

# **5th International Conference of Magnetic and Superconducting Materials 2007**

**(MSM 07)**

**Khiva, Uzbekistan  
25 – 30 September 2007**

ISBN: 978-1-61782-971-0

**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© (2007) by The Quantum Matter Group, Cavendish Laboratory

All rights reserved.

Printed by Curran Associates, Inc. (2011)

For permission requests, please contact The Quantum Matter Group, Cavendish Laboratory at the address below.

Quantum Matter Group  
Cavendish Laboratory  
C/O Montu Saxena  
University of Cambridge  
Cambridge CD3 0HE, U.K.

Phone: 441-223-337-351

Fax: 441-223-337-351

Sss21@cam.ac.uk

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

<b>Ab Initio Plane Wave Self Consistent Study of the Electronic Dispersion for Grapheme and a (5, 5) SWCNT</b> .....	1
<i>B Khoshnevisan, Z S Tabatabaeian</i>	
<b>Carriers' Lifetimes in An Impure Ferromagnetic Domain Wall</b> .....	7
<i>M Ghanaatshoar, V Fallahi, M M Tehranchi, A Phirouznia</i>	
<b>Ce Substitution for Gd in <math>Gd_{1-x}Ce_xBa_2Cu_3O_{7-\delta}</math></b> .....	11
<i>S Mofakham, S Mirshamsi, M Mazaheri, M Akhavan</i>	
<b>Comparative Study of YBCO Powder Prepared By Sol-Gel &amp; Solid State Reaction Processes</b> .....	15
<i>S. Barekat Rezaee, S. Dadras, V. Daadmehr, H. Naghshara</i>	
<b>Critical Currents and Fields of Disordered Nanograins Superconductors</b> .....	21
<i>H. Yavary, M. A. Shahzamanian, H. Rabbani</i>	
<b>Deviation of Order Parameter of S-Wave Superconducting Nano-Grain in Quantum Tunneling Process: Coupling Constant Effects</b> .....	25
<i>R. Afzali, N. Ebrahimiyan, A. T. Rezakhani</i>	
<b>Double-Superconducting Transition in Ferromagnetic superconducting <math>RuGd_{1.5}Ce_{0.5-x}Pr_xSr_2Cu_2O_{10}</math> Compounds</b> .....	30
<i>N Nikseresht, A Khajehnezhad, H Hadipour, M Akhavan</i>	
<b>Effect of Inhomogeneous Mechanical Tensions on Domain Structure of Iron Borate</b> .....	34
<i>S R Boydedaev, D R Djuraev, B Yu Sokolov, M Z Sharipov</i>	
<b>Effect of Mg Doping on <math>Bi_{1.66}Pb_{0.34}Sr_2Ca_2Cu_3O_y</math> Superconductor</b> .....	43
<i>P Kameli, H Salamati, I Abdolhosseini, D. Sohrabi</i>	
<b>Electrical and Magnetic Properties of <math>Ru(Gd_{1.5-x}Pr_x)Ce_{0.5}Sr_2Cu_2O_{10-\delta}</math></b> .....	48
<i>A Khajehnezhad, N Nikseresht, H Hadipour, M Akhavan</i>	
<b>Electronic and Structural Properties of <math>MX_3</math> (M=Th, U and X=Ga, Ge, Si, Al) Compounds</b> .....	52
<i>Z. Nourbakhsh</i>	
<b>Electronic Structure of <math>PrBa_2Cu_3O_7</math> Under High Pressure Based on LSDA+U Approach</b> .....	56
<i>H Abbaszadeh, A Tavana, M Akhavan</i>	
<b>Electronic Structures of <math>MgB_2</math> Under Plane Strain</b> .....	60
<i>M Hosseini, A Tavana, M Akhavan</i>	
<b>Electronic Structures of <math>PrBa_2Cu_3O_7</math> and <math>PrBa_2Cu_4O_8</math> Cuprates Based on LSDA+U Approach</b> .....	64
<i>M Shirazi, A Tavana, M Akhavan</i>	
<b>Electronic Transport in Nanomagnetic Structures with Two Barriers and Spin-Valve</b> .....	68
<i>Aslaninejad, Morteza,</i>	
<b>Electron-Phonon Interaction in Y-Based High-Tc Superconductors</b> .....	72
<i>H Khosroabadi, B Mossalla, M Akhavan</i>	
<b>Extrinsic Carrier Self-Trapping and Metal-Insulator Transitions in Doped High-Tc Cuprates</b> .....	76
<i>S. Dzhumanov, O. K. Ganiev, Z. S. Khudayberdiev</i>	
<b>Fermi Liquid Interactions and Relaxation Rate of Thermal Quasiparticles in a D-Wave Superconductor</b> .....	80
<i>M. A. Shahzamanian, H. Rabani, N. Salami, H. Yavary</i>	
<b>Fluctuations Near Quantum Critical Points of Valence Transition and Superconductivity</b> .....	84
<i>Shinji Watanabe</i>	
<b>Giant Magnetoimpedance and Ferromagnetic Resonance Studies of Nanostructured Finemet Alloys</b> .....	88
<i>M. M. Tehranchi, M. Ghanaatshoara, M. H. Khaksarana, M. Naderib, S. M. Mohsenia, M. K. Moravvej-Farshib</i>	
<b>Grand Canonical Monte Carlo Glauber Dynamics for Structural Transitions in <math>YBCO_x</math> (<math>0 &lt; x &lt; 1</math>)</b> .....	92
<i>B Khoshnevisan, S Beheshti</i>	
<b>Half Quantum Vortices and Majorana Fermions in Triplet Superconductors</b> .....	96
<i>H Y Kee, A Raghavan, K Maki</i>	
<b>Hall Effect and Sign Reversal in <math>Gd(Ba_{2-x}Nd_x)Cu_3O_{7+\delta}</math></b> .....	103
<i>M Taheri, S Fallahi, M Akhavan</i>	
<b>Heat Capacity of One-Dimensional <math>^3He</math> Quantum Fluid Formed in Nanopores</b> .....	107
<i>H. Yavary, M. A. Shahzamanian, H. Rabbani, M. Shahbazi</i>	
<b>High Pressure Study on the Strong-Coupling Superconductivity in Non-Centrosymmetric Compound <math>CeIrSi_3</math></b> .....	111
<i>Naoyuki Tateiwa, Yoshinori Haga, Tatsuma D. Matsuda, Shugo Ikeda, Etsuji Yamamoto, Yusuke Okuda, Yuichiro Miyouchi, Rikio Settai, Yoshichika Onuki,</i>	
<b>Influence of Ph to Fabricate Pure Nanosized YBCO Powder by Sol Gel Method</b> .....	127
<i>S. Barekat Rezaee, S. Falahati, F. Saeb, V. Daadmehr</i>	

<b>Investigation Of Nanostructures Forming in the Au(111) Target at the Bombardment By Noble Gaz Ion</b> .....	134
<i>U Kutliev</i>	
<b>Liquid-Phase Epitaxy of Solid Solutions (Sn<sub>2</sub>)<sub>x</sub>(Insb)<sub>1-x</sub> on Gaas Substrate</b> .....	138
<i>M. S. Saidov, A. S. Saidov, U. P. Asatova, Sh. K. Ismoilov</i>	
<b>Localization of 5f Electrons in PuSn<sub>3</sub> and PuPd<sub>3</sub> Compounds</b> .....	143
<i>Seyyed Mahdy Baizae</i>	
<b>Magnetic Properties of Inhomogeneously Tensioned Single Crystal Febo<sub>3</sub></b> .....	147
<i>S R Boydedaev, D R Djuraev, B Yu Sokolov, M Z Sharipov</i>	
<b>Magnetoresistance of HTSC Ceramics at Different Doping Levels</b> .....	154
<i>B Yu Sokolov, R R Vildanov, E M Ibragimova</i>	
<b>Modeling of Lateral C-V Dependence of Coaxial MOSFET with Built-In Charge in Oxide Layer</b> .....	157
<i>A E Atamuratov</i>	
<b>One Analytical Formulation for the Characteristics of the Asymmetric Nquids and DC SQUIDS</b> .....	161
<i>M. A. Shahzamanian, M. Eatesami, H. Yavary</i>	
<b>Optical and Magneto-optical Researches of the Symmetry of Electronic States in TbAlO<sub>3</sub></b> .....	165
<i>Uygun V. Valiev, Abdulla A. Uzokov, Sh. A. Rakhimov, John B. Gruber, Dhiraj K. Sardar, Gary W. Burdick</i>	
<b>Optimum Galois Field Circuit Design Through Carbon Nano Tube Technology</b> .....	169
<i>P. Keshavarzian, Keiven Navi</i>	
<b>Penetration Depth of FFLO D-Wave Superconductors in Additional Magnetic Field at Zero Temperature: Nonlocal Effect Analysis</b> .....	174
<i>R. Afzali,</i>	
<b>Persistent Photoconductivity in GaMnAs and GaMnAs:MnAQs Granular Films Grown Via Molecular Beam Epitaxy</b> .....	178
<i>P B Parchinskiy, A Yu Bobylev, S I Vlasov, A A Nasirov, Fu Cheng Yu</i>	
<b>Possibility of Formation of Continuous Solid Solutions Based on Semiconductors and Fe(Co, Ni)-V, Fe(Co, Ni)-VI Compounds</b> .....	182
<i>M. S. Saidov</i>	
<b>Preparation of MnZn Nanoferrite Via Mechanochemical Processing</b> .....	189
<i>M. J. Nasr Isfahani, M. Myndyk, V. Sepelák, J. Amighian, M. Mozaffari</i>	
<b>Pressure Dependence of the Fermi Energy, Band Gap and Electric Field Gradient of ZnS Compound</b> .....	193
<i>M. Mostajaboddavati, Z. Nourbakhsh</i>	
<b>Pseudogap Phenomena, Quantum Criticality and High-T<sub>c</sub> Superconductivity in Hole-Doped Cuprates</b> .....	197
<i>S Dzhumanov, T Khaydarov, Sh S Djumanov</i>	
<b>Quantum and Classic Galvanomagnetic Effects in Crystals with Thyroidal Dependence of Dispersion</b> .....	201
<i>D. R. Djuraev, P. Kh. Musaev</i>	
<b>Rare-Earth Substitution in High Temperature Superconductor R123</b> .....	205
<i>P. Maleki, M. Mirzadeh, M. Akhavan</i>	
<b>Set of Quantum Phase Transitions in High-T<sub>c</sub> Cuprates</b> .....	209
<i>M M Korshunov, S G Ovchinnikov</i>	
<b>Spectra and Bound States of the Energy Operator of Two-Magnon System in a Non-Heisenberg Ferromagnet with Arbitrary Spin Values S and Nearest-Neighbour Interactions</b> .....	213
<i>S. M. Tashpulatov</i>	
<b>Superconductivity in Y<sub>1-x</sub>Tb<sub>x</sub>Sr<sub>2</sub>Cu<sub>2.7</sub>M<sub>0.3</sub>O<sub>7-δ</sub></b> .....	226
<i>S Mirshamsi, S Mofakham, S Fallahi, M Akhavan</i>	
<b>Synthesis of Nanocrystalline Iron Oxide By Reverse Micelle Technique and its Characterization</b> .....	229
<i>H Arabi, S Sadeghi, S Nateghi</i>	
<b>Synthesis of Nio Nanoparticles Embedded in Sio<sub>2</sub></b> .....	233
<i>H Arabi, F Mashayekhi</i>	
<b>The Effect of Anisotropy Distribution on the MI Profile</b> .....	237
<i>M Ghanaatshoar, M M Tehranchi, S Aliaskarisohi, N Nabipour</i>	
<b>The Effect of MgO Doping on the Structure, Magnetic and Magnetotransport Properties of La<sub>0.8</sub>Sr<sub>0.2</sub>MnO<sub>3</sub> Composite</b> .....	241
<i>M Eshraghi, P Kameli, H Salamati</i>	
<b>The Effect of Tb Addition on the YBCO Structure Through the Raman and XRD Analysis</b> .....	245
<i>S Mozaffari, M Akhavan</i>	
<b>The Effects of Carbon Nano Filaments (CNT &amp; CNF) Doping on High Temperature Superconductors Y-123</b> .....	249
<i>S. Dadras, V. Daadmehr</i>	
<b>Thermal, Transport and Magnetic Properties of Ni<sub>54</sub>Fe<sub>19</sub>Ga<sub>27</sub> Single Crystal</b> .....	253
<i>A. N. Vasiliev, T. M. Vasilchikova, T. N. Voloshok, K. V. Klimov, Yu. I. Chumlyakov, O. Heczko, S. Fähler</i>	

<b>Thermodynamic and Kinetic Properties of <math>\text{Yb}_{1-x}\text{Ce}_x\text{InCu}_4</math> (<math>X = 0, 0.2</math>)</b> .....	257
<i>T. N. Voloshok, N. V. Mushnikov, V. V. Pryadun, A. N. Vasiliev</i>	
<b>Unstability of the Fulde-Ferrell State in a D-Wave Superconductor By Calculating the Magnetic Penetration Depth at Low Temperatures</b> .....	261
<i>H. Rabani, M. A. Shahzamanian, H. Yavary</i>	
<b>Vanadium Doping and Intergranular Magnetic-Field Effects in <math>\text{GdBa}_2\text{Cu}_3\text{O}_{7-\delta}</math></b> .....	265
<i>H. Javanmard, S. Bazargan, M. Akhavan</i>	
<b>Author Index</b>	