

Publication List

Kyoto University Institute for Chemical Research
Professor Atsushi Wakamiya
(2026/05/12)

Article

251. Buried Interface Engineering in Metal-Halide Perovskite/NiO Heterostructures through Direct Observation of Interfacial Reactions

Canjie Wang, Urasawadee Amornkitbamrung, Yinyan Xu, Ryan Joon Kyu Rhee, Aedan Gibson, Hyeon Jun Jeong, Yongjae In, Jongyeong Song, Minh Anh Truong, [Atsushi Wakamiya](#), Nam-Gyu Park,* Hyunjung Shin*
ACS Energy Lett. **2026**, *in press*. DOI:10.1021/acseenergylett.6c00785

250. Achieving over 31% Efficiency in Perovskite/Silicon Tandem Solar Cells via Tripodal SAM-Induced Interface Optimization

Farhan Yousuf, Yu-Ting Chen, Chen-Fu Lin, Ming-Hsien Li, Minh Anh Truong, Wei-Chih Lai, Chih-Wei Chu,* Tzung-Fang Guo,* [Atsushi Wakamiya](#),* Peter Chen*
ACS Energy Lett. **2026**, *in press*. DOI:10.1021/acseenergylett.6c00313

249. Optimized Infrared Reflection-Absorption Spectroscopy Using Indium Tin Oxide as Thin-Film Supporting Substrates

Hiroshi Matsuda, Nobutaka Shioya, Minh Anh Truong, [Atsushi Wakamiya](#), Takeshi Hasegawa*
Appl. Spectrosc. **2026**, *in press*. DOI:10.1177/00037028261432240

248. Realizing High-Performance Vacuum-Deposited Inverted α -FAPbI₃ Perovskite Solar Cells Through Saturated-Humidity Annealing

Yun-Sheng Jheng, Cheng-Yueh Chen, Pei-En Jan, Hung-Ming Chen, Hao-Cheng Lin, Ping-Hsun Tsai, Chia-Feng Li, Yu-Ching Huang, Minh Anh Truong, [Atsushi Wakamiya](#), Hao-Wu Lin*
ACS Appl. Mater. Interfaces **2026**, *18*, 18049-18061. DOI:10.1021/acсами.5c24183

247. A Universal Model for Energy Level Alignment at Interfaces of Hole-Collecting Monolayers in p-i-n Perovskite Solar Cells

Aruto Akatsuka, Minh Anh Truong, [Atsushi Wakamiya](#), Gaurav Kapil, Shuzi Hayase, Hiroyuki Yoshida*
J. Mater. Chem. A **2026**, *14*, 17569-17584. DOI:10.1039/D5TA04749H

246. Counteranion Engineering of Ethylenediammonium Salts for Reproducible Surface Modification in p-i-n Perovskite Solar Cells

Akio Hasegawa, Hayato Tanaka, Shota Hira, Yuko Matsushige, Chien-Yu Chen, Tomoya Nakamura*, Minh Anh Truong, Richard Murdey, [Atsushi Wakamiya](#)*
Sol. RRL **2026**, *10*, e202500950. DOI:10.1002/solr.202500950

245. Homogenized Optoelectronic Properties in Perovskites: Achieving High-Efficiency Solar Cells with Common Chloride Additives

Junke Wang †, Shuaifeng Hu †, Xinyu Gu †, Minh Anh Truong †, Yi Yang †, Cheng Liu, Gunnar Kusch, Zhongcheng Yuan, Manuel Kober-Czerny, Zuhong Zhang, Zhenhuang Su, Kyohei Nakano, Akash Dasgupta, Xianfu Zhang, Xinyi Shen, Nobutaka Shioya, Noriko Kurose, Daichi Shirakura, Zaiwei Wang, Wei Zhou, Meng Li, Takeshi Hasegawa, Xingyu Gao, Keisuke Tajima, Rachel A. Oliver, Yixin Zhao, Zhijun Ning*, [Atsushi Wakamiya](#)*, Henry J. Snaith*, Hao Chen*
(† J.W., S.H., X.G., M.A.T., and Y.Y. contributed equally to this work)
J. Am. Chem. Soc. **2026**, *148*, 6299-6237. DOI:10.1021/jacs.5c18303

- 244. Tuning Hole-Collecting Monolayers with Hammett Constant-Engineered Benzoic Acid Derivatives for Inverted Perovskite Solar Cells**
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ACS Energy Lett. **2026**, *11*, 2199-2208. DOI:10.1021/acsenergylett.5c04072
- 243. Anisotropic Strain-Induced Centrosymmetry Breaking in Cubic Formamidinium Lead Iodide (α -FAPbI₃) Thin Films**
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Adv. Energy Mater. **2026**, *in press*. DOI:10.1002/aenm.202506280
- 242. Cooperative Phase-Interface Modulation Enabling Ultralow Voltage Loss in Bromide-Containing Perovskite Solar Cells With Isopropanol as an Antisolvent**
Bo Zhou †, Minh Anh Truong †, Junxue Guo, Qian Li, Wei Yu, Xin Guo, [Atsushi Wakamiya*](#), Jiewei Liu*
(† B.Z. and M.A.T. contributed equally to this work)
EES Solar **2026**, *2*, 127-137. DOI:10.1039/D5EL00189G
- 241. Substrate-Independent and Antisolvent-Free Fabrication Method for Tin Perovskite Films via Imidazole-Complexed Intermediates**
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ACS Energy Lett. **2025**, *10*, 5047-5056. DOI:10.1021/acsenergylett.5c02366
- 240. Synthesis of *N,O*-Bidentate Difluoroboron Complexes via Iodide-Promoted Demethylative Borylation**
Koichi Mitsudo*, Naoto Maekawa, Ryo Magata, Eisuke Sato, Tomoya Nakamura, [Atsushi Wakamiya](#), Seiji Suga*
Org. Lett. **2025**, *27*, 10636-10641. DOI:10.1021/acs.orglett.5c02613
- 239. Accessing Metal-Containing Species in Tin-Lead Perovskite Precursor Solutions via Molecular Strategies Guided by the Hard-Soft Acid-Base Principle**
Shuaifeng Hu*, Xinru Sun, Wentao Liu, Luca Gregori, Pei Zhao, Jorge Pascual*, André Dallmann, Akash Dasgupta, Fengjiu Yang, Guixiang Li, Mahmoud Aldamasy, Silver-Hamill Turren-Cruz, Marion A. Flatken, Sheng Fu, Yasuko Iwasaki, Richard Murdey, Armin Hoell, Susan Schorr, Steve Albrecht, Shangfeng Yang, Antonio Abate, [Atsushi Wakamiya](#), Filippo De Angelis, Meng Li*, Henry J. Snaith*
Angew. Chem. Int. Ed. **2025**, *64*, e202514010. DOI:10.1002/anie.202514010
- 238. Solution-Processable Chlorostannylene Complexes as Surface Modifiers for Tin Halide Perovskite Solar Cells**
Akio Hasegawa, Chien-Yu Chen, Tomoya Nakamura*, Minh Anh Truong, Richard Murdey, [Atsushi Wakamiya*](#)
Chem. Mater. **2025**, *37*, 6246-6255. DOI:10.1021/acs.chemmater.5c00922
- 237. Exposing binding-favourable facets of perovskites for tandem solar cells**
Junke Wang*, Shuaifeng Hu, Zehua Chen, Zhongcheng Yuan, Pei Zhao, Akash Dasgupta, Fengning Yang, Jin Yao, Minh Anh Truong, Gunnar Kusch, Esther Y-H. Hung, Nick R. M. Schipper, Laura Bellini, Guus J. W. Aalbers, Zonghao Liu, Rachel A. Oliver, [Atsushi Wakamiya](#), Rene A. J. Janssen, Henry J. Snaith*
Energy Environ. Sci. **2025**, *18*, 7680-7694. DOI:10.1039/D5EE02462E
- 236. Molecular Bridge on Buried Interface for Energy Level Alignment in Inverted Perovskite Solar Cell with Efficiency over 25%**
Yinyan Xu, Canjie Wang, Urasawadee Amornkitbamrung, Hyeon Jun Jeoung, Ryan Joon Kyu Rhee, Aedan Gibson, Tomoya Nakamura, Minh Anh Truong, [Atsushi Wakamiya*](#), Hyunjung Shin*
ACS Energy Lett. **2025**, *10*, 3407-3414. DOI:10.1021/acsenergylett.5c01437

235. Asymmetric Perinone-Based Electron-Collecting Monolayer Materials for n-i-p Perovskite Solar Cells

Julius Petrulevicius †, Minh Anh Truong †, Maryte Daskeviciene, Giedre Bubniene, Shota Hira, Yasuko Iwasaki, Tadas Malinauskas, [Atsushi Wakamiya](#)*, Vytautas Getautis*

(† J. P. and M.A.T. contributed equally to this work)

J. Mater. Chem. C **2025**, *13*, 14991-15001. DOI:10.1039/d5tc01485a

234. Electron diffusion at Sn perovskite/fullerene derivative interfaces and its influence on open-circuit voltage

Atushi Sato, Seira Yamaguchi, Akio Hasegawa, Yukihiro Shimoi, Tomoya Nakamura, [Atsushi Wakamiya](#), Kazuhiro Marumoto*

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233. Mercapto-functionalized scaffold improves perovskite buried interfaces for tandem photovoltaics

Jianan Wang, Shuaifeng Hu, He Zhu, Sanwan Liu, Zhongyong Zhang, Rui Chen, Junke Wang, Chenyang Shi, Jiaqi Zhang, Wentao Liu, Xia Lei, Bin Liu, Yongyan Pan, Fumeng Ren, Hasan Raza, Qisen Zhou, Sibao Li, Longbin Qiu, Guan haojie Zheng, Xiaojun Qin, Zhiguo Zhao, Shuang Yang, Neng Li, Jingbai Li, [Atsushi Wakamiya](#), Zonghao Liu, Henry J. Snaith, Wei Chen

Nat. Commun. **2025**, *16*, 4917. DOI:10.1038/s41467-025-59891-z

232. Optimization of Band Alignment by Organic Molecules for Perovskite Solar Cells

Naomu Sekiguchi, Yuta Tsuji, Minh Anh Truong, [Atsushi Wakamiya](#), Satoshi Iikubo*

J. Phys. Chem. C **2025**, *129*, 8500-8508. DOI:10.1021/acs.jpcc.4c08776

231. Performance Improvement Mechanism of Perovskite Solar Cells by Device Interface Control

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Sol. RRL **2025**, *9*, 2500183. DOI:10.1002/solr.202500183

230. Tailored 3-Alkoxy-*N,N,N*,2,2-Pentamethylpropan-1-Ammonium *Bis* (trifluoromethylsulfonyl)Imide Ionic Liquids for Room-Temperature Fluoride-Ion Batteries

Tiancheng Tan, Richard Murdey, Shunsuke Sumitomo, Kazuyuki Sato, Takeshi Abe, [Atsushi Wakamiya](#)*

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229. Universal Buried Interface Modification with Lead Iodide for Efficient and Stable Perovskite Solar Cells

Dang-Thuan Nguyen*, Anh Dinh Bui, Daniel Walter, Khoa Nguyen, Hualin Zhan, Xuan Minh Chau Ta, Grace Dansoa Tabi, Thành Trần-Phú, Lichun Chang, Keqing Huang, Minh Anh Truong, [Atsushi Wakamiya](#), Sunita Gautam Adhikari, Hieu Nguyen, Anne Haggren, Viqar Ahmad, Thanh Tung Duong, Duy-Cuong Nguyen, Heping Shen, Kylie Catchpole, Klaus Weber, Thomas White, The Duong*

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228. Design and synthesis of asymmetric anhydrous quaternary ammonium fluoride electrolytes for fluoride ion batteries

Tiancheng Tan, Richard Murdey, Shunsuke Sumitomo, [Atsushi Wakamiya](#)*

Sustainable Energy Fuels **2025**, *9*, 1525-1533. DOI:10.1039/D4SE01432D

227. Impact of Spin-Coating Temperature on Morphology of Pb-Based Mixed Ion Perovskite Films and Their Solar Cell Performance

Wakana Matsuda, Keishiro Goshima, Insub Noh, Hyung Do Kim, Ai Shimazaki, Richard Murdey, Michisato Toyoda, [Atsushi Wakamiya](#), Hideo Ohkita, Shu Seki, Yasuhiro Tachibana*

ACS Appl. Energy Mater. **2025**, *8*, 1437-1445. DOI:10.1021/acsaem.4c01543

226. Mechanochemical pretreatment of tin iodide perovskite precursors: effects of grinding temperature and time on solar cell performance

Tingting Liu, Sungwoon Cho, Ryosuke Nishikubo, Mikhail Pylnev, Fumitaka Ishiwari, [Atsushi Wakamiya](#), Akinori Saeki*

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225. Squaric Acid-Containing Hole-Collecting Monolayer Materials for p-i-n Perovskite Solar Cells

Shota Hira, Minh Anh Truong*, Yuko Matsushige, Yasuko Iwasaki, Richard Murdey, Tomoya Nakamura, Takumi Yamada, Yoshihiko Kanemitsu, [Atsushi Wakamiya](#)*

ACS Appl. Mater. Interfaces **2025**, *17*, 8095-8106. DOI:10.1021/acsami.4c20970

224. Thiazolidinone-Based Electron-Collecting Monolayers for n-i-p Perovskite Solar Cells

Yuki Miyake, Tomoya Nakamura, Minh Anh Truong, Richard Murdey, [Atsushi Wakamiya](#)*

Chem. Asian J. **2025**, *20*, e202401344. DOI:10.1002/asia.202401344

223. Molecular Design of Hole-Collecting Materials for Co-Deposition Processed Perovskite Solar Cells: A Tripodal Triazatruxene Derivative with Carboxylic Acid Groups

Minh Anh Truong*, Tsukasa Funasaki, Yuta Adachi, Shota Hira, Tiancheng Tan, Aruto Akatsuka, Takumi Yamada, Yasuko Iwasaki, Yuko Matsushige, Ryuji Kaneko, Chizuru Asahara, Tomoya Nakamura, Richard Murdey, Hiroyuki Yoshida, Yoshihiko Kanemitsu, [Atsushi Wakamiya](#)*

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222. Performance and stability analysis of all-perovskite tandem photovoltaics in light-driven electrochemical water splitting

Junke Wang, Bruno Branco, Willemijn H. M. Remmerswaal, Shuaifeng Hu, Nick R. M. Schipper, Valerio Zardetto, Laura Bellini, Nicolas Daub, Martijn M. Wienk, [Atsushi Wakamiya](#), Henry J. Snaith, René A. J. Janssen*

Nat. Commun. **2025**, *16*, 174. DOI:10.1038/s41467-024-55654-4

221. Single-isomer bis(pyrrolidino)fullerenes as electron-transporting materials for tin halide perovskite solar cells

Tomoya Nakamura*, Takabumi Nagai, Yuki Miyake, Takumi Yamada, Makoto Miura, Hiroyuki Yoshida, Yoshihiko Kanemitsu, Minh Anh Truong, Richard Murdey, [Atsushi Wakamiya](#)*

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220. Steering perovskite precursor solutions for multijunction photovoltaics

Shuaifeng Hu*, Junke Wang, Pei Zhao, Jorge Pascual, Jianan Wang, Florine Rombach, Akash Dasgupta, Wentao Liu, Minh Anh Truong, He Zhu, Manuel Kober-Czerny, James N. Drysdale, Joel A. Smith, Zhongcheng Yuan, Guus J. W. Aalbers, Nick R. M. Schipper, Jin Yao, Kyohei Nakano, Silver-Hamill Turren-Cruz, André Dallmann, M. Greyson Christoforo, James M. Ball, David P. McMeekin, Karl-Augustin Zaininger, Zonghao Liu, Nakita K. Noel, Keisuke Tajima, Wei Chen, Masahiro Ehara, René A. J. Janssen, [Atsushi Wakamiya](#)*, Henry J. Snaith*

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- 219. Revealing the dynamic aspects of photoinduced halide segregation in mixed-halide Cs_{0.15}FA_{0.85}PbI₂Br perovskite films using a hyperspectral imaging technique**
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- 218. Enhanced Power Conversion Efficiency in Tin Halide Perovskite Solar Cells with Zinc Iodide Interlayers**
Chien-Yu Chen*, Fuyuki Harata, Richard Murdey, [Atsushi Wakamiya](#)*
ACS Energy Lett. **2024**, *9*, 6039-6046. DOI:10.1021/acsenergylett.4c02700
- 217. Electrically switchable chiral nonlinear optics in an achiral ferroelectric 2D van der Waals halide perovskite**
Go Yumoto*, Fuyuki Harata, Tomoya Nakamura, [Atsushi Wakamiya](#), Yoshihiko Kanemitsu*
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- 216. Microscopic Analysis of Low but Stable Perovskite Solar Cell Device Performance Using Electron Spin Resonance**
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Commun. Mater. **2024**, *5*, 233. DOI:10.1038/s43246-024-00675-1
- 215. Performance Boost by Dark Electro Treatment in MACl-Added FAPbI₃ Perovskite Solar Cells**
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- 214. Tetrapodal Hole-Collecting Monolayer Materials Based on Saddle-Like Cyclooctatetraene Core for Inverted Perovskite Solar Cells**
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- 213. Sequential Deposition of Diluted Aqueous SnO₂ Dispersion for Perovskite Solar Cells**
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- 212. Uneven Strain Relaxation in Formamidinium Lead Triiodide (FAPbI₃) Films upon Aging**
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- 211. Effects of the Addition of Tin Powder to Perovskite Precursor Solutions on Band Bending at PEDOT:PSS/Perovskite Interfaces in Mixed-Cation Mixed-Halide Tin Perovskite Solar Cells**
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- 210. Anhydrous *N,N*-Dimethyl-*N,N*-Dineopentylammonium Fluoride Electrolyte for Fluoride Ion Batteries**
Tiancheng Tan, Richard Murdey, Shunsuke Sumitomo, Tomoya Nakamura, Minh Anh Truong, [Atsushi Wakamiya](#)*
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- 209. Dihydropyrazine-reductant effects on band bending at PEDOT:PSS/perovskite interfaces in tin halide perovskite solar cells**
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- 208. An open-cage bis[60]fulleroid as an electron transport material for tin halide perovskite solar cells**
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- 207. Multicomponent Approach for Stable Methylammonium-Free Tin-Lead Perovskite Solar Cells**
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ACS Energy Lett. **2024**, *9*, 432-441. DOI:10.1021/acseenergylett.3c02426
- 206. In Situ Thermal Cross-Linking of 9,9'-Spirobifluorene-Based Hole-Transporting Layer for Perovskite Solar Cells**
Sarune Daskeviciute-Geguzienė†, Minh Anh Truong†, Kasparas Rakstys, Maryte Daskeviciene, Ruito Hashimoto, Richard Murdey, Takumi Yamada, Yoshihiko Kanemitsu, Vygtintas Jankauskas, [Atsushi Wakamiya](#)*, Vytautas Getautis*
(†S. D.-G. and M.A.T. contributed equally to this work)
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- 205. Open-Circuit-Voltage Improvement Mechanism of Perovskite Solar Cells Revealed by Operando Spin Observation**
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ACS Appl. Mater. Interfaces **2023**, *15*, 58539-58547. DOI:10.1021/acсами.3c16361
- 204. Spontaneous Polarization Induced Optical Responses in a Two-Dimensional Ferroelectric Halide Perovskite**
Chika Higashimura, Go Yumoto, Takumi Yamada, Tomoya Nakamura, Fuyuki Harata, Hideki Hirori, [Atsushi Wakamiya](#), Yoshihiko Kanemitsu*
J. Phys. Chem. Lett. **2023**, *14*, 8360-8366. DOI:10.1021/acs.jpcclett.3c02238
- 203. Intense Absorption of Azulene Realized by Molecular Orbital Inversion**
Takahiro Tsuchiya*, Tomohiro Hamano, Masahiro Inoue, Tomoya Nakamura, [Atsushi Wakamiya](#), Yasuhiro Mazaki*
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- 202. Solid-state Chromism of Zwitterionic Triarylmethyl cation Salts**
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Eur. J. Inorg. Chem. **2023**, *26*, e202300337. DOI:10.1002/ejic.202300337
- 201. Tin Halide Perovskite Solar Cells with Open-Circuit Voltages Approaching the Shockley-Queisser Limit**
Wentao Liu, Shuaifeng Hu, Jorge Pascual, Kyohei Nakano, Richard Murdey, Keisuke Tajima, [Atsushi Wakamiya](#)*
ACS Appl. Mater. Interfaces **2023**, *15*, 32487-32495. DOI:10.1021/acсами.3c06538

200. Insight into Charge Carrier Recombination Mechanisms

Keishiro Goshima, Wakana Matsuda, Minh Anh Truong, Ryuji Kaneko, Ai Shimazaki, Tomoya Nakamura, [Atsushi Wakamiya](#), Yasuhiro Tachibana

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199. Bilayer Indium Tin Oxide Electrodes for Deformation-Free Ultrathin Flexible Perovskite Solar Cells

Noboru Ohashi*, Ryuji Kaneko, Chikako Sakai, Yoko Wasai, Seiji Higuchi, Kenji Yazawa, Hirokazu Tahara, Taketo Handa, Tomoya Nakamura, Richard Murdey, Yoshihiko Kanemitsu, [Atsushi Wakamiya](#)*

Sol. RRL **2023**, *7*, 2300221. DOI:10.1002/solr.202300221

198. Effects of electron-accepting substituents on the fluorescence of oxygen-bridged triarylamine

Ruito Hashimoto, Tomoya Nakamura, Minh Anh Truong, Richard Murdey, [Atsushi Wakamiya](#)*

Dyes Pigm. **2023**, *215*, 111281. DOI:10.1016/j.dyepig.2023.111281

197. BAR₂-bridged Azafulvene Dimers with Tunable Energy Levels for Photostable Near-infrared Dyes

Tiancheng Tan, Tomoya Nakamura, Richard Murdey, Shuaifeng Hu, Minh Anh Truong, [Atsushi Wakamiya](#)*

Chem. Eur. J. **2023**, *29*, e202300529. DOI:10.1002/chem.202300529

196. Tripodal Triazatruxene Derivative as a Face-On Oriented Hole-Collecting Monolayer for Efficient and Stable Inverted Perovskite Solar Cells

Minh Anh Truong*, Tsukasa Funasaki, Lucas Ueberricke, Wataru Nojo, Richard Murdey, Takumi Yamada, Shuaifeng Hu, Aruto Akatsuka, Naomu Sekiguchi, Shota Hira, Lingling Xie, Tomoya Nakamura, Nobutaka Shioya, Daisuke Kan, Yuta Tsuji, Satoshi Iikubo, Hiroyuki Yoshida, Yuichi Shimakawa, Takeshi Hasegawa, Yoshihiko Kanemitsu, Takanori Suzuki, [Atsushi Wakamiya](#)*

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