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**Topic 4: Ordered Carbon Materials, 2D Materials and NEMS (MoP-001–MoP-044)**

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¹Korea Univ., Korea, ²Sungkyunkwan Univ., Korea, ³Hannam Univ., Korea

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¹Korea Univ., Korea, ²Sungkyunkwan Univ., Korea, ³Hannam Univ., Korea

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¹Pusan Nat’l Univ., Korea, ²Russian Academy of Sciences, Russia, ³Dongseo Univ., Korea

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¹KITECH, Korea, ²Hanyang Univ., Korea, ³Sungkyunkwan Univ., Korea

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¹Sungkyunkwan Univ., Korea, ²Pusan Nat’l Univ., Korea
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¹Konkuk Univ., Korea, ²Univ. of Regensburg, Germany, ³Dongguk Univ., Korea, ⁴Univ. of Chicago, USA, ⁵Sogang Univ., Korea

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¹POSTECH, ²IBS

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¹Seoul Nat'l Univ., Korea, ²Hannover Univ., Germany, ³KIST, Korea, ⁴Incheon Nat'l Univ., Korea

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¹Korea Univ., Korea, ²Sungkyunkwan Univ.Korea
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South China Univ. of Tech., China

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Hyeck Go¹, Eun-Mi Han², and Changhun Yun¹
¹Korea Univ., Korea, ²Chonnam Nat'l Univ. Korea

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Changhun Yun¹, Hyeck Go¹, and Eun-Mi Han²
¹KITECH, Korea, ²Chonnam Nat'l Univ. Korea

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KITECH, Korea

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¹Inha Univ., Korea, ²Univ. of Seoul, Korea

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Song Eun Lee¹, Ki Ju Kim¹, Soyoung Pak², Seung Soo Yoon², and Young Kwan Kim¹
¹Hongik Univ., Korea, ²Sungkyunkwan Univ., Korea

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¹Durham Univ., UK, ²Kaunas Univ. of Tech., Lithuania
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\(^1\)Hankuk Univ. of Foreign Studies, Korea, \(^2\)Sungkyunkwan Univ., Korea

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Hansol Lee and Kilwon Cho
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¹UNIST, Korea, ²Nanjing Univ., China, ³Chinese Academy of Science, China

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¹Pukyong Nat'l Univ., Korea, ²UNIST, Korea, ³SIN University, Korea
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GIST, Korea

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Seongyu Lee¹, Hyungcheol Back¹, Jong-Hoon Lee¹, Jinho Lee¹, and Kwanghee Lee²
¹GIST, Korea, ²RISE, Korea

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¹Shahjalal Univ. of Science and Tech., Bangladesh, ²Indian Inst. of Tech. Guwahati, India

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¹KRICT, Korea, ²Kookmin Univ., Korea

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Inst. of Synthetic Polymeric Materials (ISPM), Russia

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¹Hong Kong Univ. of Science and Tech., Hong Kong, China, ²North Carolina State Univ., USA

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Kyungpook Nat’l Univ., Korea

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Un-Hak Lee¹, Randi Azmi², Septy Sinaga², Sunbin Hwang³, Seung Hun Eom⁴, Tae-Wook Kim⁵, Sung Cheol Yoon⁶, Sung-Yeon Jang⁷, and In Hwan Jung⁷

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Improving The Efficiency and Stability of Inverted Flexible Perovskite Solar Cells Employing A Novel NDI-Based Polymeric Electron Transport Layer

Kyongwon Choi¹, Myeong-Jong Kim², Hong Il Kim¹, ChaeSung Lim¹, Yun-Hi Kim², Soon-Ki Kwon², and Taiho Park¹

¹POSTECH, Korea, ²Gyeongsang Nat'l Univ., Korea

MoP-090

Performance Enhancement of Lead-Free Tin-Based Perovskite Solar Cells with Reductive Addictive

Feidan Gu, Senyun Ye, Haixia Rao, Ziran Zhao, Zhiwei Liu, Zuqiang Bian, and Chunhui Huang

Peking Univ., China

MoP-091

Effective Annealing Method for Improving The Performance of Perovskite Solar Cells

Insoo Shin¹, Yanliang Liu¹, In-wook Hwang², Jihoon Lee¹, Dal Yong Lee¹, Jae-Won Jang¹, Yun Kyung Jung³, Jung Hyun Jeong¹, Kwang Ho Kim⁴, and Sung Heum Park¹

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MoP-092

Merged Annealing Method for Highly Efficient Perovskite Solar Cells

Liu Yanliang¹, Insoo Shin¹, In-wook Hwang², Jihcon Lee¹, Jae-Won Jang¹, Yun Kyung Jung³, Jung Hyun Jeong¹, Kwang Ho Kim⁴, and Sung Heum Park¹

¹Pukyong Nat'l Univ., Korea, ²GIST, Korea, ³Inje Univ., Korea, ⁴Pusan Nat'l Univ., Korea

MoP-093

Exploring Grain Growth of Lead-Halide Perovskite for Solar Cell Applications

Ma Yongchao¹, Yanliang Liu¹, Insoo Shin¹, In-wook Hwang², Yun Kyung Jung³, Jung Hyun Jeong¹, Kwang Ho Kim⁴, and Sung Heum Park¹

¹Pukyong Nat'l Univ., Korea, ²GIST, Korea, ³Inje Univ., Korea, ⁴Pusan Nat'l Univ., Korea

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Performance and Stability Enhancement of Tin Iodides-Bromides Halide Perovskite Solar Cells with Reducing Additives

William Jo, Bich Phuong Nguyen, Hye Ri Jung, and Juran Kim

Ewha Womans Univ., Korea
MoP-095

Tuxene-Based Perovskite Solar Cells
Jong Hun Hong¹, Sinil Choi¹, Gyeongju Kim¹, Prem Prabhakaran¹, Jae Woong Jung², Namchul Cho³, and Kwang-Sup Lee¹
¹Hannam Univ., Korea, ²Kyung Hee Univ., Korea, ³Soon Chun Hyang Univ., Korea

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Thin Hole Extraction Layer for Single and Tandem Perovskite Solar Cells
Hyung-Jun Song¹, Hyungho Lee², and Changhee Lee²
¹Korea Inst. of Energy Research, Korea, ²Seoul Nat'l Univ., Korea

MoP-097

Molecular Tailor-Making Low-Cost Triarylamine Derivatives Based on Different Center Moieties with High Tₜ via One-Step Procedure for Efficient Perovskite Solar Cells
Chunyuan Lu, In Taek Choi, and Hwan Kyu Kim
Korea Univ., Korea

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Robust, Stable, Thermal-Resistance Quantum Dots by Encapsulating via Surface Modification with Cross-Linkable Polymeric Ligands
Jae Wan Ko¹, Byeong Guk Jeong³, Jun Hyuk Chang³, Wan Ki Bae², and Joona Bang¹
¹Korea Univ., Korea, ²KIST, Korea

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Effect of Solvents on The Performance of InP-Based Quantum Dot Light Emitting Diodes
Jaeyoul Kim, Yeonkyung Lee, Heeyoung Jung, Wan Ki Bae, and Changhee Lee
Seoul Nat'l Univ., Korea

MoP-100

Improved Performance of Inkjet-Printed Quantum Dot Light Emitting Diodes through Precisely Confined Zinc Oxide in Black Photoresist Bank
Yeseul Park¹, Jongseok Han¹, Donghyun Koh¹, Jiwon Lee², Junyoung Kim², Jongsoo Lee³, and Changhee Lee¹
¹Seoul Nat'l Univ., Korea, ²Korea Inst. of Industrial Tech., Korea, ³Dongwoo Fine-Chem, Korea

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Junho Kim and Jung-Yong Lee
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Modulated Photocurrent Technique for Characterization of Charge Transport Properties in Working

Hiroki Nojima, Takashi Kobayashi, Takashi Nagase, and Hiroyoshi Naito
Osaka Prefecture Univ., Japan

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Charge Carriers Outnumber Triplets Under Steady-StateTQ1:PC71BM Solar Cell Operation

Safakath Karuthedath¹, Armantas Melianas², Julien Gorenflot¹, Zhipeng Kan¹, Martijn Kemerink², and Frédéric Laquai¹
¹KAUST, Saudi Arabia, ²Linköping Univ., Sweden

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All-Inorganic CsPbl3 Perovskite Phase-Stabilized by Poly(Ethylene Oxide) for Red-Light-Emitting Diodes

Beomjin Jeong, Hyowon Han, and Cheolmin Park
Yonsei Univ., Korea

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Micropatterning Organic-Inorganic Hybrid Lead Halide Perovskite Thin Films by Solvent-Assisted Gel Printing Method

Hyowon Han, Beomjin Jeong, and Cheolmin Park
Yonsei Univ., Korea

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Impact of IDT-Based Acceptor Structures on Photophysics and Performance of Polymer Solar Cells

Maha Alamoudi, Jafar Khan, Raja Shahid Ashraf, Iain McCulloch, and Frederic Laquai
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Impact of Nonfullerene Acceptor Core Structure on The Photophysics and Efficiency of Polymer Solar Cells

Maha Alamoudi, Jafar Khan, Yulliar Firdaus, Kai Wang, Denis Andrienko, Pierre Beaujuge, and Frédéric Laquai
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Thermal Annealing Reduces Geminate Recombination in TQ1:N2200 All-Polymer Solar Cells

Safakath Karuthedath¹, Armantas Melianas², Zhipeng Kan¹, Vytenis Pranculis³, Markus Wohlfahrt¹, Jafar Khan¹, Julien Gorenflot¹, Yuxin Xia¹, Olle Inganäs², Vidmantas Gulbinas³, Martijn Kemerink², and Frédéric Laquai¹
¹KAUST, Saudi Arabia, ²Linköping Univ., Sweden, ³Center for Physical Sciences and Tech., Lithuania
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Nam-Gyu Park, An-Na Cho, Ja-Young Seo, and In-Hyuk Jang
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MoP-133
Printable Flexible Rechargeable Battery for Constructing Wireless Energy Harvesting Label
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In Situ Studies on The Film Formation Mechanism of Conjugated Polymer Thin Films via Blade-Coating Process
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$^1$GIST, Korea, $^2$KIST, Korea, $^3$KAUST, Saudi Arabia

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Reusable Printed Block Copolymer Structural Color Board
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Yonsei Univ., Korea

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GIST, Korea