



Main publications in the last five years made by using the laboratory

OPTICAL PROPERTIES LABORATORY

Complutense University at Madrid - Materials Physics Department

1. C. Guglieri, E. Céspedes, A. Espinosa, M.A. Laguna-Marco, N. Carmona, Y. Takeda, T. Okane, T. Nakamura, M. García-Hernández, M.A. García, J. Chaboy, Evidence of oxygen ferromagnetism in ZnO based materials, *Phys. Rev. Lett.* (2013) (under review)
2. C. Guglieri, A. Espinosa, N. Carmona, M.A. Laguna-Marco, E. Céspedes, M.L. Ruíz-González, J. González-Calbet, M. García-Hernández, M.A. García, J. Chaboy, Relationship between the magnetic properties and the formation of a ZnS/ZnO interface in S-capped ZnO nanoparticles and ZnS-ZnO thin films, *J. Phys. Chem. C* 117 (2013) 12199-12209
3. M. Abuín, A. Serrano, J. Chaboy, M.A. García, N. Carmona, XAS study of Mn, Fe and Cu as indicators of historical glass decay, *J. Anal. Atom. Spectrom.* 28 (2013) 1118-1124
4. N. Carmona, Corrosion of stained glass windows: applied study of Spanish monuments of different periods, in: *Modern methods for analysing archaeological and historical glasses*, Ed. K. Janssens, John Wiley & Sons, Ltd. (2012) 651-673
5. C. Guglieri, M.A. Laguna-Marco, M.A. Garcia, N. Carmona, E. Céspedes, M. García-Hernández, A. Espinosa, J. Chaboy, XMCD proof of ferromagnetic behaviour in ZnO nanoparticles, *J. of Phys. Chem. C* 116 (2012) 6608-6614
6. M. Abuín, A. Serrano, J. Llopis, M.A. García, N. Carmona, Silica doped sol-gel thin films for corrosion protection, *Thin Solid Films*, 520 (2012) 5267-5271
7. E. Enríquez, M.A. García, N. Carmona, J.F. Fernández, M.A. de la Rubia, Quinine doped hybrid sol-gel coatings for wave guiding and optical applications, *J. Sol-Gel Sci. Technol.* 62 (2012) 324-332
8. M.A. Garcia, V. Bouzas, N. Carmona, Influence of stirring in the synthesis of gold nanorods, *Materials Chemistry and Physics* 127 (2011) 446 – 450
9. N. Carmona, M. Oujja, H. Roemich, M. Castillejo, Laser cleaning of 19th century Congo rattan mats, *Applied Surface Science* 257 (2011) 9935-9940
10. J. Chaboy, R. Boada, C. Piquer, M. A. Laguna-Marco, M. García-Hernández, N. Carmona, J. Llopis, M. L. Ruíz-González, J. González-Calbet, J. F. Fernández, M. A. García, Evidence of intrinsic magnetism in capped ZnO nanoparticles, *Physical Review B* 82 (2010) 064411
11. N. Carmona, V. Bouzas, F. Jiménez, M. Plaza, L. Pérez, M.A. García, M.A. Villegas, J. Llopis, Cobalt (II) environment characterization in sol-gel thermochromic sensors, *Sens. Actuators B: Chem* 145 (2010) 139-145
12. N. Carmona, I. Ortega-Feliu, B. Gómez-Tubío, M.A. Villegas, Advantages and disadvantages of PIXE/PIGE, XRF and EDX spectrometries applied to archaeometric characterisation of glasses, *Materials Characterization* 61 (2010) 257 – 267



13. N. Carmona, A. Kowal, JM. Rincon, MA. Villegas, AFM assessment of the surface nano/microstructure on chemically damaged historical and model glasses, *Materials Chemistry and Physics* 119 (2010) 254–260
14. Marisol S. Martin-González, Miguel A. García, Israel Lorite, José L. Costa-Krämer, Fernando Rubio-Marcos, N. Carmona, José F. Fernández, A Solid-State Electrochemical Reaction as the Origin of Magnetism at Oxide Nanoparticle Interfaces, *Journal of The Electrochemical Society* 157 (3) (2010) 31-35
15. R. Montoya, V. Barranco, N. Carmona, J.C. Galván, A Mathematical Model to Study the Effect of Different Variables on the Potential Distribution in a Damaged Metal/Organic Coating System Using FEM, *ECS Transactions* 24 (1) (2010) 101-113
16. V. Barranco, N. Carmona, M.A. Villegas, J.C. Galván, Tailored Sol-Gel Coatings as Environmentally Friendly Pre-treatments for Corrosion Protection, *ECS Transactions* 24 (1) (2010) 277-290
17. M. A. García, F. Jiménez-Villacorta, A. Quesada, J. de la Venta, N. Carmona, I. Lorite, J. Llopis, and J. F. Fernández, Surface Magnetism in ZnO/Co₃O₄ mixtures, *Journal of Applied Physics* 107 (2010) Nº 043906
18. M.A. García, V. Bouzas, and N. Carmona, Synthesis of Gold Nanorods for Biomedical Applications, *BONSAI Project Symposium: Breakthroughs in nanoparticles for Bio-imaging*. Ed. by E. Borsella, American Institute of Physics (2010) 84-87
19. N. Carmona, V. Bouzas, J. Jiménez de la Morena, M. A. García, Miniaturized Devices For Au Nanorods Detection, *BONSAI Project Symposium: Breakthroughs in nanoparticles for Bio-imaging*. Ed. by E. Borsella, American Institute of Physics (2010) 158-161
20. Barranco, V., Carmona N., Galvan JC., Grobelny M., Kwiatkowski L., Villegas MA., Electrochemical study of tailored sol-gel thin films as pre-treatment prior to organic coating for AZ91 magnesium alloy, *Progress in Organic Coatings* 68 (4) (2010) 347-355
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22. N. Carmona, M.A. Villegas, P. Jiménez, J. Navarro, M. García-Heras, Islamic glasses from Al-Andalus. Characterisation of materials from a Murcian workshop (12th century AD, Spain), *J. Cult. Heritage* 10 (3) (2009) 439-445
23. N. Carmona, K. Wittstadt, H. Römich, Consolidation of paint on stained glass windows: comparative study and new approaches, *J. Cult. Heritage* 10 (3) (2009) 403-409
24. N. Carmona, M. García-Heras, M.A. Villegas, Nuevas estrategias en el estudio arqueométrico de vidrios históricos, *La investigación sobre Patrimonio Cultural*. Ed. C. Sáiz-Jiménez, M.A. Rogelio-Candelera. Sevilla, 2008, p. 49-66



25. N. Carmona, E. Herrero-Hernández, J. Llopis, M.A. Villegas, Novel sol-gel reversible thermochromic materials for environmental sensors, *J. Sol-Gel Sci. Technol.* 47 (2008) 31-37
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28. N. Carmona, E. Herrero, J. Llopis, M.A. Villegas, Environmental optical sol-gel sensors for preventive conservation of Cultural Heritage, Proceedings of the 7th International congress Lacona: Lasers in the Conservation of Artworks. Madrid, 17-21 Sept. 2007. *Lasers in the Conservation of Artworks* (2008) 483-488
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30. N. Carmona, M.A. Villegas, M.A. Castellanos, I. Montero, M. García-Heras, Análisis de vidrios romanos del yacimiento de la Dehesa de la Oliva (Patones, Madrid), VII Congreso Ibérico de Arqueometría, S. Rovira et al. (eds.) CSIC, Madrid (2008) 319-328