

# RSC Applied Interfaces

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## IN THIS ISSUE

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**Cover**  
See Leila F. Deravi *et al.*, pp. 1591–1598.  
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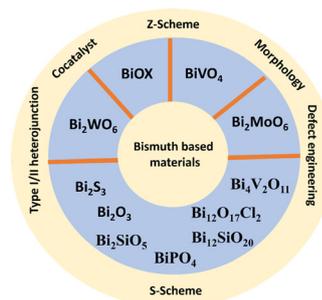
**Inside cover**  
See Hiroaki Suzuki *et al.*, pp. 1599–1606.  
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## REVIEWS

1507

### Recent advances in interface engineering of bismuth-based materials for photocatalytic CO<sub>2</sub> reduction

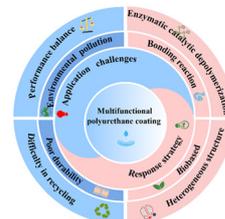
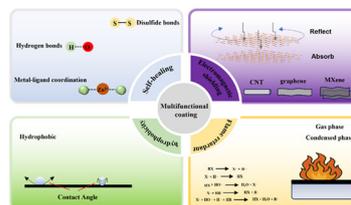
Swetha S. M. Bhat\* and Girish Kumar S.



1527

### Current states and future challenges of multifunctional flame-retardant polyurethane coatings

Xingyao Li, Kangcheng Xu, Jiangtao Wu, Ye-Tang Pan,\* Xiangmei Li, Jiyu He\* and Rongjie Yang





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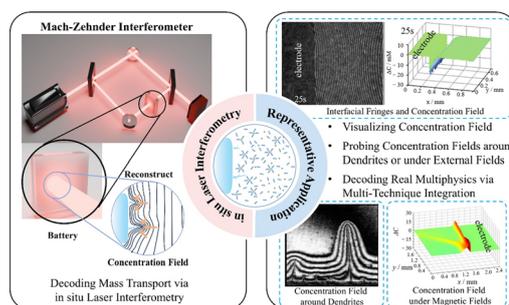


## REVIEWS

1537

Decoding mass transport in electrochemical systems via *in situ* laser interferometry

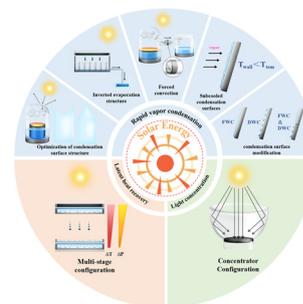
Junshuo Lian, Zhongxi Zhao,\* Jianwen Yu, Jiangfeng Huang, Yaoming Leng and Peng Tan\*



1558

## Research progress in enhanced water production strategies for solar-driven interface evaporation

Hang Su, Shanbin Zhang, Limei Li, Youdong Wang, Qing Xu, Xiang Li\* and Jitian Song\*



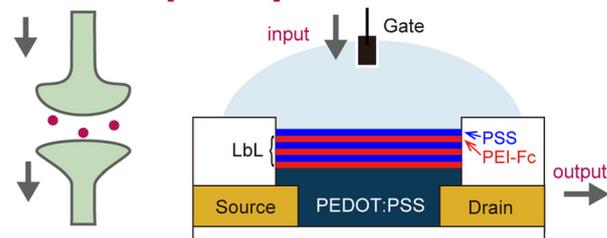
## COMMUNICATION

1586

## Voltage-dependent time constants for neuromorphic organic electrochemical transistor applications

Shunsuke Yamamoto,\* Nanako Kanazumi and Masaya Mitsuishi

## Voltage-Dependent Neuromorphic Operation

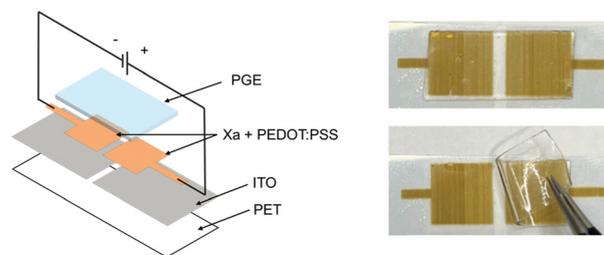


## PAPERS

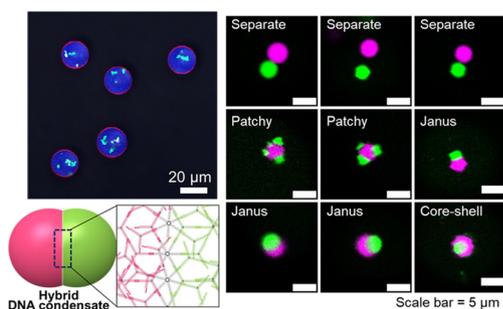
1591

## Enhanced colour modulation in printed electrochromic pixels via optimization of a polymer gel electrolyte

Taehwan Kim, Patrick A. Sullivan, Jack Twiddy, Kaila Peterson, Lasanthi Sumathirathne, Kirstie M. K. Queener, Michael Daniele and Leila F. Deravi\*



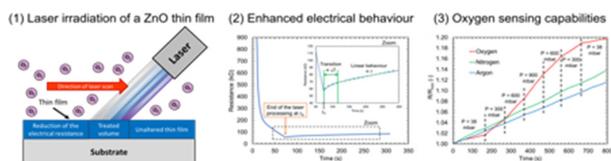
1599



### Formation dynamics of patchy/Janus DNA condensates in monodisperse giant vesicles generated using microfluidics

Ryotaro Yoneyama, Ryota Ushiyama, Tomoya Maruyama, Reiko Sato, Mamiko Tsugane, Masahiro Takinoue and Hiroaki Suzuki\*

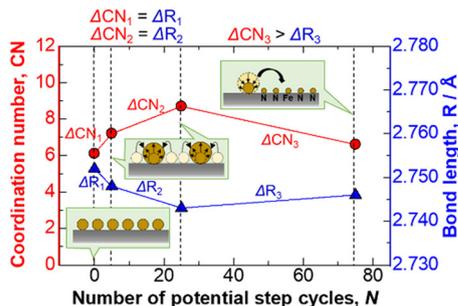
1607



### Laser annealing of transparent ZnO thin films: a route to improve electrical conductivity and oxygen sensing capabilities

A. Frechilla, J. Frechilla, L. A. Angurel,\* F. Toldrá-Reig, F. Balas, E. Martínez, G. F. de La Fuente and D. Muñoz-Rojas\*

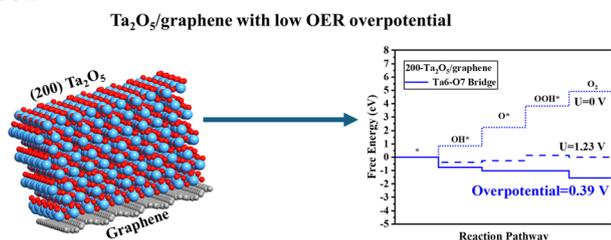
1621



### Sustainable activation of the PtCl<sub>n</sub>/Fe-N-C cathode for PEFCs through repeated subnanometer sizing and coarsening

Hiroshi Yano\*

1631



### Facet- and graphene-support-dependent activity of Ta<sub>2</sub>O<sub>5</sub> for oxygen evolution reaction

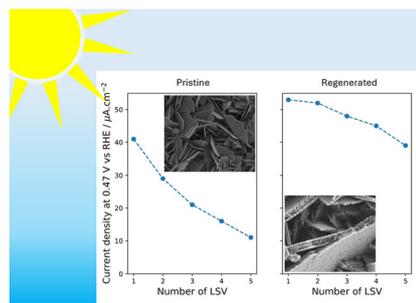
Ebrahim Ghasemy, Ana C. Tavares\* and Kulbir K. Ghuman\*



1642

## Photoelectrochemical degradation and regeneration of $\text{Ca}_2\text{Fe}_2\text{O}_5$ photocathodes

Louise De Cian, María Isabel Díez-García, Benjamin Goldman and Kevin Sivula\*

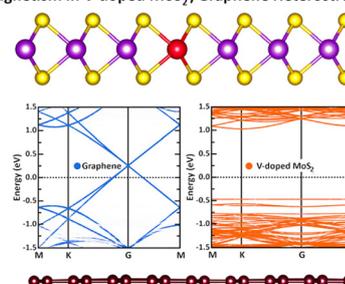


1650

## Interface magnetism in vanadium-doped $\text{MoS}_2$ /graphene heterostructures

Diem Thi-Xuan Dang, Yen Thi-Hai Pham, Da Zhou, Dai-Nam Le, Mauricio Terrones, Manh-Huong Phan\* and Lilia M. Woods\*

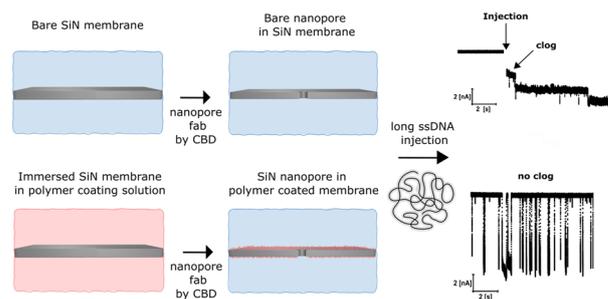
Magnetism in V-doped  $\text{MoS}_2$ /Graphene Heterostructures



1661

## Unraveling clogging of solid-state nanopores by selective polymer coating: surface potential measurements and sensing of long single stranded DNA

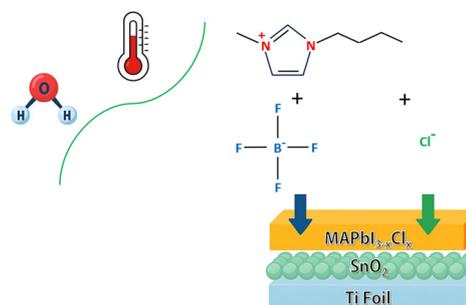
Mohamed Yassine Bouhamidi, Zachary Roelen and Vincent Tabard-Cossa\*



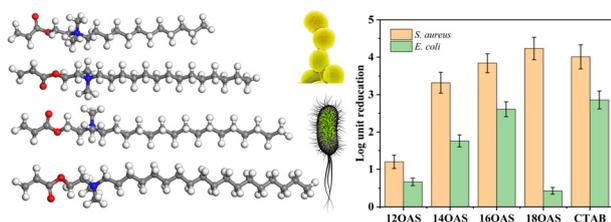
1674

## Ionic liquid-modified perovskite films for enhanced solar cell stability

Udit Tiwari,\* Jordan Cole, Zheshen Li, Alex Walton, Liam P. Dwyer, Ben F. Spencer, Sergey Zlatogorsky and Karen L. Syres\*



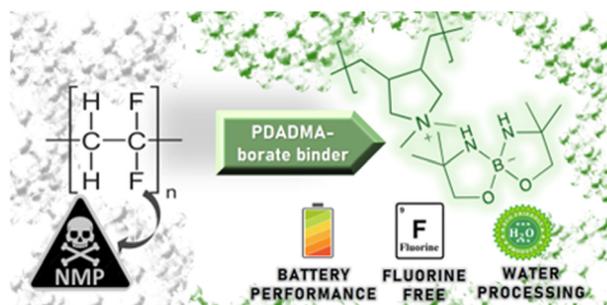
1690



### Quaternary ammonium surfactants: synthesis, characterization and antibacterial performance

Cailing Li, Jinlu Zhong, Yanan Weng, Sensen Xie, Shuang Li and Dinghua Yu\*

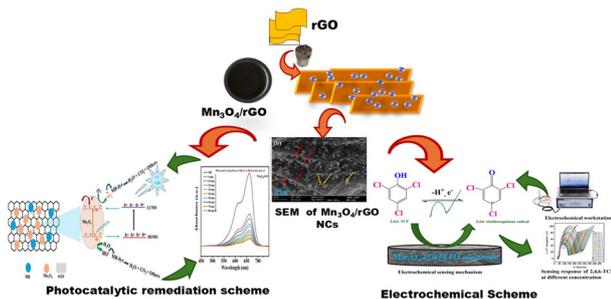
1702



### Water-soluble fluorine-free poly(ionic liquid)borate binders for Li-ion battery cathodes

Haris Amir, Ana Clara Rolandi, Gabriele Lingua, Maria Forsyth, Małgorzata Swadźba-Kwaśny, John D. Holbrey,\* David Mecerreyes and Nerea Casado\*

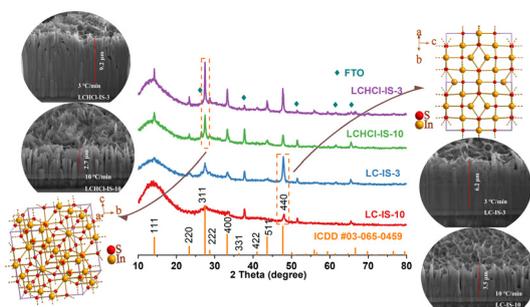
1715



### Nanoengineered Mn<sub>3</sub>O<sub>4</sub>/rGO electrophotocatalyst with dual functionality for detection of 2,4,6-trichlorophenol and degradation of methylene blue dye in environmental monitoring and cleanup

Diksha Singh, Anshu Kumar Singh, Ranjana Verma and Jay Singh\*

1734



### Tailoring the crystallographic orientation and thickness of indium sulfide thin films for enhanced photoelectrochemical water splitting

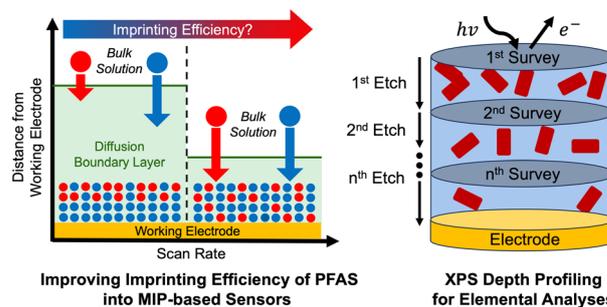
Xiuru Yang, Arthur Graf, Hong Chang, Yongde Xia, Asif Ali Tahir\* and Yanqiu Zhu\*



1747

## Role of the diffusion boundary layer in the molecular imprinting of PFAS in poly(*ortho*-phenylenediamine) toward improving MIP-based sensors

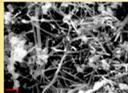
Cameron S. Malloy, Matthew J. Danley, Daniel A. Bellido-Aguilar, Logan E. Chung and Suchol Savagatrup\*



1758

## Sustainable carbon-metal oxide composites from waste sources: synthesis, characterization, and mechanical properties

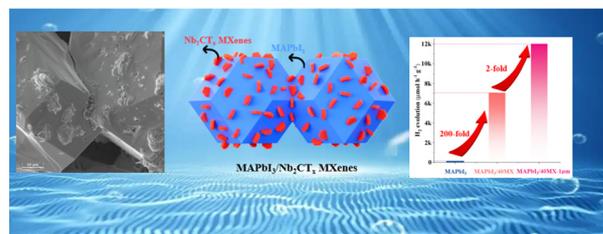
Subhabrata Senapati, Sharmistha Anwar, Vijay Singh Parihar,\* Rama Kanta Layek, P. K. Patra and Mrityunjy Mahato\*

Towards Light Weight Composite		
Materials	Elastic Modulus (GPa)	Density Normalized Elastic Modulus (GPa g <sup>-1</sup> cm <sup>3</sup> )
 MO-CNT Composite	10.19 - 23.31	4.22 - 9.66
 Steel	210	26.81

1770

## Modulation of the photocatalytic activity of MAPbI<sub>3</sub> crystals via Nb<sub>2</sub>CT<sub>x</sub> MXenes for high-efficiency photocatalytic hydrogen production

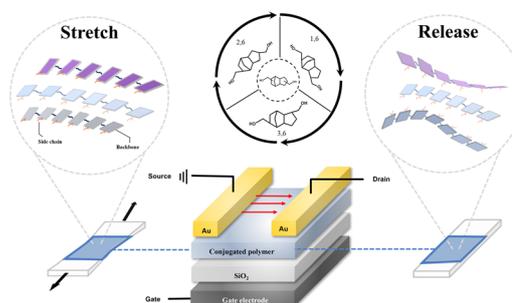
Ruiyan Sun, Lili Gao,\* Deng Li, Hua Wang, Fan Yang, Jin Wang, Ke Hao, Haijiao Xie and Ping Hu\*



1784

## N-type semiconducting polymers with an improved isotropic mobility-stretchability stability by using structural isomers as conjugation break spacers

Ming-Han Chen, Yu-Chun Huang, Fu-En Szu, Jung-Yao Chen, Man-kit Leung and Yan-Cheng Lin\*



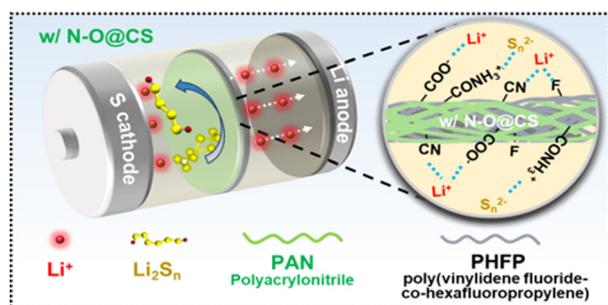
1799



### Novel Ca–Ti-modified alkali-activated metakaolin adsorbent: multimetal adsorption and regeneration mechanisms

M. Korhonen, A. T. Pikkarainen, T. Hu, V. Srivastava, H. Runtti, S. Tuomikoski and U. Lassi\*

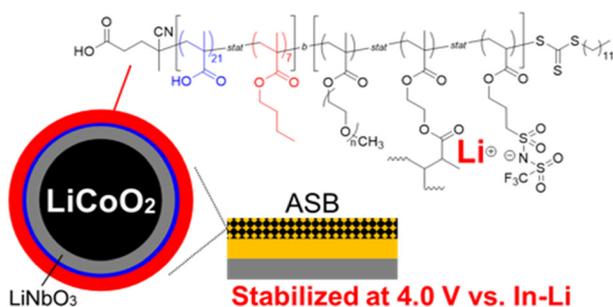
1811



### Functional separator with a nitrogen/oxygen-rich interlayer for enhancing performance of Li–S batteries

Ying Guo, Justin Zhong, Jin Liu\* and Wei-Hong Zhong\*

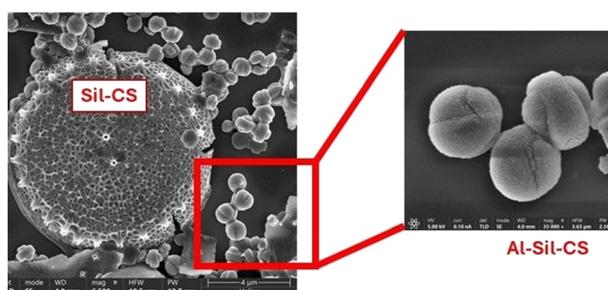
1821



### Dual modification of $\text{LiNbO}_3$ and a lithium-conducting organic polymer at $\text{LiCoO}_2/\text{Li}_{10}\text{GeP}_2\text{S}_{12}$ interface and lithium intercalation properties in all-solid-state lithium-ion batteries

Kenta Watanabe, Han-Seul Kim, Yohei Hasegawa, Steven W. Thompson, Thiago R. Guimarães, Ryoji Kanno, Per B. Zetterlund\* and Masaaki Hirayama\*

1829



### Biogenic transformation of marine diatoms into MFI-type aluminosilicate catalytic interfaces for selective etherification

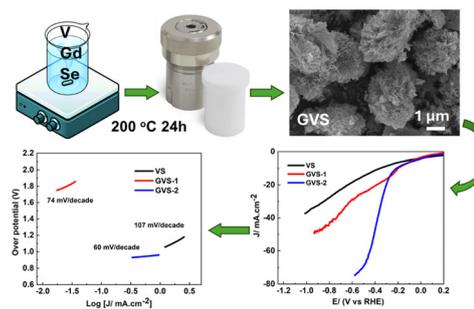
Nadia Tuada Afnan, Putri Ayunita Azahra, Novi Syahra Almunadya, Amila Laelalugina, Rino R. Mukti, Grandprix T. M. Kadja, Yanti Rachmayanti, Daquan Zhang, Aijie Liu, Zeily Nurachman, Didin Mujahidin\* and Rindia M. Putri\*



1838

### Hydrogen evolution reaction by Gd-doped transition metal dichalcogenide VSe<sub>2</sub> nanoflowers

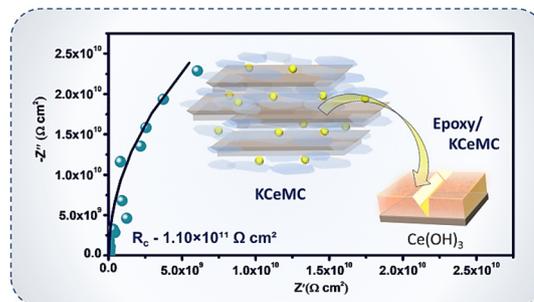
Abinash Parida, Banaja Dandasena and Ramakanta Naik\*



1850

### Synergistic effect of a one-pot synthesised kaolinite–cerium melamine cyanurate hybrid for an improved metal protective coating

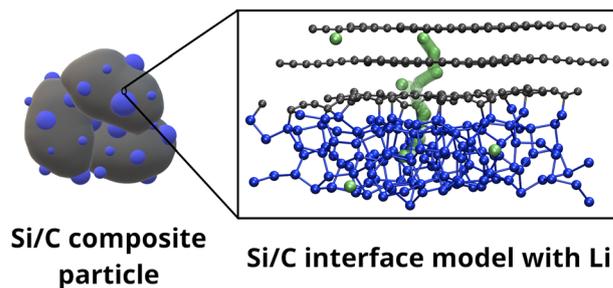
Nithyaa Jayakumar and Nishanth Karimbintherikkal Gopalan\*



1863

### Ab initio study of lithium diffusion at a layered carbon/amorphous silicon interface

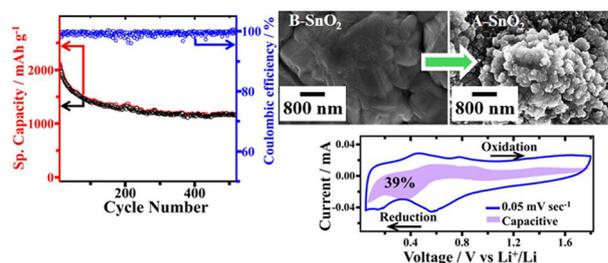
Christoph Kirsch and Daniel Sebastiani\*



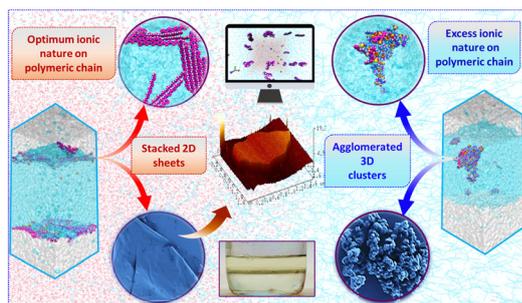
1877

### Tin-oxide-based binder-free lightweight nanostructured anode with high reversible capacity and cyclability for lithium-ion batteries, manifesting the interfacial effect

Adi Pratap Singh, Banadeep Dutta and Sudeshna Chattopadhyay\*



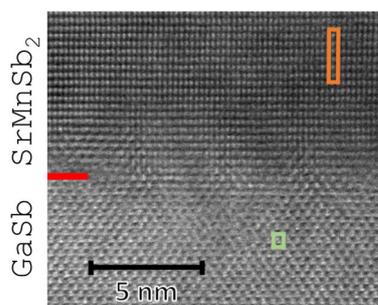
1889



### Insights from theory and experiments on the dynamics of controlled *in situ* polymerization of pyrrole at the liquid-liquid interface

Aiswarya Chandran, Hashima Madathingal, P. N. Bala Subramanian\* and Mini Mol Menamparambath\*

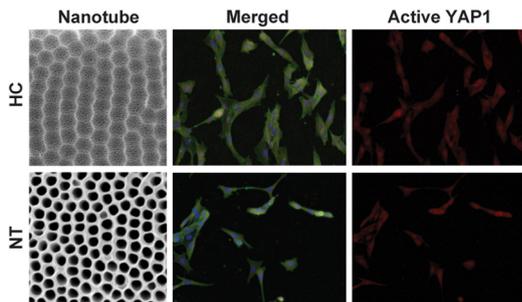
1903



### Interface effects in molecular beam epitaxy of SrMnSb<sub>2</sub> on InAs and GaSb: segregation and endotaxy

Thomas J. Rehaag, Ethan D. N. Dommett, Zhuo Yu, Hong Yi Cheng Lin, David Ironmonger, Yisong Han and Gavin R. Bell\*

1913



### Exploring the influence of anodization-derived nanotubular and honeycomb surfaces on the osteogenic behaviour of human MG63 osteoblastic cells

Ryan Berthelot and Fabio Variola\*

