



INSTITUT DE CIÈNCIA DE  
MATERIALS DE BARCELONA

# ARTICLES IN JOURNALS

A large, abstract graphic composed of overlapping, semi-transparent geometric shapes in shades of blue and grey, creating a sense of depth and movement. The shapes are arranged in a way that suggests a path or a series of steps leading towards the right.

**2011**



**CSIC**

CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

# ARTICLES IN JOURNALS 2011

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ICMAB’s researchers published 228 articles in international scientific journals in 2011. In this report you can find them ordered by research sublines and ranked according their Impact Factor. Thirty of them belong to two sublines and are repeated in each one.

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# Articles in Journals 2011

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## 1. MATERIALS FOR INFORMATION SCIENCE AND ELECTRONICS

### 1.1 Nanostructured magnetic materials and novel functional oxides

1. Santander-Syro, A.F.; Copie, O.; Kondo, T.; Fortuna, F.; Pailhès, S.; Weht, R.; Qiu, X.G.; Bertran, F.; Nicolaou, A.; Taleb-Ibrahimi, A.; Le Fvre, P.; Herranz, G.; Bibes, M.; Reyren, N.; Apertet, Y.; Lecoeur, P.; Barthélémy, A.; Rozenberg, M.J.  
**Two-dimensional electron gas with universal subbands at the surface of SrTiO<sub>3</sub>**  
(2011) *NATURE*, 469, pp. 189-194
2. Caicedo, J.M.; Pasqu, O.; López-García, M.; Canalejas, V.; Blanco, A.; López, C.; Fontcuberta, J.; Roig, A.; Herranz, G.  
**Magnetophotonic response of three-dimensional opals**  
(2011) *ACS Nano*, 5, pp. 2957-2963
3. Fina, I.; Fàbrega, L.; Martí, X.; Sánchez, F.; Fontcuberta, J.  
**Chiral domains in cycloidal multiferroic thin films: Switching and memory effects**  
(2011) *Physical Review Letters*, 107
4. Skumryev, V.; Laukhin, V.; Fina, I.; Martí, X.; Sánchez, F.; Gospodinov, M.; Fontcuberta, J.  
**Magnetization reversal by electric-field decoupling of magnetic and ferroelectric domain walls in multiferroic-based heterostructures**  
(2011) *Physical Review Letters*, 106
5. Infante, I.C.; Juraszek, J.; Fusil, S.; Dupé, B.; Gemeiner, P.; Diéguez, O.; Pailloux, F.; Jouen, S.; Jacquet, E.; Geneste, G.; Pacaud, J.; Íñiguez, J.; Bellaiche, L.; Barthélémy, A.; Dkhil, B.; Bibes, M.  
**Multiferroic phase transition near room temperature in BiFeO<sub>3</sub> films**  
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7. Taboada, E.; Feldborg, L.N.; Pérez Del Pino, A.; Roig, A.; Amabilino, D.B.; Puigmartí-Luis, J.  
**Nanocomposites combining conducting and superparamagnetic components prepared via an organogel**  
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8. Chaix-Pluchery, O.; Cochard, C.; Jadhav, P.; Kreisel, J.; Dix, N.; Sánchez, F.; Fontcuberta, J.  
**Strain analysis of multiferroic BiFeO<sub>3</sub>-CoFe<sub>2</sub>O<sub>4</sub> nanostructures by Raman scattering**  
(2011) *Applied Physics Letters*, 99  
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**Domain matching epitaxy of ferrimagnetic  $\text{CoFe}_2\text{O}_4$  thin films on  $\text{Sc}_2\text{O}_3/\text{Si}(111)$**   
 (2011) *Applied Physics Letters*, 99
10. Gacevic, Z.; Fernández-Garrido, S.; Rebled, J.M.; Estradé, S.; Peiró, F.; Calleja, E.  
**High quality  $\text{InAlN}$  single layers lattice-matched to  $\text{GaN}$  grown by molecular beam epitaxy**  
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11. Pesquera, D.; Marti, X.; Holy, V.; Bachelet, R.; Herranz, G.; Fontcuberta, J.  
**X-ray interference effects on the determination of structural data in ultrathin  $\text{La}_{2/3}\text{Sr}_{1/3}\text{MnO}_3$  epitaxial thin films**  
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12. García-Muñoz, J.L.; Frontera, C.; Barón-González, A.J.; Valencia, S.; Blasco, J.; Feyerherm, R.; Dudzik, E.; Abrudan, R.; Radu, F.  
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**Distinct magnetism in ultrathin epitaxial  $\text{NiFe}_2\text{O}_4$  films on  $\text{MgAl}_2\text{O}_4$  and  $\text{SrTiO}_3$  single crystalline substrates**  
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14. Valencia, S.; Konstantinovic, Z.; Schmitz, D.; Gaupp, A.; Balcells, L.; Martínez, B.  
**Interfacial effects in manganite thin films with different capping layers of interest for spintronic applications**  
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15. Pesquera, D.; Skumryev, V.; Sánchez, F.; Herranz, G.; Fontcuberta, J.  
**Magnetoelastic coupling in  $\text{La}_{2/3}\text{Sr}_{1/3}\text{MnO}_3$  thin films on  $\text{SrTiO}_3$**   
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16. Iliev, M.N.; Mazumdar, D.; Ma, J.X.; Gupta, A.; Rigato, F.; Fontcuberta, J.  
**Monitoring B-site ordering and strain relaxation in  $\text{NiFe}_2\text{O}_4$  epitaxial films by polarized Raman spectroscopy**  
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17. Fàbrega, C; Andreu, T.; Güell, F.; Prades, J.D.; Estradé, S.; Rebled, J.M.; Peiró, F.; Morante, J.R.  
**Effectiveness of nitrogen incorporation to enhance the photoelectrochemical activity of nanostructured  $\text{TiO}_2$ :  $\text{NH}_3$  versus  $\text{H}_2\text{-N}_2$  annealing**  
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19. Kreisel, J.; Jadhav, P.; Chaix-Pluchery, O.; Varela, M.; Dix, N.; Sánchez, F.; Fontcuberta, J.  
**A phase transition close to room temperature in BiFeO<sub>3</sub> thin films**  
(2011) *Journal of Physics Condensed Matter*, 23
20. Paleo, A.J.; Martínez-Boubeta, C.; Balcells, L.; Costa, C.M.; Sencadas, V.; Lanceros-Mendez, S.  
**Thermal, dielectrical and mechanical response of  $\alpha$  and  $\beta$ -poly(vinylidene fluoride)/Co-MgO nanocomposites**  
(2011) *Nanoscale Research Letters*, 6, pp. 1-4
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22. Chen, D.-X.; Via, G.; Xu, F.-J.; Navau, C.; Sanchez, A.; Gu, H.-C.; Andreu, J.S.; Calero, C.; Camacho, J.; Farauto, J.  
**Waiting time dependence of T<sub>2</sub> of protons in water suspensions of iron-oxide nanoparticles: Measurements and simulations**  
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**CoFe<sub>2</sub>O<sub>4</sub>/buffer layer ultrathin heterostructures on Si(001)**  
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**A new approach for 3D reconstruction from bright field TEM imaging: Beam precession assisted electron tomography**  
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**Experimental study on T<sub>2</sub> relaxation time of protons in water suspensions of iron-oxide nanoparticles: Cases of composite nanospheres**  
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(2011) *Review of Scientific Instruments*, 82

29. Barón-González, A.J.; Frontera, C.; García-Muoz, J.L.; Rivas-Murias, B.; Blasco, J.  
**Effect of cation disorder on structural, magnetic and dielectric properties of  $\text{La}_2\text{MnCoO}_6$  double perovskite**  
(2011) *Journal of Physics Condensed Matter*, 23  
*Also included in line 4.1*
  
30. Snchez-Benítez, J.; Martínez-Lope, M.J.; Alonso, J.A.; García-Muoz, J.L.  
**Magnetic and structural features of the  $\text{NdNi}_{1-x}\text{Mn}_x\text{O}_3$  perovskite series investigated by neutron diffraction**  
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31. George, C.; Genovese, A.; Qiao, F.; Korobchevskaya, K.; Comin, A.; Falqui, A.; Marras, S.; Roig, A.; Zhang, Y.; Krahné, R.; Manna, L.  
**Optical and electrical properties of colloidal (spherical Au)-(spinel ferrite nanorod) heterostructures**  
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**Ultrathin conformal coating for complex magneto-photonic structures**  
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## 1.2 Semiconductors and molecular materials with electronic, opto-electronic and magnetic functionalities

33. Mas-Torrent, M.; Rovira, C.  
**Role of molecular order and solid-state structure in organic field-effect transistors**  
(2011) *Chemical Reviews*, 111, pp. 4833-4856
  
34. Simão, C.; Mas-Torrent, M.; Veciana, J.; Rovira, C.  
**Multichannel molecular switch with a surface-confined electroactive radical exhibiting tunable wetting properties**  
(2011) *Nano Letters*, 11, pp. 4382-4385  
*Also included in line 3.1*
  
35. Ferenczi, T.A.M.; Müller, C.; Bradley, D.D.C.; Smith, P.; Nelson, J.; Stingelin, N.  
**Organic semiconductor: Insulator polymer ternary blends for photovoltaics**  
(2011) *Advanced Materials*, 23, pp. 4093-4097  
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36. Hou, L.; Wang, E.; Bergqvist, J.; Andersson, B.V.; Wang, Z.; Müller, C.; Campoy-Quiles, M.; Andersson, M.R.; Zhang, F.; Inganäs, O.  
**Lateral phase separation gradients in spin-coated thin films of high-performance polymer: Fullerene photovoltaic blends**  
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37. Heinrich, D.; Goñi, A.R.; Smessaert, A.; Klapp, S.H.L.; Cerioni, L.M.C.; Osán, T.M.; Pusiol, D.J.; Thomsen, C.  
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 (2011) *Physical Review Letters*, 106
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**Electron-withdrawing substituted tetrathiafulvalenes as ambipolar semiconductors**  
 (2011) *Chemistry of Materials*, 23, pp. 851-861
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40. Canevet, D.; Pérez Del Pino, A.; Amabilino, D.B.; Sallé, M.  
**Varied nanostructures from a single multifunctional molecular material**  
 (2011) *Journal of Materials Chemistry*, 21, pp. 1428-1437  
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**Enhanced fano resonance in asymmetrical Au:Ag heterodimers**  
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45. Otón, F.; Pfattner, R.; Oxtoby, N.S.; Mas-Torrent, M.; Wurst, K.; Fontrodona, X.; Olivier, Y.; Cornil, J.; Veciana, J.; Rovira, C.  
**Benzodicarbomethoxytetrathiafulvalene derivatives as soluble organic semiconductors**  
 (2011) *Journal of Organic Chemistry*, 76, pp. 154-163

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**The role of alkane dithiols in controlling polymer crystallization in small band gap polymer: Fullerene solar cells**  
(2011) *Journal of Polymer Science, Part B: Polymer Physics*, 49, pp. 717-724  
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47. Cabanillas-Gonzalez, J.; Peña-Rodríguez, O.; Suarez Lopez, I.; Schmidt, M.; Alonso, M.I.; Goñi, A.R.; Campoy-Quiles, M.  
**Organic position sensitive photodetectors based on lateral donor-acceptor concentration gradients**  
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**Effects of pulsed laser radiation on epitaxial self-assembled Ge quantum dots grown on Si substrates**  
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**Enhanced plasmonic behavior of bimetallic (Ag-Au) multilayered spheres**  
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(2011) *Journal of the American Ceramic Society*, 94, pp. 3780-3786
51. Simão, C.; Mas-Torrent, M.; Casado-Montenegro, J.; Otón, F.; Veciana, J.; Rovira, C.  
**A three-state surface-confined molecular switch with multiple channel outputs**  
(2011) *Journal of the American Chemical Society*, 133, pp. 13256-13259
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**Configuring Au and Ag nanorods for sensing applications**  
(2011) *Journal of the Optical Society of America B: Optical Physics*, 28, pp. 714-720
53. Andersson, L.M.; Müller, C.; Badada, B.H.; Zhang, F.; Würfel, U.; Inganäs, O.  
**Mobility and fill factor correlation in geminate recombination limited solar cells**  
(2011) *Journal of Applied Physics*, 110
54. Campoy-Quiles, M.; Schmidt, M.; NassYROV, D.; Peña, O.; Goñi, A.R.; Alonso, M.I.; Garriga, M.  
**Real-time studies during coating and post-deposition annealing in organic semiconductors**  
(2011) *Thin Solid Films*, 519, pp. 2678-2681
55. György, E.; Pérez Del Pino, A.  
**Tunable optical and nano-scale electrical properties of WO<sub>3</sub> and Ag-WO<sub>3</sub> nanocomposite thin films**  
(2011) *Journal of Materials Science*, 46, pp. 3560-3567  
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**Effect of photovoltaic polymer/fullerene blend composition ratio on microstructure evolution during film solidification investigated in real time by X-ray diffraction**  
(2011) *Macromolecules*, 44, pp. 3795-3800  
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**In-situ X-ray study of drying temperature influence on the structural evolution of bulk heterojunction polymer-fullerene solar cells processed by doctor-blading**  
(2011) *Advanced Energy Materials*, 1, pp. 362-367  
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58. Puigmartí-Luis, J; Minoia, A; Lei, S; Geskin, V; Li, B; Lazzaroni, R; De Feyter, S; Amabilino, D.B  
**Self-assembly of supramolecular wires and cross-junctions and efficient electron tunnelling across them**  
(2011) *Chemical Science*, 2, pp. 1945-1951  
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**Photovoltaic response to structural modifications on a series of conjugated polymers based on 2-aryl-2H-benzotriazoles**  
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**Guided assembly of metal and hybrid conductive probes using floating potential dielectrophoresis**  
(2011) *Nanoscale*, 3, pp. 937-940  
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61. Canevet, D.; Pérez Del Pino, A.; Amabilino, D.B.; Sallé, M.  
**Boosting electrical conductivity in a gel-derived material by nanostructuring with trace carbon nanotubes**  
(2011) *Nanoscale*, 3, pp. 2898-2902

## 2. MATERIALS FOR ENERGY AND ENVIRONMENT

### 2.1 Superconducting materials and electrical power applications

62. Simão, C.; Mas-Torrent, M.; Crivillers, N.; Lloveras, V.; Artés, J.M.; Gorostiza, P.; Veciana, J.; Rovira, C.  
**A robust molecular platform for non-volatile memory devices with optical and magnetic responses**  
(2011) *Nature Chemistry*, 3, pp. 359-364
63. Calleja, A.; Granados, X.; Ricart, S.; Oró, J.; Arbiol, J.; Mestres, N.; Carrillo, A.E.; Palmer, X.; Cano, F.; Tornero, J.A.; Puig, T.; Obradors, X.  
**High temperature transformation of electrospun BaZrO<sub>3</sub> nanotubes into nanoparticle chains**  
(2011) *CrystEngComm*, 13, pp. 7224-7230  
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64. Gibert, M.; Abellán, P.; Martínez, L.; Román, E.; Crespi, A.; Sandiumenge, F.; Puig, T.; Obradors, X.  
**Orientation and shape selection of self-assembled epitaxial Ce<sub>1-x</sub>Gd<sub>x</sub>O<sub>2-y</sub> nanostructures grown by chemical solution deposition**  
(2011) *CrystEngComm*, 13, pp. 6719-6727  
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65. Agostinelli, T.; Ferenczi, T.A.M.; Pires, E.; Foster, S.; Maurano, A.; Müller, C.; Ballantyne, A.; Hampton, M.; Lilliu, S.; Campoy-Quiles, M.; Azimi, H.; Morana, M.; Bradley, D.D.C.; Durrant, J.; MacDonald, J.E.; Stingelin, N.; Nelson, J.  
**The role of alkane dithiols in controlling polymer crystallization in small band gap polymer: Fullerene solar cells**  
(2011) *Journal of Polymer Science, Part B: Polymer Physics*, 49, pp. 717-724  
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66. Abellán, P.; Moreno, C.; Sandiumenge, F.; Obradors, X.; Casanove, M.-J.  
**Misfit relaxation of La<sub>0.7</sub>Sr<sub>0.3</sub>MnO<sub>3</sub> thin films by a nanodot segregation mechanism**  
(2011) *Applied Physics Letters*, 98  
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67. Cobas, R.; Muñoz-Perez, S.; Cadogan, J.M.; Puig, T.; Obradors, X.  
**Magnetoresistance in epitaxial thin films of La<sub>0.85</sub>Ag<sub>0.15</sub>MnO<sub>3</sub> produced by polymer assisted deposition**  
(2011) *Applied Physics Letters*, 99  
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68. Abellán, P.; Sandiumenge, F.; Casanove, M.-J.; Gibert, M.; Palau, A.; Puig, T.; Obradors, X.  
**Interaction between solution derived BaZrO<sub>3</sub> nanodot interfacial templates and YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> films leading to enhanced critical currents**  
(2011) *Acta Materialia*, 59, pp. 2075-2082  
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**Decomposition processes and structural transformations of cerium propionate into nanocrystalline ceria at different oxygen partial pressures**  
(2011) *Journal of Nanoparticle Research*, 13, pp. 4085-4096  
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**Isotropic and anisotropic pinning in TFA-grown  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$  films with  $\text{BaZrO}_3$  nanoparticles**  
(2011) *Superconductor Science and Technology*, 24
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(2011) *Superconductor Science and Technology*, 24
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(2011) *Superconductor Science and Technology*, 24
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