

# Journal of Physics

## Condensed Matter

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### Featured in this issue

**Liquids, Soft Matter and Biological Physics**

### Topical Review

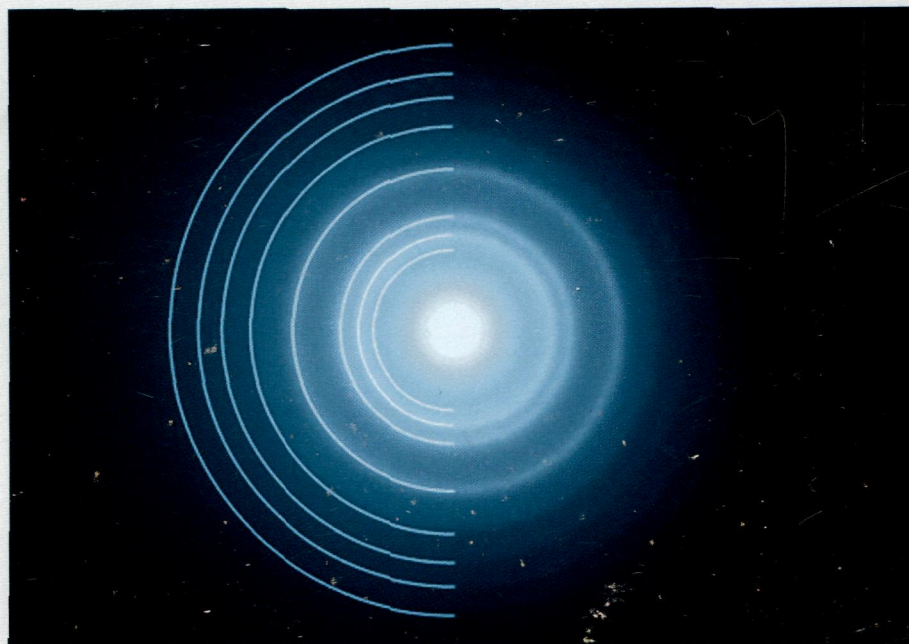
**Recent progress on patchy colloids and their self-assembly**

*Gi-Ra Yi, David J Pine and Stefano Sacanna*

### Special section

**Quantum dots in biology**

*Guest Editor: Marek Cieplak*



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### LIQUIDS, SOFT MATTER AND BIOLOGICAL PHYSICS FAST TRACK COMMUNICATION

- 192101 **The order of condensation in capillary grooves**  
Carlos Rascón, Andrew O Parry, Robert Nürnberg, Alessandro Pozzato, Massimo Tormen, Lorenzo Bruschi and Giampaolo Mistura

### LIQUIDS, SOFT MATTER AND BIOLOGICAL PHYSICS TOPICAL REVIEW

- 193101 **Recent progress on patchy colloids and their self-assembly**  
Gi-Ra Yi, David J Pine and Stefano Sacanna

### SPECIAL SECTION ON QUANTUM DOTS IN BIOLOGY

#### PREFACE

- 190301 **Quantum dots as probes in biology**  
Marek Cieplak

#### SPECIAL SECTION PAPERS

- 194101 **Luminescent nanoparticles and their applications in the life sciences**  
Varun K A Sreenivasan, Andrei V Zvyagin and Ewa M Goldys
- 194102 **Ferredoxin:NADP<sup>+</sup> oxidoreductase in junction with CdSe/ZnS quantum dots: characteristics of an enzymatically active nanohybrid**  
Krzysztof Szczepaniak, Remigiusz Worch and Joanna Grzyb
- 194103 **Spectroscopic studies of plasmon coupling between photosynthetic complexes and metallic quantum dots**  
Maria Olejnik, Bartosz Krajnik, Dorota Kowalska, Guanhua Lin and Sebastian Mackowski
- 194104 **Luminescence of colloidal ZnO nanoparticles synthesized in alcohols and biological application of ZnO passivated by MgO**  
Bożena Sikora, Krzysztof Fronc, Izabela Kamińska, Kamil Koper, Piotr Stępień and Danek Elbaum
- 194105 **Novel ZnO/MgO/Fe<sub>2</sub>O<sub>3</sub> composite optomagnetic nanoparticles**  
I Kamińska, B Sikora, K Fronc, P Dziawa, K Sobczak, R Minikayev, W Paszkowicz and D Elbaum
- 194106 **Impact of yttria stabilization on Tb<sup>3+</sup> intra-shell luminescence efficiency in zirconium dioxide nanopowders**  
S Yatsunenko, J Kaszewski, J Grzyb, I Pelech, M M Godlewski, E Mijowska, U Narkiewicz and M Godlewski

### LIQUIDS, SOFT MATTER AND BIOLOGICAL PHYSICS PAPERS

- 195101 **Hopping and diffusion of ultrasoft particles in cluster crystals in the explicit presence of a solvent**  
Marta Montes-Saralegui, Arash Nikoubashman and Gerhard Kahl
- 195102 **Effective isotropic potential for dipolar hard spheres**  
P I C Teixeira
- 195103 **Molecular dynamics simulations for the motion of evaporative droplets driven by thermal gradients along nanochannels**  
Congmin Wu, Xinpeng Xu and Tiezheng Qian
- 195104 **Dynamics of cluster formation in driven magnetic colloids dispersed on a monolayer**  
Sebastian Jäger, Holger Stark and Sabine H L Klapp
- 195105 **Growth kinetics of circular liquid domains on vesicles by diffusion-controlled coalescence**  
Kazuhiko Seki, Shigeyuki Komura and Sanoop Ramachandran

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## PAPERS

### NANOSTRUCTURES AND NANOELECTRONICS

- 195301** **Cross-type spectrum rearrangement in graphene with weakly bound impurity centres: an impurity band with anomalous dispersion**  
Yuriy V Skrypnyk and Vadim M Loktev
- 195302** **Optical second-harmonic generation from two-dimensional hexagonal crystals with broken space inversion symmetry**  
VI A Margulis, E E Muryumin and E A Gaiduk

### SOLID STRUCTURE AND LATTICE DYNAMICS

- 195401** **Short range order and stability of amorphous  $\text{Ge}_x\text{Te}_{100-x}$  alloys ( $12 \leq x \leq 44.6$ )**  
P Jívári, A Piarristeguy, R Escalier, I Kaban, J Bednarčík and A Pradel
- 195402** **Two-dimensional diffusion in  $\text{Li}_{0.7}\text{NbS}_2$  as directly probed by frequency-dependent  $^7\text{Li}$  NMR**  
V Epp, S Nakhal, M Lerch and M Wilkening

### ELECTRONIC STRUCTURE

- 195501** **Elastic anomalies in Fe–Cr alloys**  
Hualei Zhang, Guisheng Wang, Marko P J Punkkinen, Staffan Hertzman, Börje Johansson and Levente Vitos

### CORRELATED ELECTRONS

- 195601** **Evolution of magnetoelectric properties of Sc-diluted  $\text{TbMnO}_3$**   
V Cuartero, J Blasco, J García, J Stankiewicz, G Subías, J A Rodriguez-Velamazán and C Ritter

### SUPERCONDUCTORS AND METALS

- 195701** **A flat band at the chemical potential of a  $\text{Fe}_{1.03}\text{Te}_{0.94}\text{S}_{0.06}$  superconductor observed by angle-resolved photoemission spectroscopy**  
P Starowicz, H Schwab, J Goraus, P Zajdel, F Forster, J R Rak, M A Green, I Vobornik and F Reinert

### SEMICONDUCTORS

- 195801** **Strain- and electric field-induced band gap modulation in nitride nanomembranes**  
Rodrigo G Amorim, Xiaoliang Zhong, Saikat Mukhopadhyay, Ravindra Pandey, Alexandre R Rocha and Shashi P Karna

### MAGNETISM AND MAGNETIC MATERIALS

- 196001** **Carrier transport in the  $\text{V}[\text{TCNE}]_x$  (TCNE = tetracyanoethylene;  $x \sim 2$ ) organic-based magnet**  
Konstantin Pokhodnya, Michael Bonner, Vladimir Prigodin, Arthur J Epstein and Joel S Miller
- 196002** **Local electromagnetic properties of magnetic pnictides: a comparative study probed by NMR measurements**  
M Majumder, K Ghoshray, A Ghoshray, A Pal and V P S Awana
- 196003** **Magnetic and transport properties of  $\text{PrRhSi}_3$**   
V K Anand, D T Adroja and A D Hillier
- 196004** **Monte Carlo simulations of intragrain spin effects in a quasi-2D Heisenberg model with uniaxial anisotropy**  
M D Leblanc, J P Whitehead and M L Plumer
- 196005** **Formation of two-dimensionally confined superparamagnetic (Mn, Ga)As nanocrystals in high-temperature annealed (Ga, Mn)As/GaAs superlattices**  
Janusz Sadowski, Jaroslaw Z Domagala, Roland Mathieu, Andras Kovacs and Piotr Dłużewski