

Curriculum vitae

Personal Data

Name: Maria Margarida Cruz

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Education

Margarida Cruz graduated in Physics from the University of Lisboa, Portugal in 1983 and got her PhD in Physics, from the University of Lisboa, Portugal in 1989– in the subject of Nuclear Physics techniques applied to Solid State Studies, and more specifically of Perturbed Angular Correlations studies of implanted oxides. She got the habilitation (“Agregação”) in 2010 from the same University.

Work Experience

Margarida Cruz works in Universidade de Lisboa since 1984, as Assistant and Assistant Professor in the Physics Department of Universidade de Lisboa becoming Associate Professor in 2013. During this period she has coordinated more than 15 different courses and oriented 7 MSc and 3 PhD students. She was coordinator of the 1st cycle of Physics from 2009 to 2012.

Scientific Track Record

She is member of the Biosystems and Integrative Sciences Institute (BioISI) from Faculdade de Ciências da Universidade de Lisboa in the group of MagNano. Integrated in this research group, she was directly involved in twelve research projects, her main contribution being on experimental studies of magnetic materials with electrical related properties using ac magnetic susceptibility, magnetization and electrical resistivity. She has coordinated a project in nanostructured magnetic nitrides in the last three years and is now involved in a research project to produce and study magnetic nanoparticles for magnetic hyperthermia to be used in cancer therapy. She has co-authored 80 papers in international scientific reviews and about 90 communications to scientific conferences.

Scientific interests

Her main interests are in the experimental study of the electronic properties of materials, mainly in the interplay between structure/composition and electronic states and its influence in magnetic and transport properties. Recently she has studied oxides (TiO₂ e ZnO) implanted with magnetic ions (Co,Ni,Fe), and perovskite structured materials, aiming the search for magnetoresistive properties or magnetic semiconducting behaviour, and is now very much involved in the study of magnetic nanoparticles.

Selected Publications (15):

1. M.M. Cruz, R.C. da Silva, N. Franco, M. Godinho, "Ferromagnetism induced in rutile single crystals by argon and nitrogen implantation", *J.Phys.: Condens. Matter.* 21 (2009) 206002
DOI: 10.1088/0953-8984/21/20/206002
2. S.Sério, L.C.J.Pereira, M.M.Cruz, M. Godinho, J.C.Waerenborgh, "Dynamic susceptibility study of $\text{YFe}_x\text{Al}_{12-x}$ ($4 \leq x \leq 5$)", *J.Alloys and Compounds* 477 (2009) 23
DOI: 10.1016/j.jallcom.2008.10.068
3. C. Silva, A.R.G. Costa, M.M. Cruz, R. C. da Silva, R P Borges, L.C.Alves, M. Godinho, "Nitrogen and argon doped zinc oxide", *J.Phys.: Condens. Matter.* 22 (2010) 346005
DOI: 10.1088/0953-8984/22/34/346005
4. R.P. Borges, B. Ribeiro, A.R.G. Costa, C. Silva, R.C. da Silva, G. Evans, A.P. Gonçalves, M.M. Cruz, M. Godinho, "Magnetic and transport properties of transition-metal implanted ZnO single crystals", *Eur. Phys. J. B* 79 (2011) 185
DOI: DOI:10.1140/epjb/e2010-10512-3
5. M.M. Cruz, R.P. Borges, M. Godinho C.S. Marques, E. Langa, A.P.C. Ribeiro, M.J.V. Lourenco, F.J.V. Santos, C.A.N. de Castro, M. Macatrao, M. Tariq, J.M.S.S. Esperanca, J.N.C. Lopes, C.A.M. Afonso, L.P.N. Rebelo, "Thermophysical and magnetic studies of two paramagnetic liquid salts: $[\text{C}(4)\text{mim}][\text{FeCl}_4]$ and $[\text{P}-66614][\text{FeCl}_4]$ ", *Fluid Phase Equilibria* 350 (2013) 43-50
DOI: 10.1016/j.fluid.2013.03.001
6. M.M. Cruz, R.C. da Silva, J.V. Pinto, R.P. Borges, N. Franco, A. Casaca, E. Alves, M. Godinho, "Formation of oriented nickel aggregates in rutile single crystals by Ni implantation", *J. Magn. Magn. Mater.* 340 (2013) 102-108
DOI: 10.1016/j.jmmm.2013.03.032
7. M.D. Carvalho, F. Henriques, L.P. Ferreira, M.M. Godinho, M.M. Cruz, "Iron oxide nanoparticles: the Influence of synthesis method and size on composition and magnetic properties", *J. Solid State Chemistry* 201 (2013) 144-152
DOI: 10.1016/j.jssc.2013.02.024 
8. A.R.G. Costa, R.C. da Silva, L.P. Ferreira, M.D. Carvalho, C. Silva, N. Franco, M. Godinho, M.M. Cruz, "Formation of oriented nitrides by N^+ ion implantation in iron single crystals", *J. Magn. Magn. Mater.* 350 (2014) 129–134
DOI:10.1016/j.jmmm.2013.09.039

9. M.B. Lourenço, M.D. Carvalho, P. Fonseca, T. Gasche, G. Evans, M. Godinho, M.M. Cruz, "Stability and magnetic properties of cobalt nitrides", *Journal of Alloys and Compounds* 612 (2014) 176–182
DOI: 10.1016/j.jallcom.2014.05.048
10. C. Silva, A. Vovk, R.C. da Silva, P. Strichovanec, P.A. Algarabel, A.P. Gonçalves, R.P. Borges, M. Godinho, M.M. Cruz, "Magnetic properties of Co–N thin films deposited by reactive sputtering", *Thin Solid Films* 556 (2014) 125–127
DOI: 10.1016/j.tsf.2014.01.019
11. C. Silva, A.R.G.Costa, R.C.daSilva, L.C.Alves, L.P.Ferreira, M.D.Carvalho, N. Franco, M.Godinho, M.M.Cruz, "Magnetic and electrical characterization of TiO₂ single crystals co-implanted with iron and cobalt", *J. Magn. Magn. Mater.* 364 (2014) 106–116
DOI: 10.1016/j.jmmm.2014.04.022
12. M. M. Cruz, L. P. Ferreira, J. Ramos, S. G. Mendo, A. F. Alves, M. Godinho, M. D. Carvalho, "Enhanced magnetic hyperthermia of CoFe₂O₄ and MnFe₂O₄ nanoparticles", *Journal of Alloys and Compounds*, 703 (2017) 370-380
DOI: 10.1016/J.JALLCOM.2017.01.297
13. C. Marcuello; L. Chambel; M. S. Rodrigues; L. P. Ferreira; M. M. Cruz, "Magnetotactic Bacteria: Magnetism Beyond Magnetosomes", *IEEE Transactions on NanoBioscience* 17 (2018) 555-559
DOI: 10.1109/TNB.2018.2878085
14. A. Barra, Z. Alves, N. M. Ferreira, M. A. Martins, H. Oliveira, L. P. Ferreira, M. M. Cruz, M. D. Carvalho, S. M. Neumayer, B. J. Rodriguez, C. Nunes, P. Ferreira, "Biocompatible chitosan-based composites with properties suitable for hyperthermia therapy", *Journal of Materials Chemistry B* 8 (2020) 1256-1265
DOI: 10.1039/C9TB02067E
15. J. Wells, D. Ortega, U. Steinhoff, S. Dutz, E. Garaio, O.Sandre, E. Natividad, M.M. Cruz, F. Brero. P.Southern, Q.A. Pankhurst, S. Spassov, "Challenges and recommendations for magnetic hyperthermia characterization measurements", *International Journal of Hyperthermia* 38(1) (2021) 447–460
DOI: 10.1080/02656736.2021.1892837
16. H. Jalili, B. Aslibeiki, A. Hajalilou, O. Musalu, L.P. Ferreira, M.M. Cruz, "Bimagnetic hard/soft and soft/hard ferrite nanocomposites: Structural, magnetic and hyperthermia properties", *Ceramics International* 48(4) (2022) 4886–4896
DOI: 10.1016/j.ceramint.2021.11.02

