifth-Order Impulsive Stimulated Raman Spectroscopy for Visualizing Vibrational Coupling in Reactive Excited States Hikaru KURAMOCHI (Institute for Molecular Science, Myodaiji, Japan)	
16:35 - 17:00	Plenary Talk 15: Chiral discrimination by TERS Yukihiro OZAKI (Kwansei Gakuin University, Japan)	
17:00 - 17:10	Announcement of Poster Award Winners and Closing	
17:10	End of ASC 2020	

**3-MINUTE
POSTER PRESENTATIONS**

List of 3-minute Poster Presentations

***Please click on hyperlinks to access abstracts / pre-recorded poster presentations**

Presentation ID	Title	Theme	Abstract / Video Presentation	Presenter
ASC20-P-01	2D Electronic Spectroscopy study of TIPS - Pentacene	2D Electronic Spectroscopy	Abstract Video	Duc Viet Le
ASC20-P-02	Modelling Excitonic Energy Transfers in Bryopsis corticulans using 2D Electronic Spectroscopy	2D Electronic Spectroscopy	Abstract Video	Hoang Long Nguyen
ASC20-P-03	Hydrogen Bond Dynamics of 9-Fluorenone Derivatives in Water Studied by Two-Dimensional Infrared Spectroscopy	2D IR Spectroscopy	Abstract Video	Yuki Fujii
ASC20-P-04	Application of two-dimensional optical spectroscopy: From ultrafast spectral diffusion to Lewis basicity	2D Optical Spectroscopy	Abstract Video	Thanh Nhut Do
ASC20-P-05	LiK B ¹ Π potential: combining short and long-range data	High Resolution Molecular Spectroscopy	Abstract Video	Sofia Botsi
ASC20-P-06	Singlet Pathway to the Ground State of Ultracold Polar Molecules	Molecular Spectroscopy of Ultracold Molecules	Abstract Video	Anbang Yang
ASC20-P-08	Proof of Concept study for the detection and quantification of low molecular weight human serum proteomes using a miniature near-infrared spectrometer	NIR spectroscopy; Biospectroscopy	Abstract Video	Thulya C.P
ASC20-P-09	Real-Time Autodetachment Dynamics of Vibrational Feshbach Resonances in Multipole-Bound States	Photoelectron Spectroscopy	Abstract Video	Do Hyung Kang

Presentation ID	Title	Theme	Abstract / Video Presentation	Presenter
ASC20-P-10	Cryogenic Anion Photoelectron Spectroscopy Apparatus with Filament ionizer using Velocity Map Imaging	Photoelectron Spectroscopy	Abstract Video	Dabin Kim
ASC20-P-11	Real-time visualization of energy- and momentum-resolved carrier dynamics of spatially heterogeneous materials	Photoemission electron microscopy	Abstract Video	Kyung Chul Woo
ASC20-P-12	Ultrafast Vibrational Dynamics induced by the Photodetachment of Aqueous Phenylalanine Anion	Pump-Probe spectroscopy	Abstract Video	Ningchen Yang
ASC20-P-13	Time-resolved Experiment of IR-Induced Anion Reaction Dynamics	Pump-Probe spectroscopy	Abstract Video	Sejun An
ASC20-P-14	Data fusion strategy for quantitative analysis of n-3 fatty acids in commercial krill oil	Raman and IR spectroscopy; Chemometrics	Abstract Video	Fatema Ahmmed
ASC20-P-15	Vibrational spectroscopic applications for detecting of consolidated harakeke fibres in conservation	Raman and IR spectroscopy; Chemometrics	Abstract Video	P.Samanali Garagoda Arachchige
ASC20-P-16	How Much Plastic Have You Drunk Today?	Raman Spectroscopy (CARS); Environmental Chemistry	Abstract Video	Tom Grayson
ASC20-P-17	Ultrafast Dynamics in Dimeric Hemoglobin Probed by Time-Resolved Resonance Raman Spectroscopy	Resonance Raman Spectroscopy	Abstract Video	Xiang Gao

Presentation ID	Title	Theme	Abstract / Video Presentation	Presenter
ASC20-P-18	Chromophore structure in a long-lived intermediate of heliorhodopsins: switching of a hydrogen bonding partner of protonated Schiff base	Resonance Raman Spectroscopy	Abstract Video	Taito Urui
ASC20-P-19	The influence of changing from fluorenone to fluorenyl-malonitrile on the excited state dynamic of tetraphenylbenzene-fluorene based donor-acceptor systems	Spectroscopy of donor-acceptor system	Abstract Video	Joshua Sutton
ASC20-P-20	Plasmonic Enhancement Enabled by Silver Nanotriangles in Raman Spectra of Methylene Blue	Spectroscopy of donor-acceptor system	Abstract Video	Haritha Joseph
ASC20-P-21	Broadband dielectric spectroscopy from sub-GHz to THz frequency region on hydrated bentonite	THz Spectroscopy	Abstract Video	Lou Serafin Lozada
ASC20-P-22	Determination of the Fine Structure of a Halide Perovskite using THz Spectroscopy	THz Spectroscopy	Abstract Video	Feng Zhang
ASC20-P-23	Ultrafast Charge Transfer and Recombination Dynamics at the Monolayer-Multilayer WSe ₂ Homojunction Revealed by Time-Resolved Photoemission Electron Microscopy	Time-resolved photoemission electron microscopy	Abstract Video	Ce Xu
ASC20-P-24	Charge Transfer Dynamics of 9-Arylcarbazole Studied by Femtosecond Transient Absorption Spectroscopy	Transient absorption spectroscopy	Abstract Video	Kazuya Takamoto
ASC20-P-25	Ultrafast Dynamics of Ionized Biomolecules in Aqueous Solution Observed via Few-Femtosecond Transient Absorption Spectroscopy	Transient absorption spectroscopy	Abstract Video	Muhammad Shafiq Bin Mohd Yusof

Presentation ID	Title	Theme	Abstract / Video Presentation	Presenter
ASC20-P-26	Ultrafast Deep-Ultraviolet Spectroscopy of Ionised liquid Water	Ultrafast Deep-UV Spectroscopy	Abstract Video	Zixuan Ng
ASC20-P-27	Role of vibrational spectroscopy in characterization of drug-ligand interaction	Vibrational Spectroscopy and DFT Analysis	Abstract Video	Th.Gomti Devi