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### D. Frontiers of Advanced Electronic Materials

#### » [D-1] Photovoltaics and Optoelectronics Consisting of Perovskite and Related Materials

Oral Session

[D1-O2] Slot 02

Mon. Dec 13, 2021 1:30 PM - 5:00 PM Room Q (G318)

Chair: Shuzi Hayase (The University of Electro-Communications), Kazuhiro Marumoto (University of Tsukuba)

**1:30 PM - 2:00 PM**

[\[D1-O2-01 \(Symposium Keynote\)\] Interfacial engineering for high Voc performance of perovskite solar cells](#)

\*Tsutomu Miyasaka<sup>1</sup> (1. Toin University of Yokohama (Japan))

**2:00 PM - 2:20 PM**

[\[D1-O2-02 \(Symposium Invited\)\] Metal halide perovskites: a journey through structure, properties and stability](#)

\*Ana Flavia Nogueira<sup>1</sup>  
(1. University of Campinas / Center for Innovation on New Energies (Brazil))

**2:20 PM - 2:40 PM**

[\[D1-O2-03 \(Symposium Invited\)\] Advanced Materials and Process for Commercialization of Perovskite Solar Cells](#)

\*Hyun Suk Jung<sup>1</sup> (1. Sungkyunkwan University (Korea))

**2:40 PM - 3:00 PM**

[\[D1-O2-04 \(Symposium Invited\)\] Efficient and Stable Perovskite Solar Cells~ Ionic liquid addition and CsI intercalate~](#)

Md Shahiduzzaman<sup>1</sup>, \*Tetsuya Taima<sup>1</sup> (1. Kanazawa Univ. (Japan))

Break (3:00 PM - 3:30 PM)

**3:30 PM - 3:50 PM**

[\[D1-O2-05 \(Symposium Invited\)\] Study of Formamidinium Chloride as stabilizing cubic phase FAPbI<sub>3</sub> Perovskite and Approaching to High Efficiency Large Size Solar Cells](#)

\*Takeru Bessho<sup>1</sup> (1. The University of Tokyo (Japan))

**3:50 PM - 4:10 PM**

[\[D1-O2-06 \(Symposium Invited\)\] Inverted Planar Structure Perovskite Solar Cells based on Sputtered NiO<sub>x</sub> as Hole Transport Layer](#)

\*Masatoshi Yanagida<sup>1</sup>, Yasuhiro Shirai<sup>1</sup>, Dhruva B. Khadka<sup>1</sup>, Kenjiro Miyano<sup>1</sup>  
(1. National Institute for Materials Science (NIMS) (Japan))

**4:10 PM - 4:30 PM**

[\[D1-O2-07\] High Stability and Analysis of Multi-Porous-Layered-Electrodes Perovskite Solar Cells](#)

\*Seigo Ito<sup>1</sup> (1. University of Hyogo (Japan))

**4:30 PM - 4:45 PM**

[\[D1-O2-08\] Strong spin-orbit coupling induced nonlinear optical responses in CsPbBr<sub>3</sub> nanocrystals](#)

\*Go Yumoto<sup>1</sup>, Hideki Hirori<sup>1</sup>, Fumiya Sekiguchi<sup>1</sup>, Ryota Sato<sup>1</sup>, Masaki Saruyama<sup>1</sup>, Toshiharu Teranishi<sup>1</sup>, Yoshihiko Kanemitsu<sup>1</sup>  
(1. Inst. for Chemical Res., Kyoto Univ. (Japan))

**4:45 PM - 5:00 PM**

[\[D1-O2-09\] Highly and Stable Perovskite Quantum Dots Light Emitting Device by Energy Transfer from Donor QD to Acceptor QD](#)

\*Hinako Ebe<sup>1</sup>, Takayuki Chiba<sup>1</sup>, Junji Kido<sup>1</sup> (1. Yamagata Univ. (Japan))

Poster Session

[D1-PV21] Slot 21

Mon. Dec 13, 2021 6:30 PM - 8:00 PM D1-PV21 (online)

**6:30 PM - 8:00 PM**

[\[D1-PV21-01\] Microscopic Investigation of Charge States in Perovskite Solar Cells with a Novel Hole-Transport Material by Electron Spin Resonance](#)

\*Lihui Liang<sup>1</sup>, Xiangtao Zou<sup>1</sup>, Wenchao Dai<sup>1</sup>, Dong Xue<sup>1</sup>, Tomoya Nakamura<sup>2</sup>, Atsushi Wakamiya<sup>2</sup>, Kazuhiro Marumoto<sup>1,3</sup>  
(1. Division of Materials Sci., Univ. of Tsukuba (Japan), 2. Inst. for Chemical Res., Kyoto Univ. (Japan), 3. Tsukuba Res. Center for Energy Materials Sci. (TREMS), Univ. of Tsukuba (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-02\] Direct Observation of Charge Transfer in PEA-Containing Tin Perovskite Solar Cells by Electron Spin Resonance](#)

\*Atsushi Sato<sup>1</sup>, Mayu Motohashi<sup>1</sup>, Wang Yihuang<sup>1</sup>, Dong Xue<sup>1</sup>, Tomoya Nakamura<sup>2</sup>, Atsushi Wakamiya<sup>2</sup>, Kazuhiro Marumoto<sup>1,3</sup>  
(1. Division of Materials Sci., Univ. of Tsukuba (Japan), 2. Inst. for Chemical Res., Kyoto Univ. (Japan), 3. Tsukuba Res. Center for Energy Materials Sci., Univ. of Tsukuba (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-03\] High Efficiency Lead-free Wide Bandgap Perovskite Solar Cells via Guanidinium Bromide Incorporation](#)

\*Mengmeng Chen<sup>1</sup>, Muhammad Akmal Kamarudin<sup>1</sup>, Ajay K. Baranwal<sup>1</sup>, Gaurav Kapil<sup>1</sup>, Qing Shen<sup>1</sup>, Shuzi Hayase<sup>1</sup>  
(1. The University of Electro-Communications (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-04\] In-situ Non-destructively Quantifying the Transport and Recombination Characteristics of Perovskite Solar Cells](#)

\*LI YUSHENG<sup>1,2</sup>  
(1. The University of Electro-Communications (Japan), 2. Shen Group (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-05\] Optical properties and photoexcited carrier dynamics of mixed-halide perovskite single crystals](#)

\*Dong Liu<sup>1</sup>, Chao Ding<sup>1</sup>, Yaohong Zhang<sup>2</sup>, Feng Liu<sup>3</sup>, Shuzi Hayase<sup>1</sup>, Qing Shen<sup>1</sup>

(1. The Univ. of Electro-Communications (Japan), 2. Northwest Univ. (China), 3. SHANDONG Univ. (China))

**6:30 PM - 8:00 PM**

[\[D1-PV21-06\] Diethylammonium iodide promoting grain growth in lead-free Tin Halide perovskite](#)

\*Zheng Zhang<sup>1</sup>, Muhammad Akmal Kamarudin<sup>1</sup>, Ajay Kumar Baranwal<sup>1</sup>, Mengmeng Chen<sup>1</sup>, Kenji Yoshino<sup>2</sup>, Satoshi Iikubo<sup>3</sup>, Takashi Minemoto<sup>4</sup>, Qing Shen<sup>1</sup>, Shuzi Hayase<sup>1</sup>

(1. University of Electro-communication (Japan), 2. Miyazaki University (Japan), 3. Kyushu Institute of Technology (Japan), 4. Ritsumekan University (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-07\] Infrared Laser Molecular Beam Epitaxy Of CsPbBr<sub>3</sub> Thin Films](#)

\*Takuro Dazai<sup>1,2</sup>, Hajime Haneda<sup>2</sup>, Hideomi Koinuma<sup>2</sup>, Ryota Takahashi<sup>1</sup>  
(1. Nihon Univ. (Japan), 2. SCT Inc. (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-08\] High Electron and Hole Mobilities of CH<sub>3</sub>NH<sub>3</sub>PbBr<sub>3</sub> Single Crystals Revealed by Photo-Hall Measurements](#)

\*Takumi Kimura<sup>1</sup>, Kenichi Oto<sup>1</sup>, Yoshihiko Kanemitsu<sup>2</sup>, Yasuhiro Yamada<sup>1</sup>  
(1. Chiba Univ. (Japan), 2. Kyoto Univ. (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-09\] Gel Permeation Chromatography Purified Lead-free Cs<sub>3</sub>Cu<sub>2</sub>I<sub>5</sub> Nanocrystals for Highly Stable Colloid, Orientated Film, and Polymer Composition Film](#)

\*Yu-Hong Cheng<sup>1</sup>, Rikuo Suzuki<sup>1</sup>, Narumi Shinotsuka<sup>1</sup>, Hinako Ebe<sup>1</sup>, Naoaki Oshita<sup>1</sup>, Ryohei Yamakado<sup>1</sup>, Takayuki Chiba<sup>1</sup>, Akito Masuhara<sup>1</sup>, Junji Kido<sup>1</sup>  
(1. Yamagata University (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-10\] Synthesis of CsSn<sub>x</sub>Pb<sub>1-x</sub>I<sub>3</sub> Perovskite QDs and Their Optical Properties](#)

\*Shota Yajima<sup>1</sup>, Chao Ding<sup>1</sup>, Taro Toyoda<sup>1</sup>, Shuzi Hayase<sup>1</sup>, Qing Shen<sup>1</sup>  
(1. Univ. of Electro-Commun. (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-11\] Over 13% Efficiency for Pb-free Tin Perovskite Solar Cells](#)

\*Kohei Nishimura<sup>1</sup>, Muhammad Akmal Kamarudine<sup>1</sup>, Daisuke Hirotsu<sup>2</sup>, Kengo Hamada<sup>2</sup>, Qing Shen<sup>1</sup>, Satoshi Iikubo<sup>2</sup>, Takashi Minemoto<sup>3</sup>, Kenji Yoshino<sup>4</sup>, Shuzi Hayase<sup>1</sup>

(1. The University of Electro-Communications (Japan), 2. Kyushu Institute of Technology (Japan), 3. Ritsumeikan University (Japan), 4. Miyazaki University (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-12\] Effects of A-site cation on the optical property, photoexcited carrier dynamics of metal halide perovskite quantum dots](#)

\*Hua Li<sup>1</sup>, Chao Ding<sup>1</sup>, Dong Liu<sup>1</sup>, Sheng Yu Li<sup>1</sup>, Shuzi Hayase<sup>1</sup>, Qing Shen<sup>1</sup>  
(1. The Univ. Electro-Communications (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-13\] Spatial Dependence of Exciton Fine-structure Splitting of CsPbBr<sub>3</sub> Bulk Crystals](#)

\*Yukiya Kaneishi<sup>1</sup>, Nanako Igarashi<sup>1</sup>, Kouhei Matsumori<sup>1</sup>, Hiroko Yokota<sup>1</sup>, Kenichi Oto<sup>1</sup>, Yoshihiko Kanemitsu<sup>2</sup>, Yasuhiro Yamada<sup>1</sup>

(1. Chiba Univ. (Japan), 2. Kyoto Univ. (Japan))

**6:30 PM - 8:00 PM**

[\[D1-PV21-14\] Lead-Free Halometallates – The Next Generation of Hybrid Photovoltaic Absorber Materials](#)

\*HARSH BHATIA<sup>1</sup>, Bob C Schroeder<sup>1</sup>, Robert G Palgrave<sup>1</sup>  
(1. University College London (UK))

Oral Session

[D1-O3] Slot 03

Tue. Dec 14, 2021 9:00 AM - 11:00 AM Room Q (G318)

Chair: Tetsuhiko Miyadera (AIST)

**9:00 AM - 9:30 AM**

[\[D1-O3-01 \(Symposium Keynote\)\] Halogenated perovskite solar cells consisting of tin as light harvesting layer](#)

\*Shuzi Hayase<sup>1</sup> (1. Univ. of Electro-Communications (Japan))

**9:30 AM - 9:50 AM**

[\[D1-O3-02 \(Symposium Invited\)\] Fabrication of High Quality Lead- and Tin-based Perovskite Materials for Efficient Solar Cells](#)

\*Atsushi Wakamiya<sup>1</sup>, Minh Anh Truong<sup>1</sup>, Tomoya Nakamura<sup>1</sup>, Ryuji Kaneko<sup>1</sup>, Richard Murdey<sup>1</sup>  
(1. Kyoto Univ. (Japan))

**9:50 AM - 10:10 AM**

[\[D1-O3-03 \(Symposium Invited\)\] Lead and Tin Halide Perovskite Solar Cells: A-Site Mixing and Radiation Tolerance](#)

\*Akinori Saeki<sup>1</sup> (1. Osaka Univ. (Japan))

**10:10 AM - 10:30 AM**

[\[D1-O3-04 \(Symposium Invited\)\] Operando Direct Observation of Charge States in Lead-Free Tin-Halide Perovskite Solar Cells](#)

\*Kazuhiro Marumoto<sup>1,2</sup>  
(1. Divi. of Mater. Sci., Univ. of Tsukuba (Japan), 2. Tsukuba Res. Center for Energy Mater. Sci., Univ. of Tsukuba (Japan))

**10:30 AM - 10:45 AM**

[\[D1-O3-05\] Impedance Spectroscopy Studies on Transparent Conducting Oxide Free - Flexible Perovskite Solar Cells](#)

\*Shahrir Razey Sahamir<sup>1</sup>, Muhammad Akmal Kamarudin<sup>1</sup>, Teresa Ripolles Sanchis<sup>2</sup>, Juan Bisquert<sup>3</sup>, Qing Shen<sup>1</sup>, Shuzi Hayase<sup>1</sup>  
(1. The University of Electro-Communications (Japan), 2. Rey Juan Carlos University (Spain), 3. Jaume I University (Spain))

**10:45 AM - 11:00 AM**

[\[D1-O3-06\] Synergistic effect of A-site engineering and surface treatment in tin halide perovskite solar cells](#)

\*Muhammad Akmal Kamarudin<sup>1</sup>, Shahrir Razey Sahamir<sup>1</sup>, Kohei Nishimura<sup>1</sup>, Satoshi Iikubo<sup>2</sup>, Kenji Yoshino<sup>3</sup>, Takashi Minemoto<sup>4</sup>, Qing Shen<sup>1</sup>, Shuzi Hayase<sup>1</sup>  
(1. Univ. of Electro-Communications (Japan), 2. Kyushu Inst. of Tech. (Japan), 3. Miyazaki Univ. (Japan), 4. Ritsumeikan Univ. (Japan))

Oral Session

[D1-O4] Slot 04

Tue. Dec 14, 2021 1:30 PM - 3:30 PM Room Q (G318)

Chair: Qing Shen (The University of Electro-Communications)



**1:30 PM - 2:00 PM**

[\[D1-O4-01 \(Symposium Keynote\)\]\\_Optical Responses of Halide Perovskites](#)

\*Yoshihiko Kanemitsu<sup>1</sup> (1. Kyoto Univ. (Japan))

**2:00 PM - 2:20 PM**

[\[D1-O4-02 \(Symposium Invited\)\]\\_Electron-Phonon Interactions of Halide Perovskites: Its Impact on Fundamental Properties and Device Applications](#)

\*Yasuhiro Yamada<sup>1</sup> (1. Chiba Univ. (Japan))

**2:20 PM - 2:40 PM**

[\[D1-O4-03 \(Symposium Invited\)\]\\_Optoelectronic Functions of Lead Halide Perovskite Enhanced by Lanthanide Materials](#)

\*Ayumi Ishii<sup>1,2</sup> (1. Teikyo Univ. of Science (Japan), 2. JST PRESTO (Japan))

**2:40 PM - 3:00 PM**

[\[D1-O4-04 \(Symposium Invited\)\]\\_Metal Halide doped Perovskite Nanocrystals for Highly Efficient Light-Emitting Device](#)

\*Takayuki Chiba<sup>1</sup>, Junji Kido<sup>1</sup>  
(1. Graduate School of Organic Materials Science, Yamagata University (Japan))

**3:00 PM - 3:20 PM**

[\[D1-O4-05 \(Symposium Invited\)\]\\_Surface/interface structures of perovskite films as studied by electron spectroscopies](#)

\*Hiroyuki Yoshida<sup>1</sup>, Abduheber Mirzehmet<sup>2</sup>  
(1. Chiba Univ. (Japan), 2. AIST (Japan))

Oral Session

[D1-O5] Slot 05

Tue. Dec 14, 2021 4:00 PM - 6:00 PM Room Q (G318)

Chair: Atsushi Wakamiya (Kyoto University)

**4:00 PM - 4:20 PM**

[\[D1-O5-01 \(Symposium Invited\)\]\\_Open-Circuit Voltage in Metal Halide Perovskite Solar Cells](#)

\*Hideo Ohkita<sup>1</sup>, Yongyoon Cho<sup>1</sup>, Hyung Do Kim<sup>1</sup> (1. Kyoto Univ. (Japan))

**4:20 PM - 4:40 PM**

[\[D1-O5-02 \(Symposium Invited\)\]\\_Understanding of device operation on perovskite solar cells using device simulation](#)

\*Takashi Minemoto<sup>1,2</sup>, Jakapan Chantana<sup>1</sup>, Yu Kawano<sup>1</sup>  
(1. Ritsumeikan Univ. (Japan), 2. Scholars Inc. (Japan))

**4:40 PM - 5:00 PM**

[\[D1-O5-03 \(Symposium Invited\)\]\\_Understanding energy loss in Perovskite and CIGS solar cells](#)

\*Takeaki Sakurai<sup>1</sup>, Yulu He<sup>1</sup>, Hamidou Tangara<sup>1</sup>, Muhammad Monirul Islam<sup>1</sup>  
(1. Univ. Tsukuba (Japan))

**5:00 PM - 5:20 PM**

[\[D1-O5-04 \(Symposium Invited\)\]\\_Stability of Tin based Iodide Perovskite: Strategy for Pb Free Perovskite Solar Cell](#)

\*Satoshi Iikubo<sup>1</sup>, Qing Shen<sup>2</sup>, Kenji Yoshino<sup>3</sup>, Takashi Minemoto<sup>4</sup>, Shuzi Hayase<sup>2</sup>  
(1. Kyushu Univ. (Japan), 2. The Univ. of Electro-Communications (Japan), 3. Miyazaki Univ. (Japan), 4. Ritsumeikan Univ. (Japan))

**5:20 PM - 5:40 PM**

[\[D1-O5-05 \(Symposium Invited\)\] The TEM observation and crystal phase control toward the perovskite superlattice solar cell](#)

\*Satoshi Uchida<sup>1</sup>, Hiroshi Segawa<sup>1</sup> (1. The Univ. Tokyo (Japan))

**5:40 PM - 6:00 PM**

[\[D1-O5-06 \(Symposium Invited\)\] Crystal Growth Control of Organolead Halide Perovskite by Vacuum Deposition](#)

\*Tetsuhiko Miyadera<sup>1</sup> (1. AIST (Japan))

Poster Session

[D1-PR15] Slot 15

Tue. Dec 14, 2021 6:30 PM - 8:30 PM D1-PR15 (G403-404)

**6:30 PM - 8:30 PM**

[\[D1-PR15-01\] Microscopic Investigation of Charge States in Perovskite Solar Cells with a Novel Hole-Transport Material by Electron Spin Resonance](#)

\*Lihui Liang<sup>1</sup>, Xiangtao Zou<sup>1</sup>, Wenchao Dai<sup>1</sup>, Dong Xue<sup>1</sup>, Tomoya Nakamura<sup>2</sup>, Atsushi Wakamiya<sup>2</sup>, Kazuhiro Marumoto<sup>1,3</sup>  
(1. Division of Materials Sci., Univ. of Tsukuba (Japan), 2. Inst. for Chemical Res., Kyoto Univ. (Japan), 3. Tsukuba Res. Center for Energy Materials Sci. (TREMS), Univ. of Tsukuba (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-02\] Direct Observation of Charge Transfer in PEA-Containing Tin Perovskite Solar Cells by Electron Spin Resonance](#)

\*Atsushi Sato<sup>1</sup>, Mayu Motohashi<sup>1</sup>, Wang Yihuang<sup>1</sup>, Dong Xue<sup>1</sup>, Tomoya Nakamura<sup>2</sup>, Atsushi Wakamiya<sup>2</sup>, Kazuhiro Marumoto<sup>1,3</sup>  
(1. Division of Materials Sci., Univ. of Tsukuba (Japan), 2. Inst. for Chemical Res., Kyoto Univ. (Japan), 3. Tsukuba Res. Center for Energy Materials Sci., Univ. of Tsukuba (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-03\] High Efficiency Lead-free Wide Bandgap Perovskite Solar Cells via Guanidinium Bromide Incorporation](#)

\*Mengmeng Chen<sup>1</sup>, Muhammad Akmal Kamarudin<sup>1</sup>, Ajay K. Baranwal<sup>1</sup>, Gaurav Kapi<sup>1</sup>, Qing Shen<sup>1</sup>, Shuzi Hayase<sup>1</sup>  
(1. The University of Electro-Communications (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-04\] In-situ Non-destructively Quantifying the Transport and Recombination Characteristics of Perovskite Solar Cells](#)

\*LI YUSHENG<sup>1,2</sup>  
(1. The University of Electro-Communications (Japan), 2. Shen Group (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-05\] Optical properties and photoexcited carrier dynamics of mixed-halide perovskite single crystals](#)

\*Dong Liu<sup>1</sup>, Chao Ding<sup>1</sup>, Yaohong Zhang<sup>2</sup>, Feng Liu<sup>3</sup>, Shuzi Hayase<sup>1</sup>, Qing Shen<sup>1</sup>  
(1. The Univ. of Electro-Communications (Japan), 2. Northwest Univ. (China), 3. SHANDONG Univ. (China))

**6:30 PM - 8:30 PM**

[\[D1-PR15-06\] Diethylammonium iodide promoting grain growth in lead-free Tin Halide perovskite](#)

\*Zheng Zhang<sup>1</sup>, Muhammad Akmal Kamarudin<sup>1</sup>, Ajay Kumar Baranwal<sup>1</sup>, Mengmeng Chen<sup>1</sup>, Kenji Yoshino<sup>2</sup>, Satoshi Iikubo<sup>3</sup>, Takashi Minemoto<sup>4</sup>, Qing Shen<sup>1</sup>, Shuzi Hayase<sup>1</sup>  
(1. University of Electro-communication (Japan), 2. Miyazaki University (Japan), 3. Kyushu Institute of Technology (Japan), 4. Ritsumekan University (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-07\] Infrared Laser Molecular Beam Epitaxy Of CsPbBr<sub>3</sub> Thin Films](#)

\*Takuro Dazai<sup>1,2</sup>, Hajime Haneda<sup>2</sup>, Hideomi Koinuma<sup>2</sup>, Ryota Takahashi<sup>1</sup>  
(1. Nihon Univ. (Japan), 2. SCT Inc. (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-08\] High Electron and Hole Mobilities of CH<sub>3</sub>NH<sub>3</sub>PbBr<sub>3</sub> Single Crystals Revealed by Photo-Hall Measurements](#)

\*Takumi Kimura<sup>1</sup>, Kenichi Oto<sup>1</sup>, Yoshihiko Kanemitsu<sup>2</sup>, Yasuhiro Yamada<sup>1</sup>  
(1. Chiba Univ. (Japan), 2. Kyoto Univ. (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-09\] Gel Permeation Chromatography Purified Lead-free Cs<sub>3</sub>Cu<sub>2</sub>I<sub>5</sub> Nanocrystals for Highly Stable Colloid, Orientated Film, and Polymer Composition Film](#)

\*Yu-Hong Cheng<sup>1</sup>, Rikuo Suzuki<sup>1</sup>, Narumi Shinotsuka<sup>1</sup>, Hinako Ebe<sup>1</sup>, Naoaki Oshita<sup>1</sup>, Ryohei Yamakado<sup>1</sup>, Takayuki Chiba<sup>1</sup>, Akito Masuhara<sup>1</sup>, Junji Kido<sup>1</sup>  
(1. Yamagata University (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-10\] Synthesis of CsSn<sub>x</sub>Pb<sub>1-x</sub>I<sub>3</sub> Perovskite QDs and Their Optical Properties](#)

\*Shota Yajima<sup>1</sup>, Chao Ding<sup>1</sup>, Taro Toyoda<sup>1</sup>, Shuzi Hayase<sup>1</sup>, Qing Shen<sup>1</sup>  
(1. Univ. of Electro-Commun. (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-11\] Over 13% Efficiency for Pb-free Tin Perovskite Solar Cells](#)

\*Kohei Nishimura<sup>1</sup>, Muhammad Akmal Kamarudine<sup>1</sup>, Daisuke Hirotsu<sup>2</sup>, Kengo Hamada<sup>2</sup>, Qing Shen<sup>1</sup>, Satoshi Iikubo<sup>2</sup>, Takashi Minemoto<sup>3</sup>, Kenji Yoshino<sup>4</sup>, Shuzi Hayase<sup>1</sup>  
(1. The University of Electro-Communications (Japan), 2. Kyushu Institute of Technology (Japan), 3. Ritsumeikan University (Japan), 4. Miyazaki University (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-12\] Effects of A-site cation on the optical property, photoexcited carrier dynamics of metal halide perovskite quantum dots](#)

\*Hua Li<sup>1</sup>, Chao Ding<sup>1</sup>, Dong Liu<sup>1</sup>, Sheng Yu Li<sup>1</sup>, Shuzi Hayase<sup>1</sup>, Qing Shen<sup>1</sup>  
(1. The Univ. Electro-Communications (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-13\] Spatial Dependence of Exciton Fine-structure Splitting of CsPbBr<sub>3</sub> Bulk Crystals](#)

\*Yukiya Kaneishi<sup>1</sup>, Nanako Igarashi<sup>1</sup>, Kouhei Matsumori<sup>1</sup>, Hiroko Yokota<sup>1</sup>, Kenichi Oto<sup>1</sup>, Yoshihiko Kanemitsu<sup>2</sup>, Yasuhiro Yamada<sup>1</sup>  
(1. Chiba Univ. (Japan), 2. Kyoto Univ. (Japan))

**6:30 PM - 8:30 PM**

[\[D1-PR15-14\] Lead-Free Halometallates – The Next Generation of Hybrid Photovoltaic Absorber Materials](#)

\*HARSH BHATIA<sup>1</sup>, Bob C Schroeder<sup>1</sup>, Robert G Palgrave<sup>1</sup>

(1. University College London (UK))

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