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An open access journal publishing across the breadth of materials science

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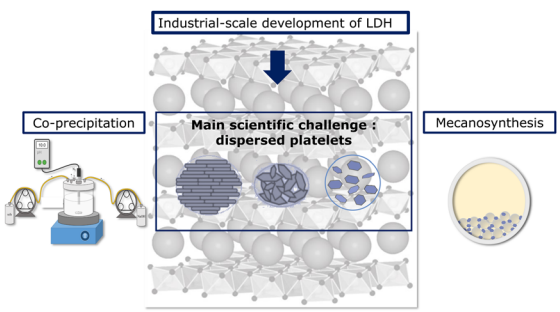

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REVIEWS

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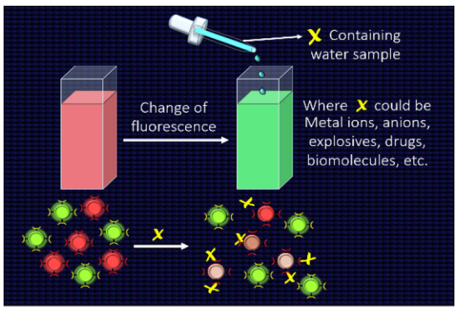
Advances in the ratiometric combination of quantum dots for their use in sensing applications

Sumon Santra,* Sourav Dutta and Ashadul Adalder*



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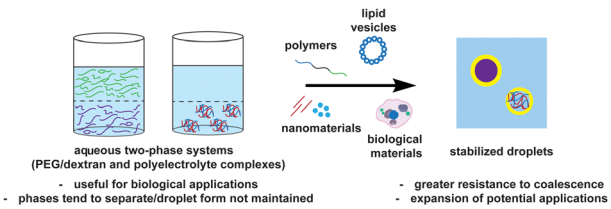
Interfacial stabilization of aqueous two-phase systems: a review

Caitlyn Fick, Zara Khan and Samanvaya Srivastava*



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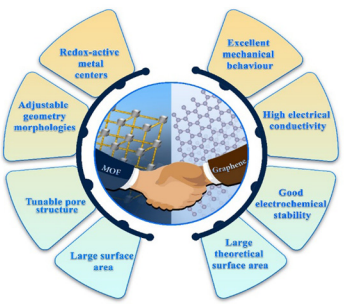
Metal–organic framework and graphene composites: advanced materials for electrochemical supercapacitor applications

Debal Kanti Singha, Rupali Ipsita Mohanty, Piyali Bhanja and Bikash Kumar Jena*



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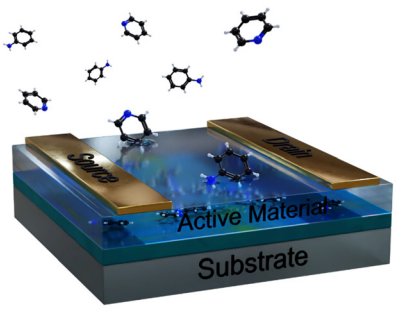
Exposure to solvent vapours for enhanced N-type OTFT stability

Samantha Brixi, Halynne R. Lamontagne, Benjamin King, Adam J. Shuhendler and Benoît H. Lessard*



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COMMUNICATIONS

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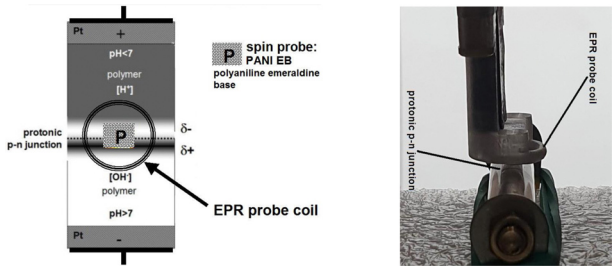

Proton density monitoring at the interface of proton-donor and proton-acceptor regions in a protonic p–n junction with bias voltage

Jerzy J. Langer,* Mikołaj Baranowski, Maciej Kujawa and Sebastian Golczak

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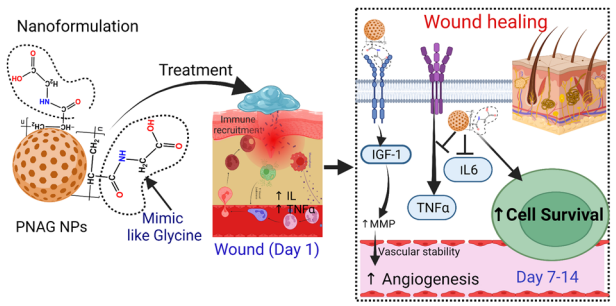

In vivo potential of polymeric *N*-acryloyl-glycine nanoparticles with anti-inflammatory activities for wound healing

Prem Shankar Gupta, Kirti Wasnik, Gurmeet Singh, Sukanya Patra, Divya Pareek, Desh Deepak Yadav, Munendra Singh Tomar, Somedutta Maiti, Monika Singh and Pradip Paik*

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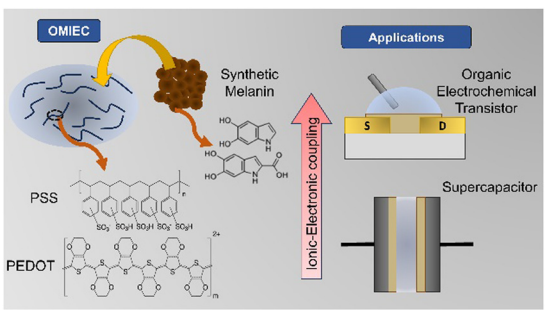

Melanin/PEDOT:PSS blend as organic mixed ionic electronic conductor (OMIEC) for sustainable electronics

Natan Luis Nozella, João Victor Morais Lima, Rafael Furlan de Oliveira* and Carlos Frederico de Oliveira Graeff*

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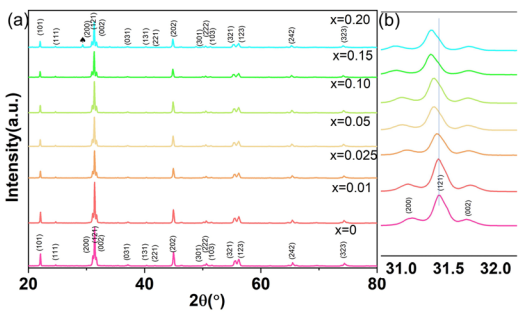

The effects of double-site yttria-doping on the structures and dielectric properties of $(Ca,Sr)_z(Zr,Ti)O_{3-\delta}$ perovskite ceramics

Ying Chen, Qingyang Pang, Genshui Wang, Zhaoquan Zhang, Chenxi Zhu, Xin Li, Liangcai Wu* and Zhitang Song*

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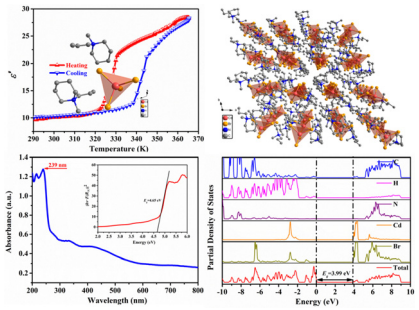
Organic–inorganic hybrid multifunctional materials with high-T_c reversible phase transition and wide bandgap properties

Yu-Xin Tan, Ting-Ting Ying,* Xiao-Wei Fan, Yan-Le Huang, Ming-Yang Wan, Qiao-Lin Li, Fang-Xin Wang and Meng-Na Wang



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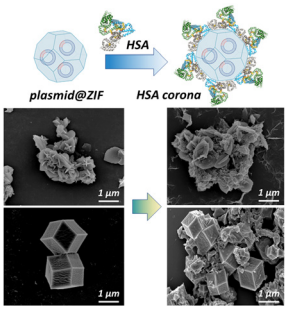
Impact of nucleic acid encapsulated MOF crystal phase on protein corona formation

Shakil Ahmed Polash, Suneela Pyreddy, Amanda N Abraham, Sanje Mahasivam, Vipul Bansal, Linda Varadi, Gary Bryant and Ravi Shukla*



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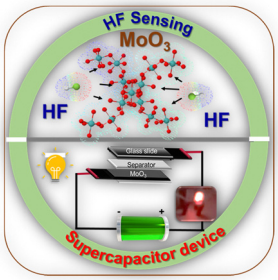
Fluorane sensitive supercapacitive microcrystalline MoO_3: dual application in energy storage and HF detection

Love Bansal, Tanushree Ghosh, Suchita Kandpal, Chanchal Rani, Bhumika Sahu, Deb Kumar Rath, Christoph Wesemann, Sandeep Chhoker, Nadja C. Bigall* and Rajesh Kumar*



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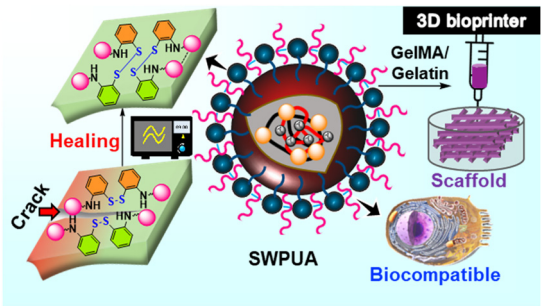
A dynamic hard domain-induced self-healable waterborne poly(urethane/acrylic) hybrid dispersion for 3D printable biomedical scaffolds

Samiran Morang, Jay Hind Rajput, Anwesha Mukherjee, Atharva Poundarik, Bodhisatwa Das and Niranjan Karak*



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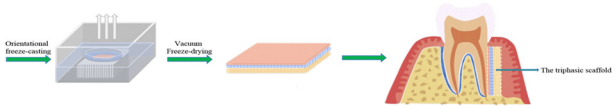

Growth factor-encapsulated triphasic scaffolds of electrospun polylactic acid–polycaprolactone (PLA–PCL) nanofibrous mats combined with a directionally freeze-dried chitosan hydrogel for periodontal tissue regeneration

Weihan Hua, Jie Xiang, Yeke Wu, Wei Yang* and Lixing Zhao*

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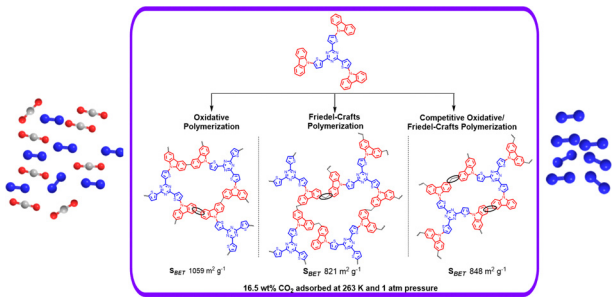

Thienyltriazine-based porous organic polymers with nitrogen rich moieties: synthesis and gas selectivity study

Neha Rani Kumar,* Prasenjit Das, Abhijeet R. Agrawal, Sanjay Kumar Mandal* and Sanjio S. Zade*

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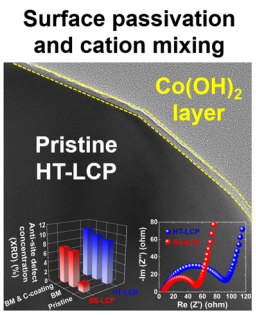

Surface and bulk defect formation during hydrothermal synthesis of $LiCoPO_4$ crystals and their electrochemical implications

Moohyun Woo, Jinhyuk Lee and George P. Demopoulos*

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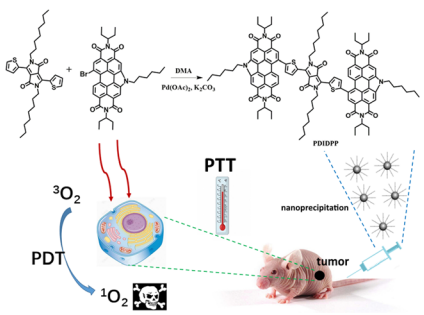

Synthesis of a new photosensitizer for photodynamic and photothermal synergistic cancer therapy

Jun Deng,* Xiaohua Xia, Hua Yuan, Zhiqiang Chen, Xin Jiang, Dengfeng Zou* and Qiang Wang*

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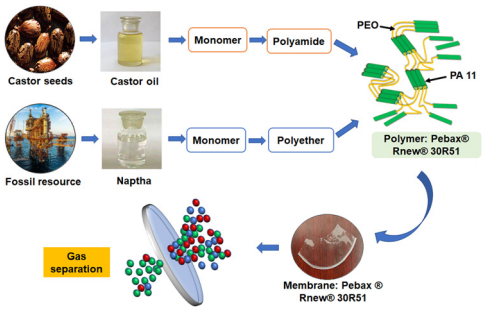
Synthesis and characterization of a high-performance bio-based Pebax membrane for gas separation applications

R. Surya Murali,* Amit Jha, Aarti, Swapnil Divekar and Soumen Dasgupta



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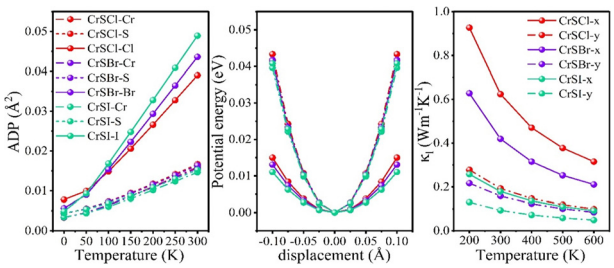
Ultralow thermal conductivity and anharmonic rattling in two-dimensional CrSX (X = Cl, Br, I) monolayers

Xiaowei Xuan, Zhaoyu Yang, Rui Du, Yimeng Zhao, Yuli Yan, Chang Liu, Hang Li and Guangbiao Zhang*



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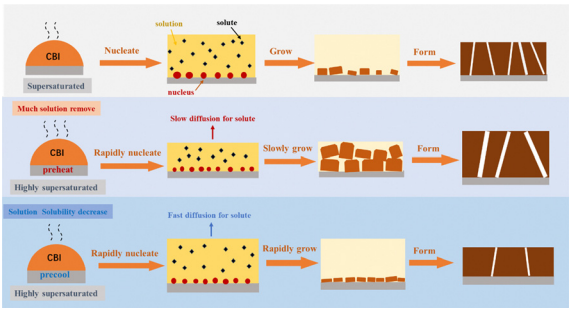
Cold- and hot-casting to regulate the morphology and charge carrier dynamics of $CsBi_3I_{10}$ towards efficient and stable thin-film solar cells

Xuejiao Wu, Peiyao Dong, Li Yang* and Jinbao Zhang*



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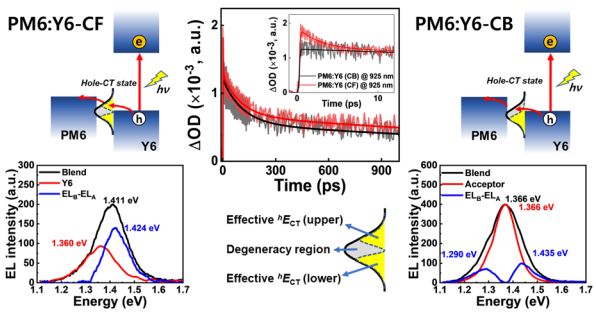
Impact of solvent-induced morphological changes on the hole transfer dynamics during a charge separation process

Dongchan Lee, Chang-Mok Oh, Jiho Ryu, Sung-Yeon Jang, In-Wook Hwang* and Shinuk Cho*



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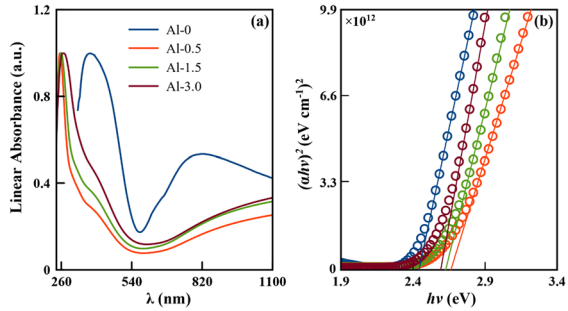

Layer hybridized exciton–plasmon resonances for enhanced dispersion modes in CuS:Al nanostructured films

Harkawal Singh, Sandeep Kumar, Thakur Sudesh Kumar Raunija and Praveen Kumar Sharma*

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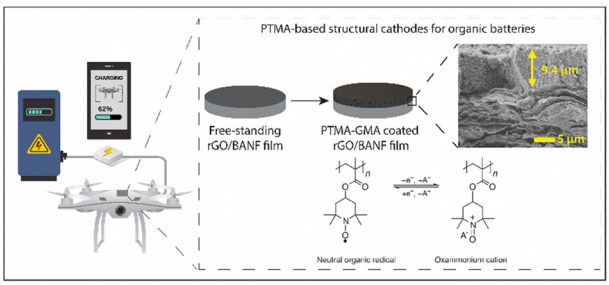

Structural organic battery cathodes comprised of organic redox active polymers, reduced graphene oxide, and aramid nanofibers

Suyash S. Oka, Ratul Mitra Thakur, Alexandra D. Easley, Micah J. Green and Jodie L. Lutkenhaus*

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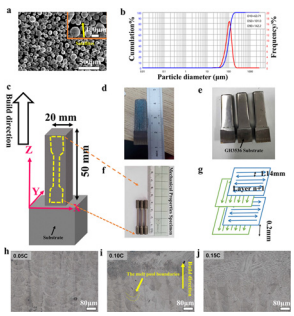

Influence of carbon additions on microstructures and mechanical properties in additive manufactured superalloys

Mingjun Xie, Yan Zhao,* Jianjun Guan, Yanhong Yang* and Yuting Fu

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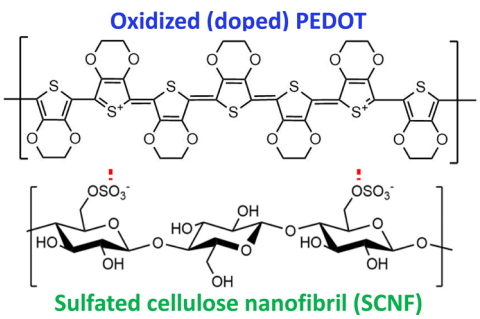

***In situ* polymerized PEDOT dispersions with sulfated cellulose nanofibrils for 1D and 2D conductors**

Benjamin Pingrey and You-Lo Hsieh*

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PAPERS

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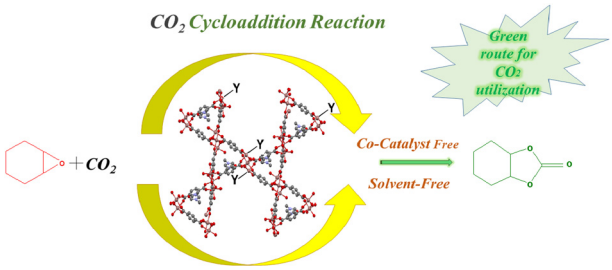
Dicyano-functionalized indium framework as a heterogeneous catalyst for CO_2 fixation in the absence of solvent and co-catalyst

Naghmeh Bayati and Saeed Dehghanpour*



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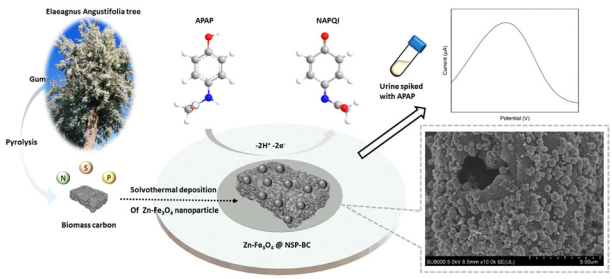
A Zn-doped Fe_3O_4 nanoparticle@N, S and P doped Elaeagnus angustifolia gum derived carbon hybrid electrocatalyst: synthesis, characterization and electrochemical sensing of acetaminophen

Xamxikamar Mamat, Zehong Gao and Longyi Chen*



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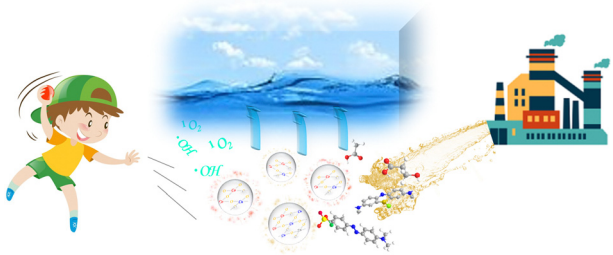
Enhanced catalytic activity of ZnO–CuO–Co_3O_4 composites achieved using a mechanochemical method for effective Fenton-like dye removal: the generation and catalytic mechanism of various superficial active sites

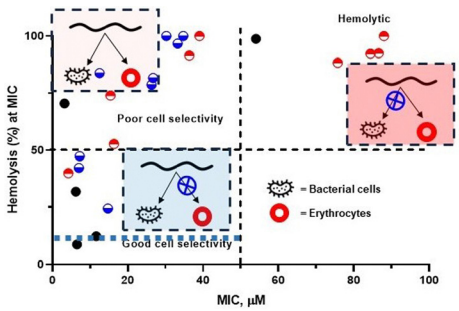
Xueping Li, Kangkang Miao, Sifan Guo, Nan Wang, Qian Zhuang, Huaming Qian, Xiaolin Luo* and Guodong Feng*



4954

Synthesis, characterization and cell selectivity of poly(quaternary ammonium chlorides): effect of the degree of quaternization and copolymer composition

Wendy Rusli, Periayah Mercy Halleluyah, Loh Xian Jun,* Rajamani Lakshminarayanan* and Anbanandam Parthiban*



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PAPERS

4965

A smart nanopaper sensor for optical diagnosis of *Helicobacter pylori* infection

Zeinab Asghari Adib, Amir Reza Sharifi, Mohammad Ali Kiani, Hossein Yousefi, Daniel Horák, Uliana Kostiv, Ali Nabavi-Rad, Abbas Yadegar, Mohammad Yaghoubi-Avini and Hamed Golmohammadi*

CORRECTION

4975

Correction: Rapid single step atmospheric pressure plasma jet deposition of a SERS active surface

Oliver S. J. Hagger, M. Emre Sener, Imran Khan, Francis Lockwood Estrin, Stefanos Agrotis, Albertus D. Handoko, Ivan P. Parkin and Daren J. Caruana*

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