

# Journal of Materials Chemistry C

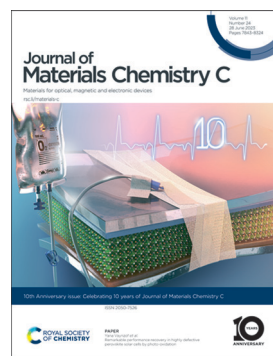
Materials for optical, magnetic and electronic devices

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## IN THIS ISSUE

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## EDITORIAL

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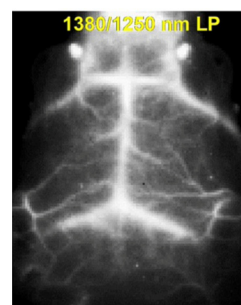


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Infrared emitting and absorbing conjugated  
polymer nanoparticles as biological imaging probes

Daniel Honeybone, Hannah Peace and Mark Green\*



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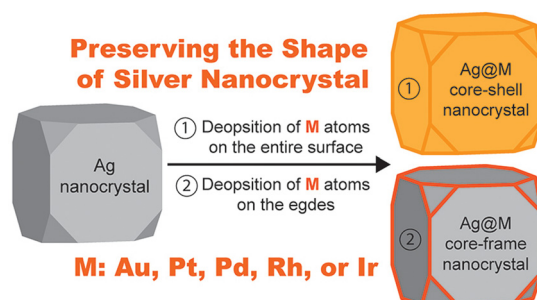


## REVIEWS

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## Preserving the shape of silver nanocrystals

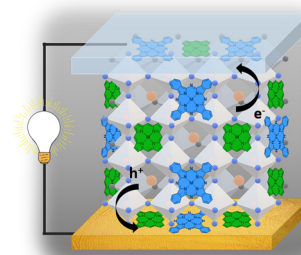
Tung-Han Yang, Peng Wang and Dong Qin\*



7885

## Phthalocyanines, porphyrins and other porphyrinoids as components of perovskite solar cells

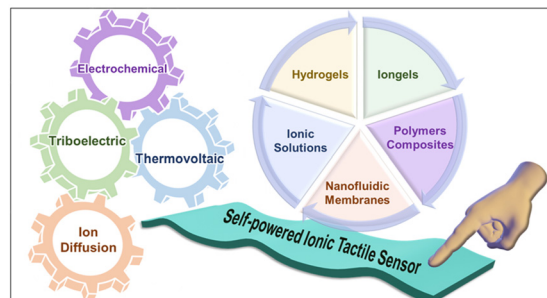
Desiré Molina, Jorge Follana-Berná and Ángela Sastre-Santos\*



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## Self-powered ionic tactile sensors

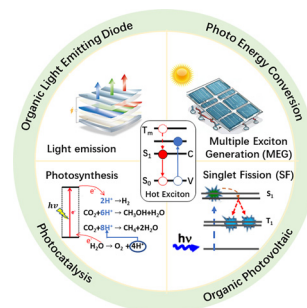
Kundan Saha, Arka Chatterjee, Avijit Das, Arup Ghorai and Unyong Jeong\*



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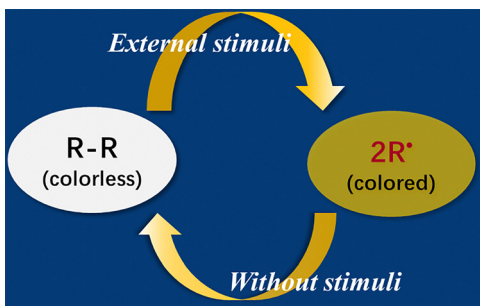
## Optoelectronic materials utilizing hot excitons or hot carriers: from mechanism to applications

Yun-Tao Ding, Bo-Yang Zhang, Chun-Lin Sun, Qiang Wang and Hao-Li Zhang\*



## REVIEWS

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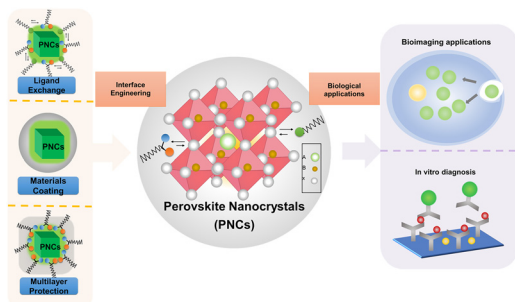


### Carbon-centered radical based dynamic covalent chemistry for stimuli-responsive chromic materials

Tingting Xu, Jun Zhu, Yi Han and Chunyan Chi\*

## PERSPECTIVE

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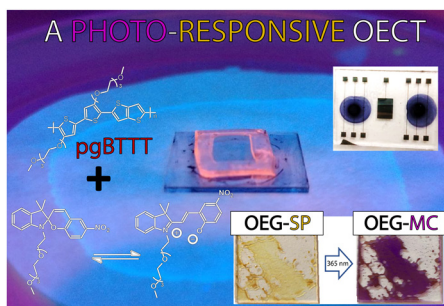


### Interface engineering of perovskite nanocrystals: challenges and opportunities for biological imaging and detection

Lijun Cheng, Jimei Chi, Meng Su\* and Yanlin Song\*

## COMMUNICATIONS

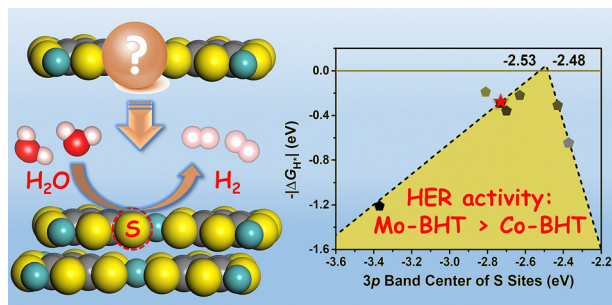
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### A photo-responsive organic electrochemical transistor

Nicholas Turetta, Wojciech Danowski, Luca Cusin, Pietro Antonio Livio, Rawad Hallani, Iain McCulloch and Paolo Samori\*

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### Theoretical investigation of the non-metal sites of two-dimensional conjugated metal-organic frameworks based on benzenehexathiol for hydrogen evolution activity enhancement

Huiying Yao, Xing Huang, Shuzhou Li, Wei Xu and Jia Zhu\*

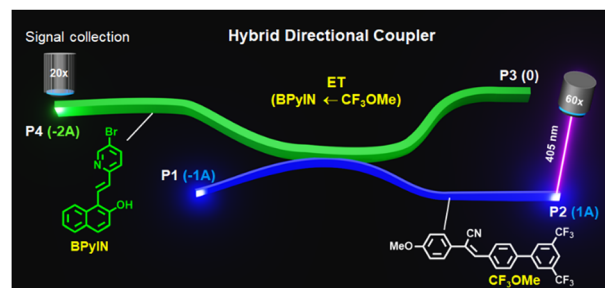


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**Mechanophotonics: fabrication of a 2 × 2 hybrid directional coupler from flexible organic crystals**

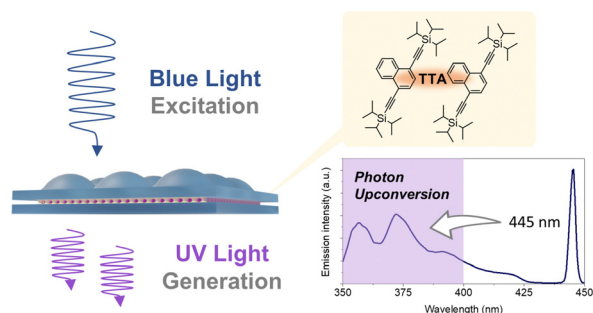
Avulu Vinod Kumar and Rajadurai Chandrasekar\*



8002

**Porous film impregnation method for record-efficiency visible-to-UV photon upconversion and subsolar light harvesting**

Naoyuki Harada, Masanori Uji, Baljeet Singh, Nobuo Kimizuka\* and Nobuhiro Yanai\*

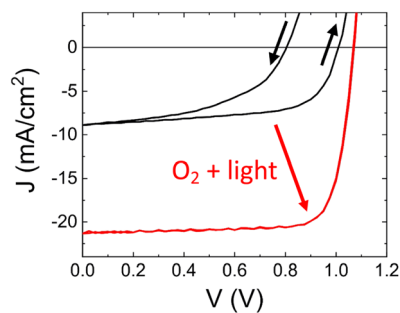


## PAPERS

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**Remarkable performance recovery in highly defective perovskite solar cells by photo-oxidation**

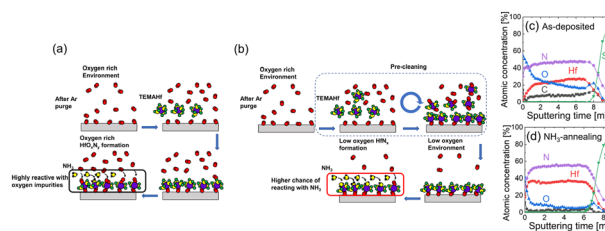
Katelyn P. Goetz, Fabian T. F. Thome, Qingzhi An, Yvonne J. Hofstetter, Tim Schramm, Aymen Yanguai, Alexander Kiligaridis, Markus Loeffler, Alexander D. Taylor, Ivan G. Scheblykin and Yana Vaynzof\*



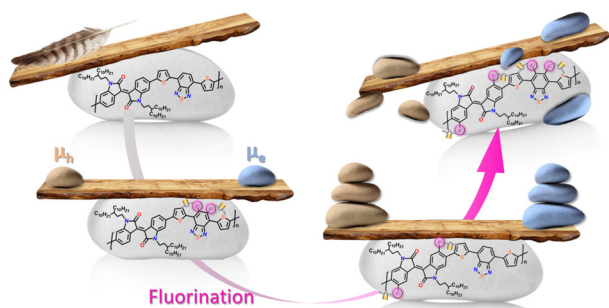
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**Atomic layer deposition of HfN<sub>x</sub> films and improving the film performance by annealing under NH<sub>3</sub> atmosphere**

Seung Kyu Ryoo, Beom Yong Kim, Yong Bin Lee, Hyeon Woo Park, Suk Hyun Lee, Minsik Oh, In Soo Lee, Seung Yong Byun, Doo Sup Shim, Jae Hoon Lee, Ha Ni Kim, Kyung Do Kim and Cheol Seong Hwang\*



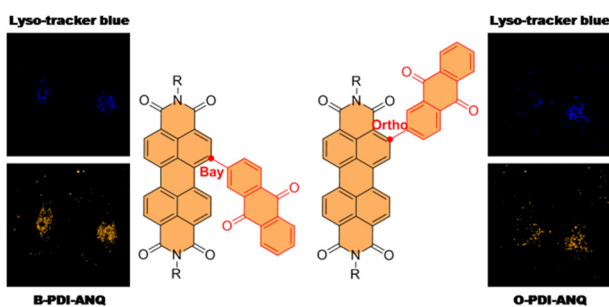
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### The fluorination effect: the importance of backbone planarity in achieving high performance ambipolar field effect transistors

Sergio Gámez-Valenzuela, Marc Comí, Sandra Rodríguez González, M. Carmen Ruiz Delgado, Mohammed Al-Hashimi and Rocío Ponce Ortiz\*

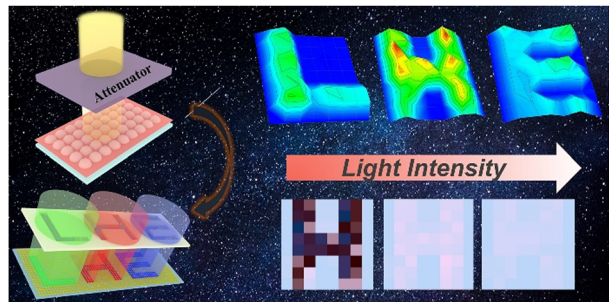
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### Aggregation effects on the one- and two-photon excited fluorescence performance of regioisomeric anthraquinone-substituted perylene diimide

Liang Xu,\* Xueting Long, Jiaxin He, Lingxiu Liu, Fangyuan Kang, Ziqi Deng, Jieyu Wu, Xiao-Fang Jiang, Jianguo Wang\* and Qichun Zhang\*

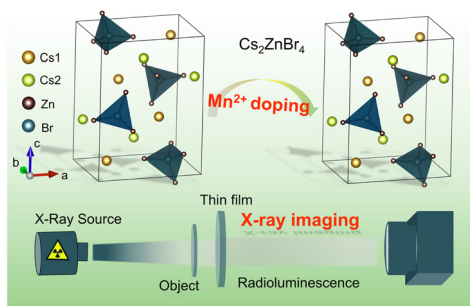
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### Bio-inspired micro area concentrated array assisted perovskite photodetector toward weak light imaging

Lutong Guo, Kun Zhang, Mingquan Tao, Rudai Zhao, Tingqing Wu, Yang Wang\* and Yanlin Song\*

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### Mn<sup>2+</sup>-doped Cs<sub>2</sub>ZnBr<sub>4</sub> scintillator for X-ray imaging

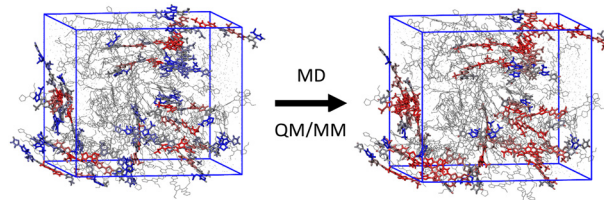
Binbin Su, Kai Han and Zhiguo Xia\*



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### Simulation of polymeric mixed ionic and electronic conductors with a combined classical and quantum mechanical model

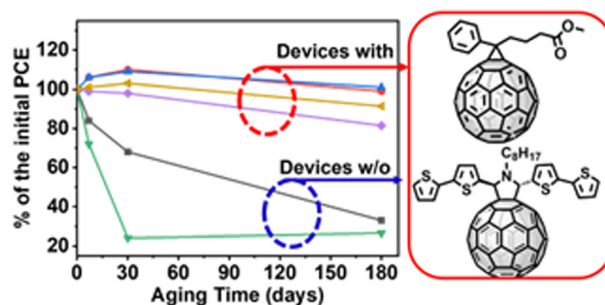
Alessandro Landi,\* Maryam Rejsjalali, Joshua D. Elliott, Micaela Matta, Paola Carbone and Alessandro Troisi\*



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### Air-stable ternary organic solar cells achieved by using fullerene additives in non-fullerene acceptor-polymer donor blends

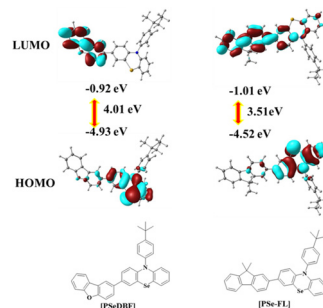
Elisa Trippodo, Vincenzo Campisciano, Liang-Wen Feng, Yao Chen,\* Wei Huang, Joaquin M. Alzola, Ding Zheng, Vinod K. Sangwan,\* Mark C. Hersam,\* Michael R. Wasielewski,\* Bruno Pignataro,\* Francesco Giacalone,\* Tobin J. Marks\* and Antonio Facchetti\*



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### Fine-tuning emission properties of the 9*H*-phenoselenazine core through substituents engineering for high efficiency purely organic room temperature phosphorescence

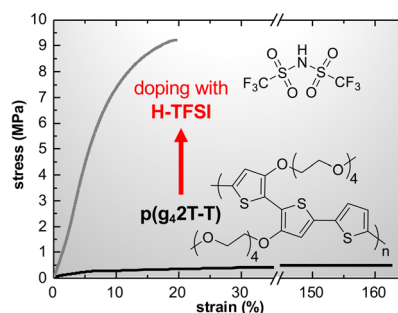
Vilas Venunath Patil, Ho Jin Jang and Jun Yeob Lee\*



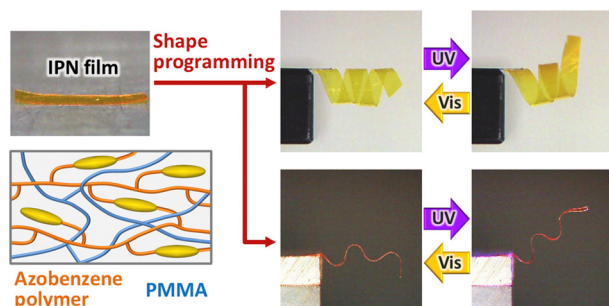
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### Impact of oxidation-induced ordering on the electrical and mechanical properties of a polythiophene co-processed with bistriflimidic acid

Sandra Hultmark, Mariavittoria Craighero, Sepideh Zokaei, Donghyun Kim, Emmy Järsvall, Furqan Farooqi, Sara Marina, Renee Kroon, Jaime Martin, Igor Zozoulenko and Christian Müller\*



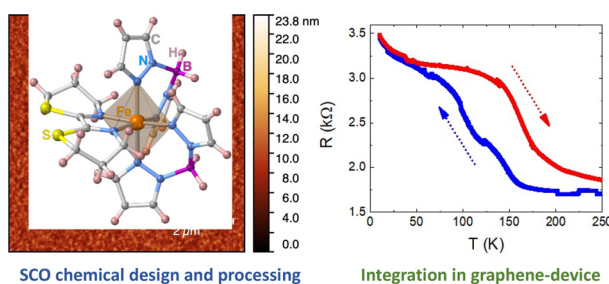
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### Shape programming and photoactuation of interpenetrating polymer networks containing azobenzene moieties

Toru Ube,\* Keigo Naito and Tomiki Ikeda\*

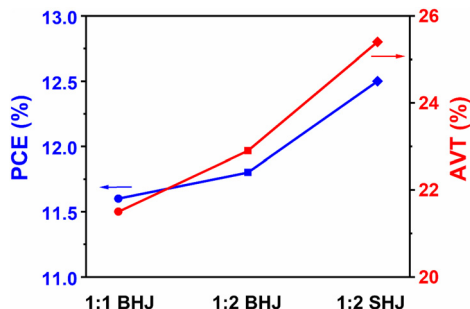
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### Sublimable complexes with spin switching: chemical design, processing as thin films and integration in graphene-based devices

Miguel Gavara-Edo, Francisco Javier Valverde-Muñoz, Rosa Córdoba, M. Carmen Muñoz, Javier Herrero-Martín, José Antonio Real\* and Eugenio Coronado\*

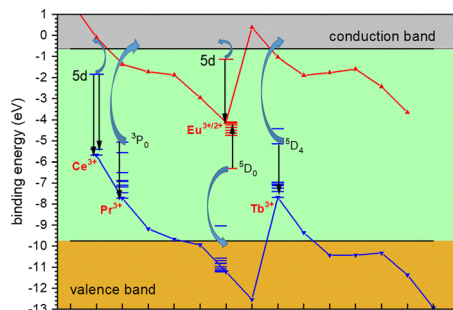
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### High-performance semitransparent organic solar cells based on sequentially processed heterojunction

Peiyao Xue, Jingming Xin, Guanyu Lu, Boyu Jia, Heng Lu, Guanghao Lu, Wei Ma, Ray P. S. Han and Xiaowei Zhan\*

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### Thermal quenching of lanthanide luminescence via charge transfer states in inorganic materials

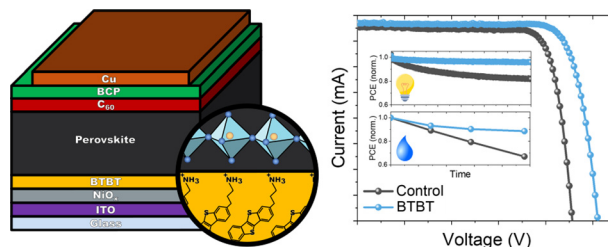
Pieter Dorenbos



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### Organic ammonium iodide salts as passivation for buried interface enables efficient and stable NiO<sub>x</sub> based p-i-n perovskite solar cells

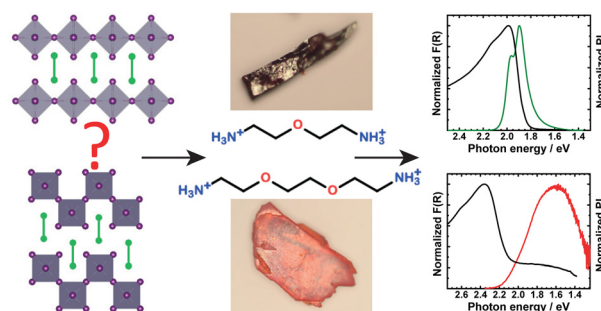
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### Impact of two diammonium cations on the structure and photophysics of layered Sn-based perovskites

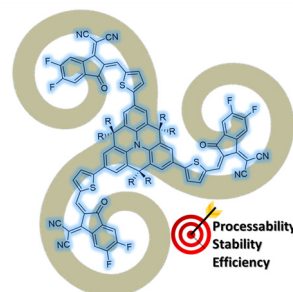
Eelco K. Tekelenburg, Nawal Aledlbi, Lijun Chen, Graeme R. Blake and Maria A. Loi\*



8161

### Star-shape non-fullerene acceptor featuring an aza-triangulene core for organic solar cells

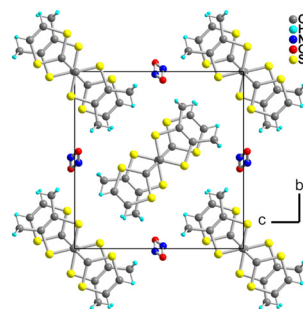
Yann Kervella, José María Andrés Castán, Yatzil Alejandra Avalos-Quiroz, Anass Khodr, Quentin Eynaud, Tomoyuki Koganezawa, Noriyuki Yoshimoto, Olivier Margeat, Agnès Rivaton, Antonio J. Riquelme, Valid Mwatati Mwalukuku, Jacques Pécaut, Benjamin Grévin, Christine Videlot-Ackermann, Jörg Ackermann, Renaud Demadrille and Cyril Aumaitre\*



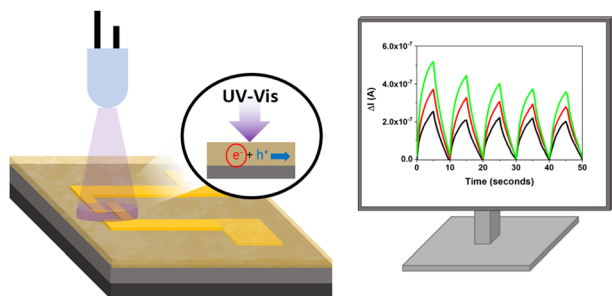
8170

### A tetrathiafulvalene salt of the nitrite (NO<sub>2</sub><sup>-</sup>) anion: investigations of the spin-Peierls phase

Loïc Soriano, Maylis Orio, Olivier Pilone, Olivier Jeannin, Eric Reinheimer, Nicolas Quéméré, Pascale Auban-Senzier, Marc Fourmigué\* and Sylvain Bertina\*



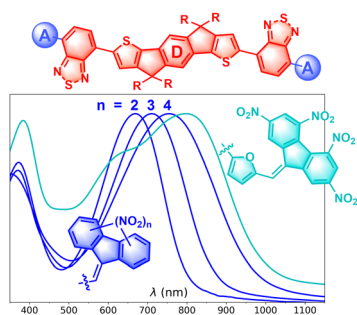
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### Binder polymer influence on the electrical and UV response of organic field-effect transistors

Jinghai Li, Adrián Tamayo, Aleix Quintana, Sergi Riera-Galindo, Raphael Pfattner, Yanyan Gong and Marta Mas-Torrent\*

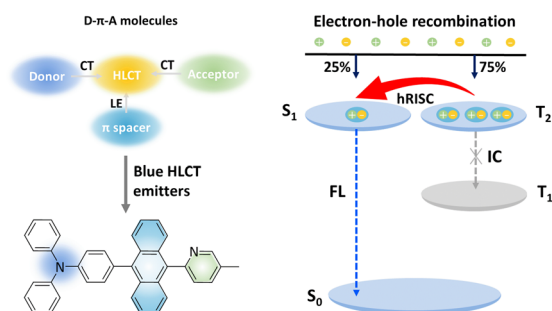
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### Nitrofluorene-based A–D–A electron acceptors for organic photovoltaics

Yuxuan Che, Muhammad Rizwan Niazi, Ting Yu, Thierry Maris, Cheng-Hao Liu, Dongling Ma, Ricardo Izquierdo, Igor F. Perepichka and Dmytro F. Perepichka\*

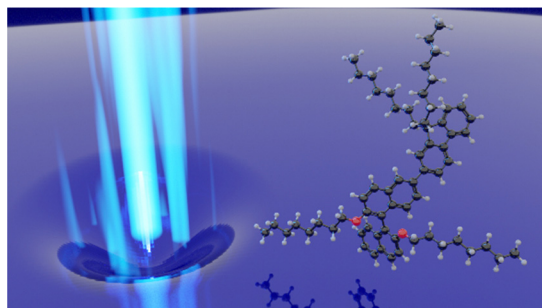
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### Rational design of hybridized local and charge transfer emitters towards high-performance fluorescent blue OLEDs

Shuxin Wang, Hanlin Li, Zhen Song, He Jiang, Xiandi Zhang, Chui-Shan Tsang, Quanlin Liu, Lawrence Yoon Suk Lee, Dongge Ma\* and Wai-Yeung Wong\*

8204



### Organic copolymer lasing from single defect microcavity fabricated using laser patterning

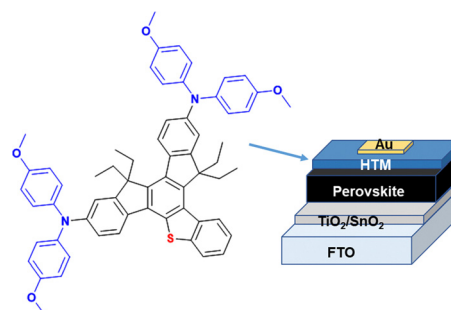
Peter Claronino, Rahul Jayaprakash, Till Jessewitsch, Rachel C. Kilbride, Timothy Thornber, Alina Muravitskaya, Robert D. J. Oliver, Ullrich Scherf, Jean-Sebastien G. Bouillard, Ali M. Adawi\* and David G. Lidzey\*



8214

### A low-symmetry monothiatruxene-based hole transport material for planar n-i-p perovskite solar cells with 18.9% efficiency

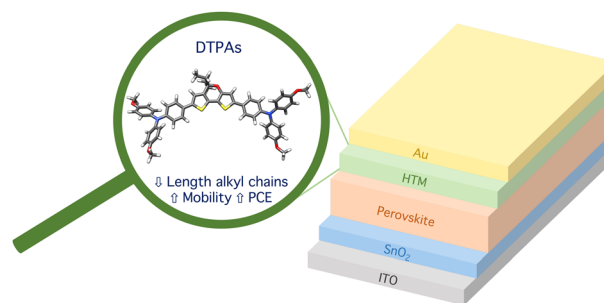
Ellie Tanaka, Gyu Min Kim, Michał R. Maciejczyk, Ayumi Ishii, Gary S. Nichol, Tsutomu Miyasaka\* and Neil Robertson\*



8223

### Influence of alkyl chain length on the photovoltaic properties of dithienopyran-based hole-transporting materials for perovskite solar cells

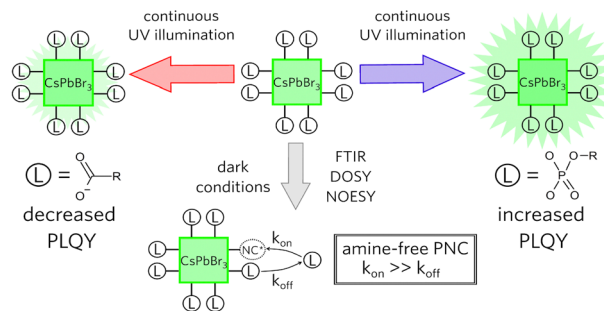
Mauricio Caicedo-Reina, Manuel Pérez-Escribano, Javier Urieta-Mora, Inés García-Benito, Joaquín Calbo, Alejandro Ortiz, Braulio Insuasty\*, Agustín Molina-Ontoria\*, Enrique Ortí\* and Nazario Martín\*



8231

### Photostability of amine-free CsPbBr<sub>3</sub> perovskite nanocrystals under continuous UV illumination

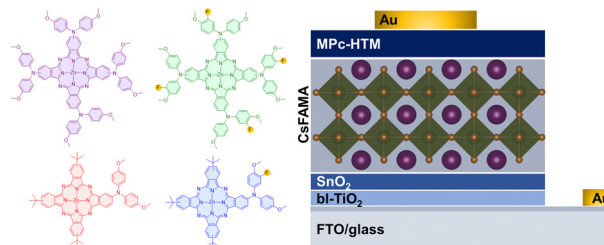
Luiz Gustavo Bonato, Guilherme Dal Poggetto, Raphael Fernando Moral, Brenner Rodrigo de Carvalho Vale, José Carlos Germino, Diogo Burigo Almeida, Patrícia Santiago, Pablo Sebastian Fernandez, Claudio Francisco Tormena, Lázaro A. Padilha\* and Ana Flávia Nogueira\*



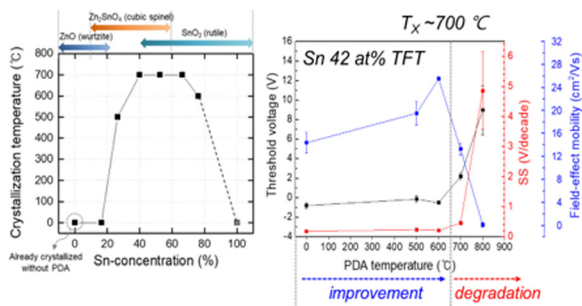
8243

### Fluorinated- and non-fluorinated-diarylamine-Zn(II) and Cu(II) phthalocyanines as symmetrical vs. asymmetrical hole selective materials

Adrián Hernández, Naveen Harindu Hemasiri, Samrana Kazim, Javier Ortiz, Shahzada Ahmad\* and Ángela Sastre-Santos\*



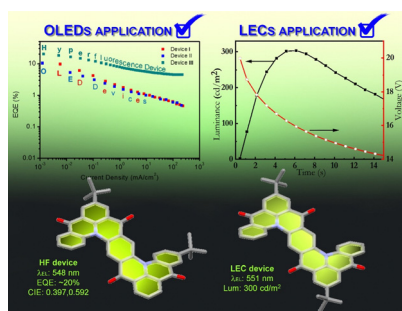
8254



### Electrical properties of amorphous Zn–Sn–O thin films depending on composition and post-deposition annealing temperature near crystallization temperature

Whayoung Kim, Sukin Kang, Yonghee Lee, Sahngik Mun, Jinheon Choi, Sunjin Lee and Cheol Seong Hwang\*

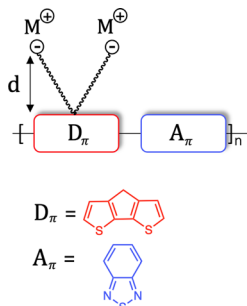
8263



### Color tuning of multi-resonant thermally activated delayed fluorescence emitters based on fully fused polycyclic amine/carbonyl frameworks

John Marques dos Santos, Chin-Yiu Chan, Shi Tang, David Hall, Tomas Matulaitis, David B. Cordes, Alexandra M. Z. Slawin, Youichi Tsuchiya, Ludvig Edman,\* Chihaya Adachi,\* Yoann Olivier\* and Eli Zysman-Colman\*

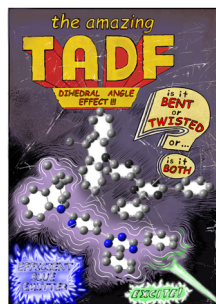
8274



### Side-chain engineering of self-doped conjugated polyelectrolytes for organic electrochemical transistors

Luana C. Llanes, Alexander T. Lill, Yangyang Wan, Sangmin Chae, Ahra Yi, Tung Nguyen-Dang, Hyo Jung Kim, Lior Sepunaru, Javier Read de Alaniz, Gang Lu, Guillermo C. Bazan\* and Thuc-Quyen Nguyen\*

8284



### Molecular geometry and the photophysics of thermally activated delayed fluorescence: the strange case of DMAC-py-TRZ

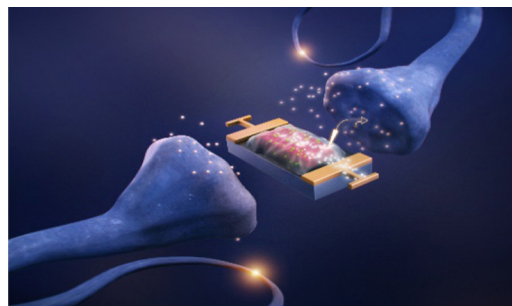
Ettore Crovini, Rama Dhali, Dianming Sun,\* Tomas Matulaitis, Thomas Comerford, Alexandra M. Z. Slawin, Cristina Sissa, Francesco Azzolin, Francesco Di Maiolo, Anna Painelli\* and Eli Zysman-Colman\*



8293

## On the factors affecting the response time of synaptic ion-gated transistors

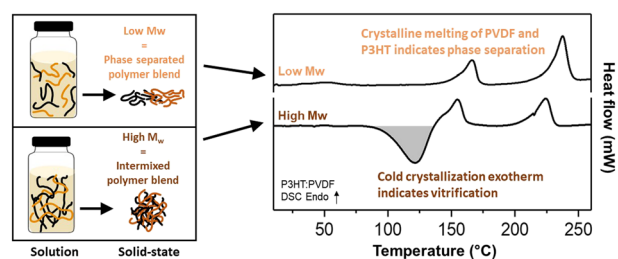
Ramin Karimi Azari,\* Tian Lan and Clara Santato\*



8300

## Mission immiscible: overcoming the miscibility limit of semiconducting:ferroelectric polymer blends via vitrification

Aditi Khirbat, Oded Nahor, Henry Kantrow, Oladipo Bakare, Artem Levitsky, Gitti L. Frey\* and Natalie Stingelin\*



8307

## A marvel of chiral squaraine aggregates: chiroptical spectra beyond the exciton model

Davide Giavazzi, Marvin F. Schumacher, Luca Grisanti, Mattia Anzola, Francesco Di Maiolo, Jennifer Zablocki, Arne Lützen, Manuela Schiek\* and Anna Painelli\*

