

2nd International Meeting for Researchers in Materials and Plasma Technology 2013

Journal of Physics: Conference Series Volume 466

**Bucaramanga, Colombia
27 February - 2 March 2013**

Editors:

Ely Dannier V-Nino

**ISBN: 978-1-62993-445-7
ISSN: 1742-6588**

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© by the Institute of Physics
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

012001 Modifying the Growth Morphology of Aluminum Crystals by Magnetic Mirror in a Thermal Plasma Reactor	1
<i>G Torrente, J Puerta, N Labrador, A Molina</i>	
012002 Differences Between Thin Films Deposition Systems in the Production Transition Metal Nitride.....	5
<i>J H Quintero, A Mariño, P J Arango</i>	
012003 Synthesis and Evaluation of MgF₂ Coatings by Chemical Conversion on Magnesium Alloys for Producing Biodegradable Orthopedic Implants of Temporary Use.....	9
<i>P Y Casanova, K J Jaimes, N J Parada, C A Hernández-Barrios, M Aparicio, F Viejo, A E Coy</i>	
012004 Preparation and Characterization of Fe₂O₃ Nanoparticles	13
<i>M R Joya, J Barón-Jaimez, J Barba-Ortega</i>	
012005 Nitrogen Implantation Into Steel Wire Coated with Zinc Used As Reinforcement in Power Transmission Conductors	17
<i>J J Castro-Maldonado, H J Dulcé-Moreno, E D V-Niño</i>	
012006 Industrial Applications of Thermal Sprayed Coatings in Venezuelan Steelmaking Industry.....	20
<i>S Liscano, E Nuñez, L Gil, R Zerpa</i>	
012007 The Technique of Raman Spectroscopy in the Characterization Physical, Chemical and Structural Ferroelectric of the Materials.....	24
<i>M R Joya, J Barón-Jaimez, J Barba-Ortega</i>	
012008 Performance of Air Plasma Spraying Parameters in the Fabrication of ZrO₂-10%Y₂O₃-18% TiO₂ Thermal Barrier Coatings	28
<i>S Liscano, L Gil</i>	
012009 Aluminum-silicon Co-deposition by FB-CVD on Austenitic Stainless Steel AISI 316	33
<i>J L Marulanda, F J Pérez, A Remolina-Millán</i>	
012010 Study of the Structural and Electronic Properties of YC Using DFT: The True Ground State is a NiAs-like Structure	36
<i>G P Abdel-Rahim, J A Rodríguez, M G Moreno-Armenta</i>	
012011 Synthesis of Hybrid Sol-gel Coatings for Corrosion Protection of we54-ae Magnesium Alloy	40
<i>C A Hernández-Barrios, N Z Duarte, L M Hernández, D Y Peña, A E Coy, F Viejo</i>	
012012 Development of Cellulose-polypyrrole Microfiber Membranes and Assessment of Their Capability on Water Softening	43
<i>C Barrera, A Arrieta, N Escobar, P Gañan, C Castro</i>	
012013 Comparative Study Between Structural and Electrical Properties of Geopolymers Applied to a Green Concrete	48
<i>A M Montaño, C P González, J Pérez, C Royero, D Sandoval, J Gutiérrez</i>	
012014 Effect of Coatings Obtained by Sputtering of Chromium Catode on the Corrosion Resistance of AISI H13 Steel	52
<i>A Sandoval, D Peña, U Piratoba</i>	
012015 Temporary Spectral Analysis of a Laser Plasma of Mineral Coal.....	54
<i>P Rebollo, P Pacheco, R Sarmiento, R Cabanzo, E Mejía-Ospino</i>	
012016 Correlation Between the OES Plasma Composition and ZnMn Films Properties During Pulsed Laser	58
<i>H Riascos, D Ramírez, J Uzurriga</i>	
012017 Preparation of Dental Amalgam and Spectral Diagnosis of Mercury in Plasmas-laser in the Region of 250 nm – 850 nm	63
<i>A De La Ossa, P Pacheco, R Sarmiento</i>	
012018 Breast Phantom for Mammary Tissue Characterization by Near Infrared Spectroscopy	67
<i>D A Miranda, K L Cristiano, J C Gutiérrez</i>	
012019 Optically Induced Birefringence in a Azopolymer Based on the Phenomenon of Photo-isomerization	70
<i>E Mercado-Gutiérrez, S Valbuena-Duarte, F Racedo-Niebles</i>	
012020 Conducting Polymers Doped with a Mineral Phase: Structural and Electrical Study	74
<i>C P González, A M Montaño, S Estrada, C Ortiz</i>	
012021 Single Crystal Substrates Effect on the Critical Behavior in La_{2/3}Ca_{1/3}MnO₃ Thin Films	78
<i>J Pino, O Arnache, J Osorio, L Tirado</i>	

012022 Analysis of Magnetic and Structural Properties in La_{0.6}Sr_{0.4}MnO₃ Ferromagnetic Particles Under the Influence of Mechanical Ball Milling Effect	82
<i>G Campillo, A Gil, O Arnache, J J Beltrán, J Osorio, G Sierra</i>	
012023 Anodic Stripping Voltammetry – ASV for Determination of Heavy Metals.....	86
<i>J Barón-Jaimez, M R Joya, J Barba-Ortega</i>	
012024 Structural Characterization of Mineral with Rutile Inclusions (TiO₂) and Manganocolumbite (MnNb₂O₆) by Means of X-ray	90
<i>J F Arcila, A F Hincapíe</i>	
012025 Bismuth Electrodes, An Alternative in Stripping Voltammetry	94
<i>J Barón-Jaimez, M R Joya, J Barba-Ortega</i>	
012026 Exciton Complexes in Impurity Doped Quantum Ring.....	98
<i>L Porras, I Mikhailov</i>	
012027 Dirichlet Boundary Condition for the Ginzburg-landau Equations.....	102
<i>J Barba-Ortega, J Barón-Jaimez, M R Joya</i>	
012028 Effect of Potential Shape and Height on the Density of the Impurity States in Nanotube with Two Quantum Wells.....	106
<i>J D González, J Barba-Ortega, F Rondano</i>	
012029 Pillars and Pinning Centers in Superconducting Prisms.....	110
<i>J Barba-Ortega, J Barón-Jaimez, M R Joya</i>	
012030 Density of States for a Light-hole Exciton in a Microtube of GaAs/AlGaAs with Two Quantum Well and Different Potential Shape: Theoretical Model.....	113
<i>A D Barrios, J Barba-Ortega, JD González</i>	
012031 Comparison of Mechanical Behavior Between Implant-simulated Bone Tissue and Implant-jaw Bone Tissue Interfaces Based on Pull Out Testing	117
<i>C Lopez, J C Muñoz, J C Pinillos</i>	
012032 Optimization of the Bamboo Guadua Angustifolia Kunth in the Elaboration of Glued Laminated Elements for Constructive Use	121
<i>G A Díaz, R A Cruz, A M Chávez</i>	
012033 Characterization and Design of Asphalt Mixtures with Asphaltites from Boyacá for Use in Low Traffic Volume Roads	125
<i>R Manrique-Espindola</i>	
012034 Analysis of the Use of Coal Tar As a Binder in Bituminous Mixtures, Using Marshall and Ramcodes Methodologies	130
<i>R Ochoa-Díaz</i>	
012035 Determination of Stress Concentration Factors on Flat Plates of Structural Steel	134
<i>A Santos</i>	
012036 Design and Construction of an Impulse Turbine	139
<i>E Hernández</i>	
012037 Preparation and Characterization of Masonry Units, Lightweight Concrete Based and Agro-industrial Wastes: A Review	143
<i>C X Díaz-Fuentes</i>	
012038 Characterization of Materials Formed by Rice Husk for Construction.....	146
<i>A M Portillo-Rodríguez</i>	
Author Index	