

The 9th Asia-Pacific Workshop on Materials Physics

SCIENTIFIC PROGRAM

December 13, 2010, Monday

08h00 – 08h30: Registration

08h30 - 09h00: Openings (P. Fulde, N.V. Hieu and S. Maekawa)

Chair: Y. Bang

09h00 - 09h25 I - 1 Non-phononic Interactions and Superconductivity

P. Fulde

Asia Pacific Center for Theoretical Physics, Pohang, Korea

09h25 - 09h50 I - 2 New superconductors recently developed by our group

Jun Akimitsu

AOYAMA-GAKUIN University

09h50 - 10h15 I - 3 Spin Current, Charge Current and Heat Current in Magnetic Nanostructures

Sadamichi Maekawa

Advanced Science Research Center, Japan Atomic Energy Agency, Tokai 319-1195, Japan Japan Science and Technology Agency, CREST, Tokyo 102-0075, Japan

Coffee Break (30')

Chair: T. Tohyama

10h45 - 11h10 I - 4 Electron-hole symmetry in the spin excitations of FeAs-based superconductors

Pengcheng Dai

UT/ORNL/IOP

11h10 - 11h35 I - 5 Real-Time Dynamics of Correlated Electronic Systems

Naoto Nagaosa
Dept. Applied Physics, The University of Tokyo

11h35 - 12h00 I - 6 Optical spectroscopy study on Fe-pnictides

Nan Lin Wang
Institute of Physics, Chinese Academy of Sciences, Beijing, China

12h00 - 12h25 I - 7 Volovik effect in the +/-s-wave state for the iron-based superconductors

Yunkyu Bang
Chonnam National University, Kwangju, Korea

Lunch

Chair: T. Xiang

14h00 - 14h25 I - 8 Photoemission studies of detwinned iron-pnictides: Band structures and Dirac cones

Changyoung Kim
Institute of Physics and Applied Physics, Yonsei University

14h25 - 14h50 I - 9 STM/STS studies on iron-based superconductors

Tetsuo Hanaguri
Magnetic Materials Laboratory, RIKEN Advanced Science Institute, 2-1 Hirosawa, Wako, Saitama 351-0198, JAPAN

14h50 - 15h15 I - 10 Electronic and Magnetic Properties in the Antiferromagnetic Metallic Phase of Iron Pnictide Superconductors

Takami Tohyama
Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto 606-8502, Japan

Coffee Break (30')

Chair: M. Mori

15h45 - 16h10 I - 11 Quasiparticle tunneling in a nanocontact system under bias

Jongbae Hong

Department of Physics and Astronomy, Seoul National University

16h10 - 16h35 I - 12 Topological order in Classical Systems

Tai Kai Ng

Hong Kong University of Science and Technology, Hong Kong

16h35 - 17h00 I - 13 Optimizing Hartree-Fock orbitals by the density-matrix renormalization group

H.-G. Luo, M.-P. Qin, T. Xiang

*Institute of Physics, Chinese Academy of Sciences
Institute of Theoretical Physics, Chinese Academy of Sciences*

Chair: N.H. Quang

**17h00 - 18h00 P - 1 Influence of Phonon Confinement on Absorption
Influence of Phonon Confinement on Absorption
Power and Line-Widths in Rectangular Quantum
Wires**

Le Dinh, Le Quoc Anh and Tran Cong Phong

Department of Physics, Hue University's College of Education 32 Le Loi, Hue, Vietnam

**P - 2 First-principles investigations of the dielectric
properties of Silicon Nitride films**

T. Anh Pham (1), Tianshu Li (1), Francois Gygi (2,3) and Giulia Galli (1,4)

(1) Department of Chemistry, University of California Davis

(2) Department of Applied Science, University of California Davis

(3) Department of Computer Science, University of California Davis

(4) Department of Physics, University of California Davis

P - 3 Light Absorption by excitons in bilayer parabolic quantum dots

Nguyen Hong Quang and Nguyen Duong Bo
Institute of Physics, VAST, 10 Dao Tan, Ba Dinh, Hanoi, Vietnam

P - 4 Dirac electrons under a tunable potential barrier in graphene.

Tran Nguyen Dung, Nguyen Hai Chau
Institute of Physics, VAST

P - 5 Mechanism of Solidification of Vitreous GeO₂ Nanoparticles

Tran Phuoc Duy, Vo Van Hoang
Department of Physics, Institute of Technology, HoChiMinh city National University 268 Ly Thuong Kiet Street, District 10, HoChiMinh City-Vietnam

P - 6 Structural properties of simulated liquid GaAs

Tran Thi Thu Hanh, Vo Van Hoang
Department of Applied physics, Institute of Technology National University of Hochiminh City 268 Ly Thuong Kiet Str., Distr. 10, Hochiminh City, Vietnam

P - 7 Calculations of pressure dependence of EXAFS cumulants in zinc-blende semiconductors

Ho Khac Hieu (1) and Vu Van Hung (2)
(1) National University of Civil Engineering, 55 Giai Phong, Hai Ba Trung, Hanoi, Vietnam
(2) Hanoi National University of Education, 134 Xuan Thuy, Cau Giay, Hanoi, Vietnam

P - 8 Optical sum frequency microscopy of cellulose fibers

Hoang Chi Hieu (1), Nguyen Anh Tuan (1,2), Hongyan Li (1,2), Goro Mizutani (1,2)
(1) School of Materials Science, Japan Advanced Institute of Science and Technology 1-1 Asahidai Nomi, Ishikawa 923-1292, Japan
(2) Japan Science and Technology Agency, Core Research for Evolutional Science and Technology, 5-3 Sanban-cho, Chiyoda-ku, Tokyo 102-0075, Japan

P - 9 Photocatalytic activity of transition-doped TiO₂-d nanobelts synthesized by metalorganic chemical vapor deposition

Nguyen Thi Quynh Hoa (1), Eui-Tae Kim (2)
(1) *Department of Technology, Vinh University, 182 Le Duan, Vinh, Vietnam*
(2) *Department of Materials Science and Engineering, Chungnam National University, Daeduk Science Town, Daejeon 305-764, Korea*

P - 10 Preparation of Water-soluble Multi-walled Carbon Nanotubes Using Simple Oxidizing Agent

Nguyen Ngoc Hoang, Jarrn-Horng Lin
National university of Tainan, Department of Materials science, Tainan 70005, Taiwan

P - 11 The Nonlinear Electrical Conduction in Parabolic Quantum Wells

Tran Cong Phong (1), Bui Dinh Hoi (2)
(1) *Hue University's College of Education, 32 Le Loi Str., Hue City, Viet Nam;*
(2) *National University of Civil Engineering, 55 Giai Phong Str., Hai Ba Trung, Ha Noi, Viet Nam*

P - 12 Spin dependent transport in ferromagnetic gate graphene structures

V. Hung Nguyen (1,2), V. Nam Do (3), A. Bournel (1), P. Dollfus (1)
(1) *Institut d'Electronique Fondamentale, UMR8622, CNRS, Univ. Paris Sud, 91405 Orsay, France.*
(2) *Center for Computational Physics, Institute of Physics, VAST, PO Box 429 Bo Ho, Hanoi 10000, Vietnam.*
(3) *Hanoi Advanced School of Science and Technology, 40 Ta Quang Buu, Hanoi 10000, Vietnam.*

P - 13 Study on the formation of nano-structure for TiO₂ material

Ngo Thu Huong, Do Thi Kim Anh and Hoang Nam Nhat
Vietnam National University, Hanoi 144 Xuan Thuy, Cau Giay, Hanoi, Vietnam

P - 14 Photoluminescence of ZnO nanocolloid

Ngo Thu Huong, Dinh Thi Lan, Vu Thi Phuong
Thanh, Hoang Nam Nhat
*Vietnam National University Hanoi, 144 Xuan Thuy, Cau
Giay, Ha Noi, Viet Nam*

**P - 15 Synthesize and research Au coated
APTES/SiO₂/Fe₃O₄ nanoparticles by seed-
mediated method, potentially application in
biomedicine.**

Truong Thuy Kieu (1), Tran Hoang Hai (1), Tran
Thi Khanh Chi (2), Do Minh Duc (3), Le Hong Phuc
(1), Le Khanh Vinh (1), Bui Duc Long (1), Nguyen
Quan Hien (1), and Duong Ai Di (3)
*(1) Ho Chi Minh City Institute of Physics.
(2) College of Technology
(3) Can Tho University.*

**P - 16 Novel simulations on chain-like formation of
ferrofluids: influence of anisotropy.**

Tran Nguyen Lan and Tran Hoang Hai
*HoChiMinh City Institute of Physics, Vietnamese
Academic of Science and Technology, Vietnam*

**P - 17 Nanoscale crystalline nucleation of supercooled
liquid gold**

Truong Nguyen Duy Ly, Vo Van Hoang
*Department of Physics, Institute of Technology ,
HoChiMinh City National University 268 Ly Thuong Kiet
Street, District 10, HoChiMinh City, Viet Nam.*

**P - 18 Investigation of the Glass-to-Liquid Process of
Monatomic Lennard-Jones glass**

Le Nguyen Tue Minh, Vo Van Hoang
*Department of Physics, Institute of Technology of
HochiMinh City, 268 Ly Thuong Kiet Street, District 10,
HoChiMinh City-Vietnam*

**P - 19 High TC phase transition in Li-doped Bi-2223
thin films grown by pulse laser deposition method**

N T Mua (1,2), T D Hien (2) and N K Man (2)
*(1) Hanoi University of Prevention and Fight Fire, No. 243
Khuat Duy Tien, Thanh Xuan, Hanoi, Vietnam*

(2) *International Training Institute for Materials Science (ITIMS), Hanoi University of Technology, No. 1, Dai Co Viet Road, Hanoi, Vietnam*

P - 20 Computer Simulation of the Diffusion Processes in one-Dimensional Disordered Systems

T. V. Mung, P. K. Hung, P. N. Nguyen. N.V.Hong
Department of Computational Physics, Hanoi University of Technology, Vietnam - 1 Dai Co Viet, Hanoi Viet Nam

P - 21 Optically detected electrophonon resonance effects in compositional semiconductor superlattices

Tran Cong Phong (1), Luong Van Tung (2), Vo Thanh Lam (3)

(1) *Department of Physics, Hue University's College of Education 32 Le Loi, Hue, Vietnam*

(2) *Department of Physics, Dong Thap University 783 Pham Huu Lau, Cao Lanh, Dong Thap, Viet Nam*

(3) *Department of Natural Sciences, Sai Gon University 273 An Duong Vuong, District 5, Ho Chi Minh, Viet Nam*

P - 22 Calculation of Temperature Dependence of Absorption Line-Widths in Cylindrical Quantum Wires

Huynh Vinh Phuc (1), Tran Cong Phong (2)

(1) *Department of Physics, Dong Thap University, Cao Lanh, Vietnam* (2) *Department of Physics, Hue University's College of Education, Hue, Vietnam*

P - 23 A Theory of Linewidth for Nonlinear Optical Conductivity in Rectangular Quantum Wires

(1) Tran Cong Phong, (2) Huynh Vinh Phuc

(1) *Department of Physics, Hue University's College of Education 32 Le Loi, Hue, Viet Nam*

(2) *Department of Physics, Dong Thap University, 783 Pham Huu Lau, Cao Lanh, Dong Thap, Viet Nam*

P - 24 Optically Detected Electron Energy Spectrum in Cylindrical Quantum Wires

Tran Cong Phong (1), Le Thi Thu Phuong (1)

(1) *Hue University's College of Education, 32 Le Loi, Hue, Viet Nam*

P - 25 Rate of phonon excitation and conditions for phonon generation in rectangular quantum wires

Le Thi Thu Phuong (1), Tran Cong Phong (1)
(1) Hue University's College of Education, 32 Le Loi,
Hue, Viet Nam;

P - 26 White Light Emission from Nano-structured Materials

Nguyen Hong Quang (1), Luu Tien Hung (1), and
Nguyen Thi Quynh Hoa (2)
(1) Department of Physics, Vinh University, 182 Le Duan
Street, Vinh City, VIETNAM
(2) Department of Technology, Vinh University, 182 Le
Duan Street, Vinh City, VIETNAM

P - 27 Investigation of Optical Response in Antiferromagnetic Phase of Iron Pnictides with Mean-Field Approximation

Koudai Sugimoto (1), Eiji Kaneshita (2), Takami
Tohyama (1,3)
(1) Yukawa Institute for Theoretical Physics, Kyoto
University;
(2) Sendai National College of Technology
(3) JST-TRIP

P - 28 Properties of Polypyrrole and Single Wall Carbon Nanotubes Composites

Le Hai Thanh, Nguyen Trong Tung, Nguyen Duc
Thien and Duong Ngoc Huyen
*Institute of Engineering Physics Hanoi University of Science
and Technology*

P - 29 Structure and Properties of $\text{Ca}_{0.85}\text{Pr}_{0.15}\text{Mn}_{1-y}\text{Ru}_y\text{O}_3$ ($y = 0-0.2$) Thin Films Fabricated by PLD Technique

Phung Quoc Thanh, Seong-Cho Yu, Nguyen Duc
Tho, and Hoang Nam Nhat
*Vietnam National University Hanoi, 144 Xuan Thuy, Cau
Giay, Hanoi, Vietnam*

P - 30 Efficient 3D Poisson solvers using post-BICGSTAB algorithms

Dinh Nhu Thao

*Hue University of Pedagogy, 34 Le-Loi Street, Hue City,
Vietnam*

P - 31 Electronic structure of a molecular magnet from salicylate based copper complex

Nguyen Duc Tho, Hoang Duc Anh, Phung Quoc Thanh and Hoang Nam Nhat

Vietnam National University, Hanoi 144 Xuan Thuy, Cau Giay, Hanoi, Vietnam

P - 32 Orange photoluminescence of nanosize materials based ZnS

Nguyen Minh Thuy, Tran Minh Thi and Nguyen thi Van Anh

Department of Physics, Hanoi National University of Education

P - 33 Electronic Structure of EU- DOPED CaO by Density Functional Theory

Nguyen Thuy Trang (1) and Hoang Nam Nhat (2)

(1) Laboratory for Computational Materials Science, Hanoi University of Sciences, Vietnam National University Hanoi, 334 Nguyen Trai, Thanh Xuan, Hanoi, Vietnam

(2) Faculty of Technical Physics and Nanotechnology, University of Engineering and Technology, Vietnam National University Hanoi, 144 Xuan Thuy, Cau Giay, Hanoi, Vietnam

P - 34 Transparent thin film nanostructure device

Uday Trivedi (1) and Utpal Joshi (2)

(1) Government Engineering College, Chandkheda 382424, Ahmedabad-India.

(2) Gujarat University-380015, Ahmedabad-India

P - 35 Coherent potential approximation study of transport properties in the ionic Hubbard model on half-filled bipartite lattice

Hoang Anh Tuan and Nguyen Tri Lan

Institute of Physics, VAST POBox 429, BoHo, Hanoi 10 000

- P - 36 Spin orbit coupling in graphene nano-ribbons**
C. Huy Pham, H. Chau Nguyen, L. Tung Nguyen
Institute of Physics, Vietnam
- P - 37 Investigation local physic-mechanical properties of thin polymer layers using Atomic Force Microscopy**
Nguyen Hoang Yen(1), Vo Thanh Tung(1), Nguyen Trong Tinh(2), S.A. Chizhik(3)
(1) *Physics department, Hue College of Sciences, Hue University, 77 Nguyen Hue str., Hue city, Vietnam*
(2) *Institute of Applied Physics and Scientific Instrument, Vietnamese Academy of Science and Technology, 18 Hoang Quoc Viet, Cau giay, Hanoi Vietnam*
(3) *National Academy of Sciences of Belarus, Minsk, Belarus*
- P - 38 Long range disorder effects on the heat capacity of two dimensional electron systems**
Cristine Villagonzalo (1) and Rayda P. Gammag (1)
(1) *Structure and Dynamics Group, National Institute of Physics University of the Philippines, Diliman, Quezon City 1101, Philippines*
- P - 39 Deposition of SnO₂ and SnO₂:F thin films by pneumatic sprayer deposition and study their optical and electrical properties**
Pham Van Vinh, Nguyen Van Hung, Nguyen Thi Dung
Hanoi National University of Education
- P - 40 Ethanol gas sensor based on SnO₂/ZnO and ZnO:Al films deposited by pneumatic sprayer deposition**
Pham Van Vinh, Nguyen Van Hung, Bui Thi Hai and Dao Thi Hong Le
Hanoi National University of Education
- P - 41 DFT Study of Raman scattering in Fe-doped CaMnO₃**
Pham Duc Huyen Yen, Hoang Nam Nhat
Vietnam National University Hanoi 144 Xuan Thuy, Cau Giay, Hanoi, Vietnam

P - 42 The Electronic Properties of MgO under High Pressure from Ab Initio Calculations

G. Zheng (1,2), L. Yu (1,2), K.H. He (1,2)

(1) School of Mathematics and Physics, China University of Geosciences, Wuhan, 430074, China

(2) Institute of Material Modeling and Computational Physics, China University of Geosciences, Wuhan, 430074, China

Banquet (From 18h00)

December 14, 2010, Tuesday

Chair: N. Bulut

09h00 - 09h25 I - 14 Engineered Spin Chains for Perfect Quantum State Transfer

Nguyen Van Hieu

Institute of Materials Science, VAST, Hanoi, Vietnam

09h25 - 09h50 I - 15 Neutron-scattering study of novel spin correlations in high-Tc superconductors

Masaki Fujita (1), Masanori Enoki (2), Satoshi Iikubo (3), Kazuyoshi Yamada (4)

(1) Institute for Materials Research, Tohoku University

(2) Department of Physics, Tohoku University

(3) Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology

(4) World-Premier-International Research Center Initiative, Tohoku University

09h50 - 10h15 I - 16 Vortex current and induced magnetic fields originated from defects in metallic carbon nanotubes

Jisoon Ihm

Department of Physics and Astronomy, Seoul National University, Seoul 151-747, Korea

Coffee Break (30')

Chair: X. Dai

- 10h45 - 11h10 I - 17 Anomalous collective excitations of cuprates**
Chung-Pin Chou and T. K. Lee
Institute of Physics, Academia Sinica, Taipei, Taiwan
- 11h10 - 11h35 I - 18 Possible mechanisms of enhanced pairing gap near apical and dopant oxygens in cuprate**
Mori M (1,2), Khaliullin G (3), Tohyama T (4),
Maekawa S (1,2)
(1) *Japan Atomic Energy Agency;*
(2) *JST-CREST;*
(3) *Max Planck Institute;*
(4) *Kyoto University*
- 11h35 - 12h00 I - 19 Effective action, magnetic excitations and quantum fluctuations in lightly doped single layer cuprates**
Oleg P. Sushkov
University of New South Wales
- 12h00 - 12h25 I - 20 Electronic Anisotropy in Cuprates and Fe-Arsenides**
Shin-ichi Uchida (1,2)
(1) *Department of Physics, University of Tokyo, Hongo, Tokyo 113-0033, Japan*
(2) *JST, Transformative Research-Project on Iron Pnictides, Tokyo 102-0075, Japan*

Lunch

Chair: T. K. Ng

- 14h00 - 14h25 I - 21 Pairing fluctuations and quantum critical fluctuations in HTS cuprates**
Jeffery Tallon
MacDiarmid Institute for Advanced Materials and Nanotechnology, and Industrial Research Ltd
- 14h25 - 14h50 I - 22 Common behaviors of unconventional superconductors indicating non-BCS condensation and spin-mediated resonant pairing**
Yasutomo J. Uemura
Physics Department, Columbia University, New York, USA

- 14h50 - 15h15 I - 23 Possible π -junction in iron pnictide superconductors with antiphase s-wave pairing**
Wei-Qiang Chen(1), Fengjie Ma(2,3), Zhong-Yi Lu(2), and Fu-Chun Zhang(1)
(1) *Department of Physics, and Center of Theoretical and Computational Physics, the University of Hong Kong, Hong Kong, China;*
(2) *Department of Physics, Renmin University of China, Beijing 100872, China;*
(3) *Institute of Theoretical Physics, Chinese Academy of Sciences, Beijing 100190, China*

Coffee Break (30')

Chair: N. V. Lien

- 15h45 - 16h10 I - 24 Studying the properties of superconductors with ultracold atoms**
Gilles Nogues
Institut Néel, CNRS and Laboratoire Kastler Brossel, Ecole Normale Supérieure
- 16h10 - 16h35 I - 25 0.7 conductance anomaly: Multiple existence of Kondo impurities in a quantum point contact**
Kang-Hun Ahn
Department of Physics, University of Bath, UK
- 16h35 - 17h00 I - 26 Thermoelectric transport through a quantum dot: Interplay between FL and NFL behavior**
M.N.Kiselev, V.E. Kravtsov and T.K.T. Nguyen
ICTP, Strada Costiera 11, I-34151 Trieste, Italy
- 17h00 - 17h25 I - 27 Dephasing, disorder and interaction effects in 2D topological insulator**
Xincheng Xie
Peking University and Institute of Physics, Chinese Academy of Sciences

Break 10'

- 17h35 - 18h00 I - 28 F. Pulizzi**

Water puppet theater (From 20h00)

December 15, 2010, Wednesday

Chair: M. Kiselev

09h00 - 09h25 I - 29 Non-BCS superconductivity for underdoped cuprates by spin-vortex attraction

Lu Yu

Institute of Physics, Chinese Academy of Sciences

09h25 - 09h50 I - 30 Orbital characters of iron-based superconductors and their parent compounds

Y. Zhang (1), L. X. Yang (1), F. Chen (1), C. He (1), X. H. Chen (2), M. Arita (3), K. Shimada (3), H. Namatame (3), M. Taniguchi (3), D. L. Feng (1)

(1) Department of Physics, State Key Laboratory of Surface Physics, and Advanced Material Laboratory, Fudan University, Shanghai 200433, P. R. China

(2) Department of Physics, University of Science and Technology of China, Hefei 230027, P. R. China

(3) Hiroshima Synchrotron Radiation Center, Hiroshima University, Hiroshima 739-8526, Japan.

09h50 - 10h15 I - 31 Quantum-ensured comparative voting and anonymous broadcast channels

Ho Trung Dung (1), Mark Hillery (2)

(1) Institute of Physics, Academy of Sciences and Technology 1 Mac Dinh Chi Street, District 1, Ho Chi Minh City, Vietnam

(2) Department of Physics, Hunter College of CUNY, 695 Park Avenue, New York, NY 10065, USA

Coffee Break (30')

Chair: N. V. Hieu

10h45 - 11h10 I - 32 Novel Spin-Orbit Physics in 5d Transition Metal Oxides

Jaejun Yu

*Center for Strongly Correlated Materials Research
Department of Physics and Astronomy Seoul National
University Seoul 151-747, Korea*

11h10 - 11h35 I - 33 Density of states of graphene in the presence of strong point defects

Chung-Yu Mou

*Department of Physics, National Tsing Hua University,
Hsinchu, Taiwan*

11h35 - 12h00 I - 34 Rigidity in amorphous networks: from simple sulphides to complex phase-change tellurides

M. Micoulaut

*LPTMC, Université Pierre et Marie Curie, Boite 121 4,
place Jussieu, 75252 Paris cedex 05 France*

12h00 - 12h25 I - 35 Anderson-Haldane Liquid: a novel Resonating Valence Bond Metallic State

G. Baskaran

*The Institute of Mathematical Sciences Chennai 600 113,
India*

Closing (N. V. Hieu)