# 中央研究院物理研究所年報

# ANNUAL REPORT OF THE INSTITUTE OF PHYSICS ACADEMIA SINICA

VOLUME 36 April 2009

**INSTITUTE OF PHYSICS, ACADEMIA SINICA**

**TAIPEI, TAIWAN, REPUBLIC OF CHINA**

*Published by*
Institute of Physics, Academia Sinica
Nankang, Taipei, Taiwan 11529, ROC
Tel : 886-2- 27896712, 27880058
Fax : 886-2-27834187
http://www.phys.sinica.edu.tw

*Publisher*
Maw-Kuen Wu
*Editors*
Chi Keung Chan
Wen-Chen Chang
Yeng-Long Chen
Yeu-Kuang Hwu
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中央研究院物理研究所年報

發 行 人
吳茂昆

編 輯
陳志強
章文箴
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胡宇光
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郭鴻曦
梁鈞泰
李湘楠
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余海禮

執行編輯
黃懿姿

中央研究院
物理研究所年報
第三十六卷
發行人: 吳茂昆
編輯者: 中央研究院物理研究所(文宣小組)
出版者: 中央研究院物理研究所
通訊地址: 台北市南港區研究院路二段 128 號
電 話: (02) 2789-6712, 2788-0058
傳 真: (02) 2783-4187
網 址: http://www.phys.sinica.edu.tw

中華民國九十八年四月出版

# 中央研究院物理研究所年報

第三十六卷


中央研究院物理研究所印行

# ANNUAL REPORT
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| 胡宇光<br>Hwu,Yeu-Kuang | 研究員/ 同步輻射應用研究<br>Research Fellow/ Application Research of Synchrotron Radiation | P605<br>2789-6721 | 詳見 27 頁<br>Please see page 27. |
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| 余岳仲<br>Yueh-Chung Yu | 副研究員/ 基於加速器原子物理及材料特性<br>Associate Research Fellow/ Accelerator based atomic physics and materials characterization | P416<br>2789-6769 | 詳見 39 頁<br>Please see page 39. |
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| 阮自強<br>Yuan,Tzu-Chiang | 副研究員/粒子物理現象學/高能粒子物理現象,暗物質等<br>Associate Research Fellow/ High Energy ; Particle Physics; Phenomenology; Dark Matter, etc | P703<br>2789-6705 | 詳見 39 頁<br>Please see page 39. |
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| 蔡日強<br>Tsai ,Jih-Chiang (JC) | 助研究員/複雜系統及流體實驗<br>Assistant Research Fellow/ Experiments on Complex Systems and Fluids | 426<br>2-2789-6729 | 詳見 47 頁<br>Please see page 47 |

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| 朱明禮<br>Ming-Lee Chu | 研究技師/ 高能實驗、抗輻射電子光電元件、系統 光通訊, 電子儀器<br>Senior Research Scientist/ High energy experiment, Radiation hard electronics, opto-electronics, optical | 413<br>2789-6796 | 詳見 36 頁<br>Please see page 36. |
| 薛韻馨<br>Shiue,Jessie | 研究副技師/奈米材料、 材料機械性質<br>Associate Research Scientist/ Nanomaterials, mechanical properties | P405<br>2789-6762 | 詳見 29 頁<br>Please see page 29. |
| 仲國慶<br>Guo-Ching Jon | 研究副技師/實驗原子核物理、加速器物理 Associate Research Scientist / Experiment nuclear physics, Accelerator physics | P418<br>2789-6787 | 詳見 37 頁<br>Please see page 37. |

**Joint Appointment Faculty**

王林玉英
Yuh Ying L. Wang
Research Fellow
Hemodynamics.

蕭葆義
Bao-Shi Shiau
Research Fellow
bsshiau@gate.sinica.edu.tw
Wind Engineering, Environmental Engineering in Ocean and Atmosphere.

魏金明
Ching-Ming Wei
Research Fellow
cmw@phys.sinica.edu.tw
Surface Science, Kikuchi Electron Holography, *Ab initio* Total Energy Calculations.

陳正弦
Cheng-Hsuan Chen
Research Fellow
chchen35@ccms.ntu.edu.tw
Condensed Matter Physics

傅祖怡
Tsu-Yi Fu
Asssociate Research Fellow
phtifu@phy03.phy.ntnu.edu.tw
Surface Physics　Surface Atomic Dynamics　Atom Resolved Microscope

蔣正偉
Cheng-Wei Chiang
Assitant Research Fellow
chengwei@phy.ncu.edu.tw
Particle Physics Theory,
High Energy Physics,

張家靖
Chia-Ching Chang
Associate Research Fellow
Ccchang01@faculty.nctu.edu.tw
Protein Folding, Molecular Biophysics, Bio-nanochnology、Bio-informatics and Computational Biophysics

陳福榮
Fu-Rong Chen
Research Fellow
frchen@ess.nthu.edu.tw

陳宣毅
Hsuan-Yi Chen
Asssociate Research Fellow
hschen@phy.ncu.edu.tw
Soft Condensed Matter, Statistical Physics

吳明佳
Ming-Chya Wu
Assitant Research Fellow
mcwu@phys.sinica.edu.tw
Statistical Physics,
Time Series Analysis,
Biophysics

**Adjunct Faculty**

姚永德
Yeong-Der Yao
phyao@gate.sinica.edu.tw
Condensed Matter Physics, Magnetism, Low Temperature Physics, Super-conductivity, Electrical Optics, Thin Films, and Nanosize Structures and Their Physical Properties.

簡來成
Lai-Chen Chien
chienlc@phys.sinica.edu.tw
Computational Fluid Physics, Microgravity Fluid Dynamics, Space Material Processing.

何侗民
Tung-Min Ho
ltho@gate.sinica.edu.tw
Semiconductor Physics, Impurities and Defects in Crystals, Infrared Spectroscopy.

黃榮鑑
Robert R. Hwang
phhwang@ccvax.sinica.edu.tw
Vortex Dynamics, Turbulent Diffusion Processes, Fluid Dynamics, Wave Mechanics.

林爾康
Erh Kang Lin
phibmg@ccvax.sinica.edu.tw
Nuclear Reaction at Low Energy, Decay Scheme Study, Atomic Ionization, Nuclear Technology and Application.

郭子斯
Thomas T. S. Kuo
kuo@phys.sinica.edu.tw
Nuclear Physics.

謝雲生
Wan-Sun Tse
Tse@phys.sinica.edu.tw
Raman and Infrared Spectroscopy, Laser and Nonlinear Crystals.

王建萬
Chang-Wan Wang
cwwang@phys.sinica.edu.tw
Experimental Nuclear Physics, Ion Beam Applications.

王唯工
Wei Kung Wang
wkwang@phys.sinica.edu.tw
Hemodynamics, Foundation of Chinese Medicine, Effects of E-M Field to the Body.

楊維邦
Wai-Bong Yeung
phwyeung@ccvax.sinica.edu.tw
Elementary Particle Physics, Field Theory, Theory of Gravitation, Physics of Ferrofluid.

江海邦
Hai-Pang Chiang
hpchaing@mail.ntou.edu.tw

**Visiting Scholars and Postdoctoral Research Associates**

| | |
|---|---|
| Yang Hwan Ahn | (安良煥) |
| Albert M.,Chang | (張綿福) |
| * Huang-wei Chang | (張晃暐) |
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| Chi-Ken Lu | (陸紀亙) |
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| Wen-Jong Ma | (馬文忠) |
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| * Harshala Jaywant Parab | (何夏拉) |
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| * Di Qing | (卿笛) |
| Sistla Muralidhara Rao | (史牧笛) |
| Zhong-Liang Ren | (任忠良) |



* 已離職人員

| | | | |
|---|---|---|---|
| Amalendu Sau | (邵馬度) | Sing-Lin Wu | (吳信霖) |
| Yuelong Shen | (沈月龍) | Chih-Wen Yang | (楊志文) |
| Alessandro Taloni | (泰隆尼) | Kuo-Wei Yeh | (葉國偉) |
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| Jie Jun Tseng | (曾玠郡) | Fu-Te Yuan | (袁輔德) |
| Cheng-Liang Wang | (王錚亮) | * Der Chung Yan | (顏得宗) |
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| Cheng-En Wu | (吳承恩) | Suijian Zhou | (周綏健) |
| Chun-Shien Wu | (巫俊賢) | Yue Zhou | (周 玥) |

* 已離職人員

**Research Affiliate**

| | |
|---|---|
| Tse-Lin Hsu | (徐則林) |

**Administrative Staffs**

| | | | |
|---|---|---|---|
| C. J. Chen | (陳鈞珍) | C. T. Sheng | (盛巧弟) |
| C. P. Hsieh | (謝傳平) | S. C. Tsai | (蔡素卿) |

**Administrative Assistants**

| | | | |
|---|---|---|---|
| Huey-Jen Chang | (張惠珍) | Fu-Fang Lee | (李馥芳) |
| Yi-Hwa Chang | (張意華) | An-Chun Lin | (林安純) |
| Chiu-Mei Chen | (陳秋媚) | Chu Lin | (林 筑) |
| Le-Chin Chen | (陳樂芹) | Tracy Liu | (劉翠霞) |
| Shin-Chuen Hsieh | (謝欣純) | * Shu-Min Yang | (楊淑閔) |
| I. T. Huang | (黃懿姿) | * Wen-Sheng Pan | (潘文生) |
| King Nan Hwang | (黃金男) | Shu-Yin Teng | (鄧淑尹) |
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| * Hui-Hseng Lai | (賴惠暄) | Y. J. Wang | (王一如) |
| Meng-Yu Lai | (賴孟妤) | * Horng-Shuen Wu | (吳宏順) |
| Yi-Ying Lai | (賴宜瑩) | Chia-Rong Wu | (吳佳容) |

**Technical Supporting Group**

| | | | |
|---|---|---|---|
| Chih-Sheng Chen | (陳志勝) | C. S. Kuo | (郭忠賢) |
| K.M. Chen | (陳冠銘) | Da-Shung Su | (蘇大順) |
| C. H. Hsieh | (謝家和) | T. H. Su | (蘇子宣) |
| Kuo-Ming Lee | (李國銘) | Y. H. Wang | (王裕鑫) |
| Da-Hong Liao | (廖大宏) | S. C. Wu | (吳喜成) |
| C. Y. Lin | (林呈應) | S. C. Wu | (吳訓忠) |

**Technical Assistants**

| | | | |
|---|---|---|---|
| M. H. Chien | (簡明宏) | Hong-Ju Shih | (施宏儒) |
| Tsan-Lung Hsieh | (謝璨隆) | M. L. Wu | (吳美玲) |
| * Chia-Jung Liu | (劉家榮) | H. L. Yeo | (楊惠玲) |

* 已離職人員

# II

# Review of Research Projects

## GENERAL INTRODUCTION

The Institute of Physics was founded in Shanghai in 1928 and was reestablished in Taiwan in 1962, with Dr. Ta-You Wu as its first Director. The succeeding Directors of the Institute were: Dr. W. N. Wang (1976-1977), Dr. E. K. Lin (1977-1989), Dr. L. T. Ho (acting, 1989-1990), Dr. T. T. Tsong (1990-1999), Dr. Y. D. Yao (acting, 1999-2002), Dr. Maw-Kuen Wu (2002-2004), Dr. S. P. Li(acting, 2004-2006), and Dr. Maw-Kuen Wu(2006–present). In 1966, the Institute, together with the National Tsing-Hua University and the National Taiwan University, co-organized the Physics Research Center, under the auspices of the National Science Council, in order to promote physics research in Taiwan. In 1970, an interdisciplinary research program for atmospheric science and fluid mechanics was initiated in the Institute of Physics, and later a similar program for biophysical research in 1975. During the First Five-Year Plan (1981-1985) of the Academia Sinica, the original two-story Physics Building was replaced by a four-story building at the same site in April, 1983. The Institute's scope of research was then further expanded to include theoretical physics, covering mainly field theory and particle physics, nuclear physics, and statistical and computational physics. Since the beginning of the Second Five-Year Plan (1986-1991), the Institute has continued to grow, both in research staff and facilities. To meet the demands of rapidly growing research activities in the Institute, a new ten-story building immediately adjacent to the original building was completed in 1999. The Physics Building is named the "Ta-You Hall" to commemorate its first director, who passed away on March 4, 2000.

At present, the Institute has more than 40 research staffs: 2 distinguished research fellows, 23 research fellows, 8 associate research fellows, 8 assistant research fellows, 1 senior research scientist, and 2 associate research scientists. The Institute also maintains 450 temporary employees, which include visiting scholars, postdoctoral research associates, as well as research assistants and graduate students. Current research areas can be grouped into three main categories: Nanoscience, Complexity, Medium and High Energy Physics. Specific interests are in the areas of particle physics and cosmology, experimental high-energy physics, nuclear physics, condensed-matter and surface physics, statistical and computational physics, biophysics, as well as fluid mechanics and nonlinear physics. The Institute of Physics is expected to play an increasingly important role in the development of physics and technology in Taiwan.


**The Institute of Physics Logo**

The logo for the Institute of Physics was the winning design from a logo submission contest held by the Institute. It was an idea born on April 15, 2003 by Dr. Chia-seng Chang, an Institute Fellow, with the following spirit in mind:

The letters I.O.P are drawn with the additive primary colors blue, green, and red, and they are placed in such a way that one can depict G，c，h，k, the 4 fundamental constants which represent classical mechanics, electromagnetism, quantum mechanics, and statistical mechanics. With further imagination, one can conceive the number 1928 from the design, which is the year the IOP was founded.

## Nanoscience Research Group

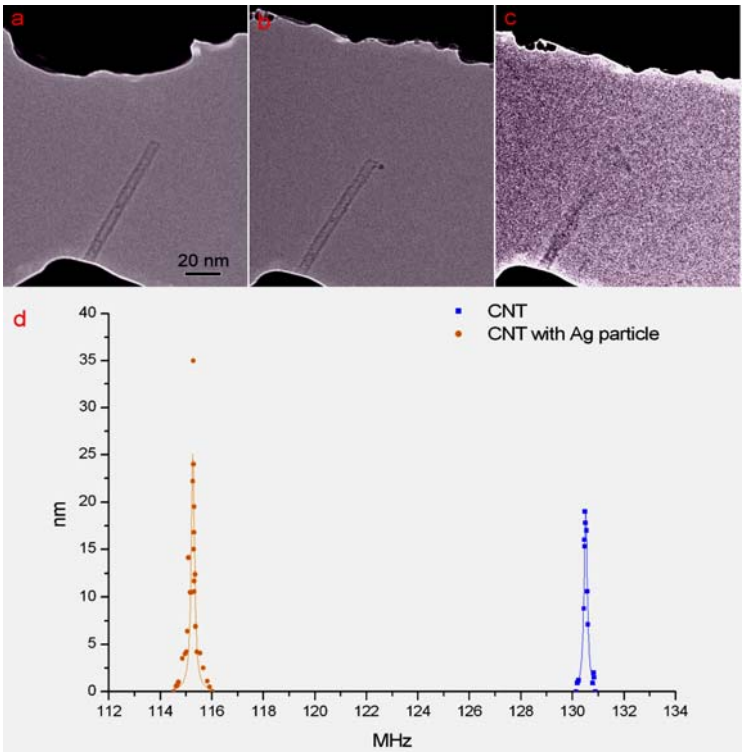
Nanoscience and nanotechnology have become the major research focus in the Institute. We have already built up our capabilities and expertise during the past few years. To further enhance our research strength we have decided that all our efforts and interests will be grouping into the following categories:
(i) Development of state-of-the-art research tools for nano-science
(ii) Study on transport and thermodynamic properties in nanostructured materials
(iii) Manipulation and control of single atom and single molecules
(iv) Theoretical modeling and simulations of nano-system

The followings are the research groups that involve in nanoscience researches and summaries of their research activities:

### I. Surface Physics and Nanoscale Microscopy

This research group includes five faculty members and two joint appointment faculty members and routinely maintains a size of around 50 researchers comprised of visiting scholars, post-doctors, assistants, and students. We have established several major research tools such as scanning tunneling microscopy (STM), atomic force microscopy (AFM), field ion microscopy (FIM), transmission electron microscopy (TEM), Phase-plate TEM, low-energy electron point projection microscope (LEEPPM), photoemission electron microscopy (PEEM), low energy electron diffraction (LEED), Auger spectroscopy (AES), x-ray microscopy and etc. In past years, our focus has been on studying surface dynamics, film growth mechanisms, principles of atomic manipulation, quantum phenomena associated with low dimensionality, and microscopic instrumentations. In next five years, we plan to make progress in investigating the site-specific and shape-related properties of nanoscale objects with atom-resolvable STM; analyzing the real-time correlation between the functionality of a quantum dot or quantum wire and its structure with the TEM/STM combined system; designing quantum phenomena laboratory at the atomic scale with ultra-low temperature STM equipped with superconducting magnet; developing new microscopic techniques based on single-atom electron sources or single-atom ion sources; developing new electron microscopic techniques, such as phase-plate and wet-cell, for biological imaging; improving the resolution of x-ray radiology to nanometer scale; and modeling nanomaterials with calculations and simulations. Some past research accomplishments are summarized in the following:

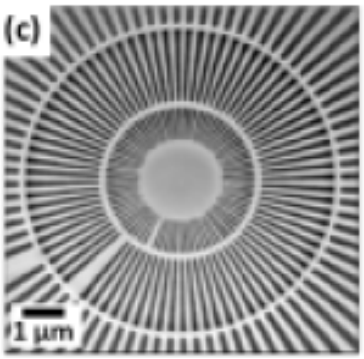
- We have reported an *in situ* method that combines several manipulating and tailoring techniques, which include a precise control of both inner and outer diameters of a MWNT, reinsertion of an extracted MWNT rod to its casing, transfer of a nanoparticle from one tube to another, and induction of a tailored tube into mechanical resonance. We have also constructed, using these techniques, a balance with ultimate mass resolution of a Ag atom. (Small **4**, (2008) 2195)




Transmission electron micrographs showing the application of a peeled MWNT as a nanobalance. a, A three-wall MWNT with an outer diameter of 6 nm after extraction process. b, This tube with the attachment of a Ag particle of 3 nm in diameter. c, The tube with the Ag particle driven into resonance. d, Shift in resonance frequency measured between the tube with and without the Ag particle.

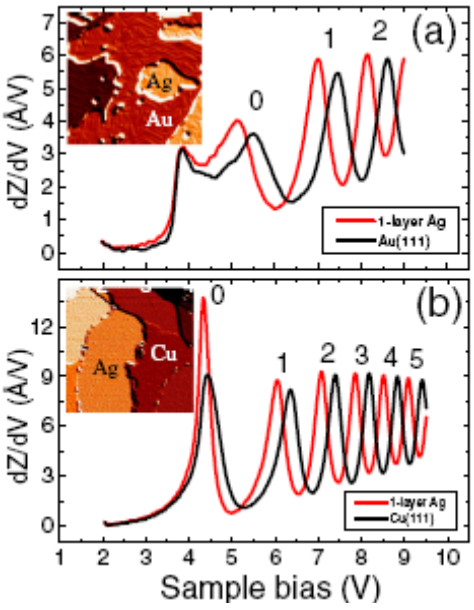
- We have demonstrated that an Iridium covered W(111) single-atom tip can be a good field emitter for helium, hydrogen, oxygen, and argon gas ion sources. The brightness of these gas field ion sources (GFISs) is at least one order of magnitude better than that of liquid-metal ion sources used in current commercial focused ion beam (FIB) systems. The measured ion current stability and the lifetime of these GFISs are also good enough for applications in FIB systems. (Appl. Phys. Lett. **92**, (2008) 063106)
- We have successfully fabricated a gold Fresnel zone plates (FZPs) and yielded unprecedented resolution levels in hard-x-ray microscopy. Tests performed on a variety of specimens with 8-10 keV photons demonstrated a first-order lateral

resolution below 40 nm based on the Rayleigh criterion. (Appl. Phys. Lett. **92**, (2008) 103119)




Zernike contrast image of a 180nm-thick Siemens star test pattern with 30-nm minimum separation at the center

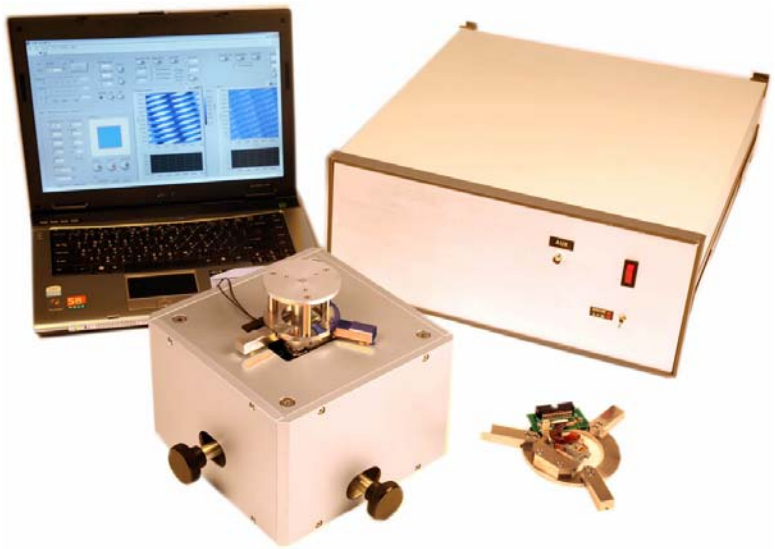
- We have observed that the work function of the thin film can be precisely measured with high order Gundlach oscillation in scanning tunneling spectroscopy. (Phys. Rev. Lett. **99**, (2007) 216103)




(a) Average *dZ/dV-V* spectra of the Ag and Au regions. Distinct peaks marked by numbers are Gundlach oscillations. Inset: STM image of submonolayer Ag film grown on the Au(111) surface. (b) Average *dZ/dV-V* spectra of the Ag and Au regions. Inset: STM image of the submonolayer Ag film grown on the Cu(111) surface.

- We have demonstrated an astigmatic detection system, constructed with a modified digital-versatile-disk (DVD) optical head, can achieve simultaneous measurement of a

linear displacement and two-dimensional tilt angles with a high sensitivity. No other techniques have been demonstrated to achieve such kind of simultaneous measurement of multi-dimensional motions in real time. An atomic force microscope, using our detection system to sense the deflection of microfabriacted cantilevers, can resolve single atomic steps on graphite surfaces with the noise level less than 0.04 nm in the topographic images. This astigmatic detection system can even detect mechanical resonances due to thermal vibrations of microfabricated cantilevers. (Appl. Phys. Lett. **91**, (2007) 221908)



Homemade atomic force microscope using DVD optical head as detection system

## II. Nanomaterial and low temperature physics

The nanomaterial and low temperature physics research group was established in 1989. It involves two full-time faculty members and maintains a size of around 20 researchers comprised of visiting scholars, post-doctors, assistants, and students. Our research interests include phenomena that associated with strongly correlated electron systems such as heavy fermion physics, Kondo effect and high temperature superconductivity. Other areas include the understanding of quantum-size effects on the above mentioned phenomena and others such as thermal power and thermal conductivity in alloys and/or semiconductors. We have developed our own research equipments such as a $He_3$ SQUID magnetometer, low-temperature microcalorimeter, and thermal power & thermal conductivity measurement systems. Magnetic susceptibility and electrical resistivity measurements can be achieved for magnetic field up to 20 T and pressure up to 20 kbars in a dilution refrigerator. We also have setups for the preparation of nanoparticles, thin film and single crystals. Some past research accomplishments are summarized in the following:

- We have observed several interesting quantum-size effects on the magnetisim and superconductivity in nanomaterials of heavy fermion systems.
- We have developed the new methods for the production of high quality magnetic/superconducting nanoparticles and thin films
- We have developed a new wide-range low temperature sensor for calorimeter application using transition metal oxides.
- We have observed the coexistence of magnetic order and superconductivity in Ru-based double perovskite oxides.

Major research achievements:

- The evolution of Kondo interactions and magnetic correlation with size variation and Core (magnetic)- shell (nonmagnetic) model in $CePt_2$

  The evolution of the Kondo effect and antiferromagnetic correlations with size reduction in $CePt_2$ nanoparticles (3.1-26 nm) is studied by analysis of the temperature-dependent specific heat and magnetic susceptibility. The antiferromagnetic correlations diminish with size reduction. The Kondo effect predominates at small particle size with trivalent, small Kondo temperature magnetic regions coexisting with strongly mixed valent, large $T_K$ nonmagnetic regions. From the data of specific heat of bulk and nanoparticles, the integrated entropy $S_M=\int(C_M/T)dT$ is close to 100 % of Rln2 for bulk $CePt_2$, however we find $n_M$ =0.86, 0.69 and 0.25 for d = 26, 22 and 3.1 nm, respectively. The distribution configuration of magnetic and nonmagnetic Ce ions can be sketched by a core (magnetic)- shell (nonmagnetic) model (Phys. Rev. Lett, 98, 157206, 2007).

- Room temepature ferromagnetism in capped CdSe nanocrystals

  We demonstrated the synthesis of nanocrystals of a nominally non magnetic semiconductor that exhibit ferromagnetism at several degrees above room temperature. The nanocrystals are capped by TOPO (Tri-n-octylphosphine) which is also nonmagnetic. The RTFM arises from electronic effects at the crystal surfaces due to the presence of the TOPO. The importance of the work is that with appropriate surface modification, i.e., capping with TOPO for our case, the semiconductor quantum dots exhibit RTFM with no need of magnetic dopants. The work was published in advanced materials and also selected by Nature Publishing Group (NPG) Asia Materials website for the best research published in the Asia-Pacific region. (Advanced Materials, 20, 1656-1660, 2008).

- Electrical and thermal transport in single nickel nanowire

  The thermal conductivity and electrical resistivity of a single suspended nickel nanowire have been measured in the temperature range 15- 300 K by means of the

"self heating 3ω" technique. The nanowire with dimentions 100 nm x 180 nm x 35 μm was fabricated through e-beam lithography and etching process. The temperature dependence of the thermal conductivity and the Lorenz number strongly differ from that for the bulk. The comparison of the transports in the Ni nanowire shows, that at temperatures 75 < T < 300 K Wiedemann-Franz (WF) law holds, whereas at temperatures T < 75 K the WF law is violated, indicating that thermal current in this material is suppressed more than electrical current. The results are explained by combined effect of confined dimension, enhanced disorder and grown contribution of *N-processes.* The figure of the paper was selected as the cover image and has been downloaded over 1000 times within a year (Appl. Phys. Lett. **92**, (2008) 063101)

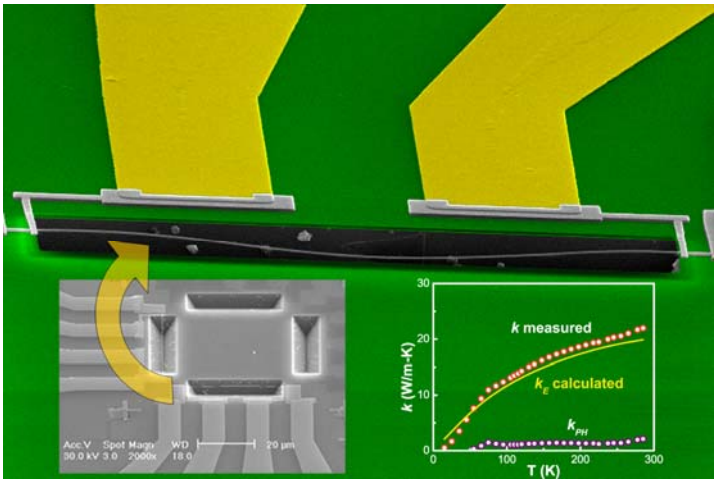



Fig. The scanning electron microscope (SEM) image of the Ni-NW with dimensions 100 nm×180 nm×35 μm, the Ni-NW was suspended above a groove on a Si/ $Si_3N_4$ substrate.

## III. Spintronics, magnetic nanostructures and magnetotransport physics

- Magnetic nanostructures: Two methods have been used to prepare Ge nanostructures, nanosphere lithography and inert gas condensation. First, Ge nanostructures were prepared by thermally evaporating pure Ge material to deposit different thick Ge layers (from 1 to 20 nm) on top of polystyrene nanospheres with different sizes (from 20 to 500 nm), as shown in fig. 1. The size of Ge nanostructures was influenced by both the thickness of Ge layers and the size of nanospheres. The measured magnetization was inversely dependent on the thickness of Ge layers and the size of nanospheres, as shown in fig. 2. Second, Ge nanoparticles were prepared by collecting nanoparticles from a liquid nitrogen cooled cooper plate in an inert gas atmosphere (He pressure from 0.001 to 1 Torr). Nano-sized amorphous Ge nanoparticles with sizes of about 2 – 20 nm have been

prepared. By collecting Ge nanoparticles at different locations on the metal plate, the inter-particle distance was able to be varied, as shown in fig. 3. With the inter-particle distance less than the particle size, room-temperature magnetizations were measured. The magnetization was declined dramatically when the particle size or the inter-particle distance were increased, as shown in fig. 4. The distinct room-temperature ferromagnetism in Ge nanostructures was attributed to the quantum size effect and the the magnetic coupling among nanostructures. The surface effect or the dopant effect on the magnetic properties has been investigated by capping a layer on top of the Ge nanostructures. The magnetization has been enhanced by capping different materials (Si, Al, Ag, Au, Cu). These results are interesting and partial results have been published recently in Applied Physics Letters (APL 90, 182508, 2007 and APL 91, 82505, 2007) and Advanced Materials (Adv. Mater. 2008, 20, 779-783, 2008).

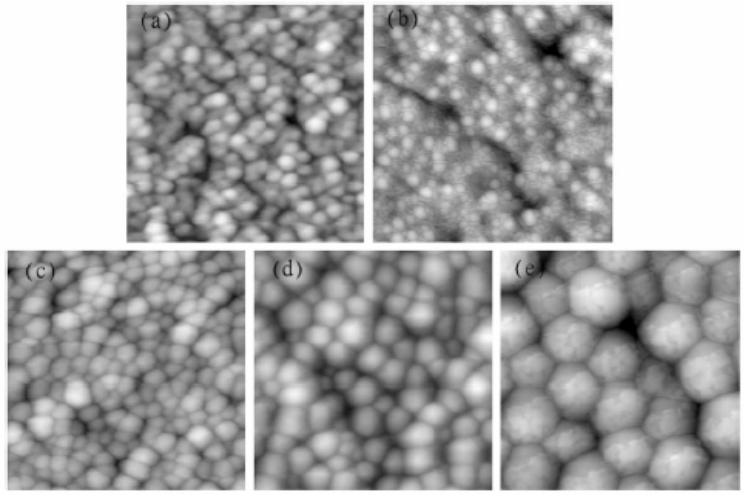



FIG. 1. AFM images of (a) nanospheres with a diameter of 20 nm without depositing Ge layer, 5 nm thick Ge layers deposited on nanospheres with diameters of (b) 20 nm, (c) 30 nm, (d) 50 nm, and (e) 100 nm. All images have the same size of 500 nm.

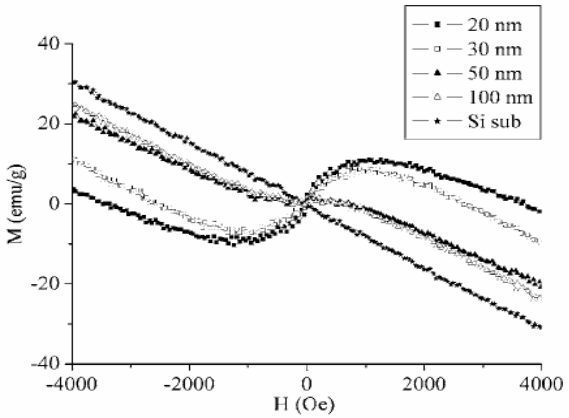



FIG. 2. *M-H* loops of 10 nm thick Ge layers grown on different nanospheres measured by VSM at room temperature.

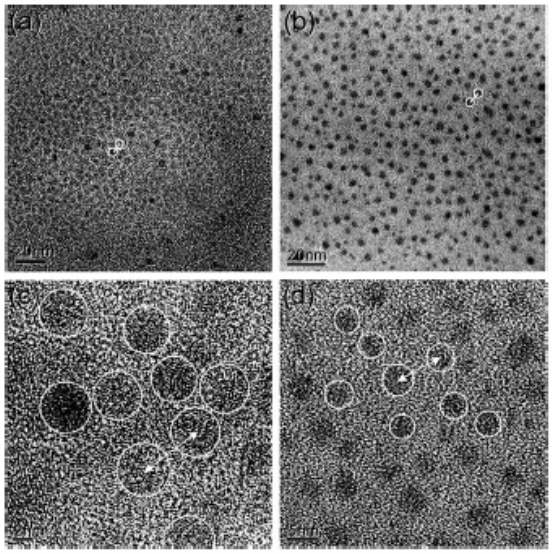



FIG. 3. TEM plane view images of Ge nanoparticles fabricated at helium pressure of 0.05 Torr on silicon substrates at distances of (a) 6 and (b) 10 cm from the center of the copperplate. The interparticle distances were increased from (c) 6 to (d) 7 nm. The circles in the images are used to define the size of Ge nanoparticles and the arrows are used to define the interparticle distance.

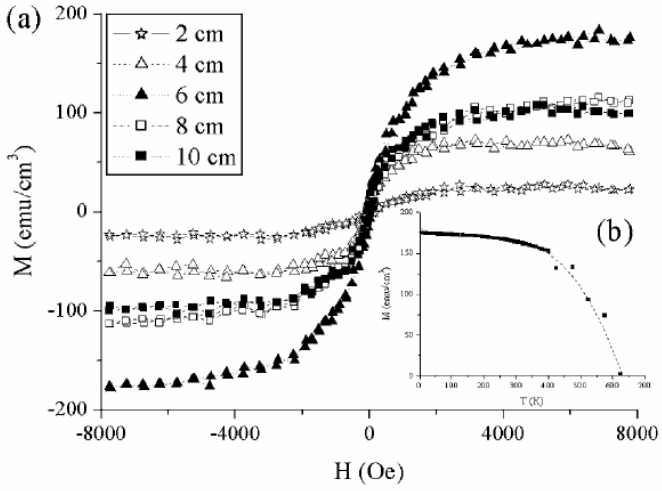



FIG. 4. (a) *M-H* loops of Ge nano-particles fabricated at helium pressure of 0.05 Torr on silicon substrates at distances of 2, 4, 6, 8, and 10 cm from the center of the copperplate. (b) The temperature dependence of the saturation magnetization of the sample at distance of 6 cm.

- We have established a Point-Contact Andreev Reflection measurements setup based on conventional differential screw technique. This setup is capable of determining the degree of spin polarization of conduction current in new or well fabricated materials. Measurements on dilute magnetic semiconductor $Ga_{0.94}Mn_{0.06}As$ were investigated using Pb tips. The observed conductance versus voltage spectra exhibited behaviors which were described by the modified

Blonder–Tinkham–Klapwijk model but with significant broadening. We propose a model by introducing a spreading resistance and compare with an existing model which included effective temperature as a parameter. In as-grown/annealed $Ga_{0.94}Mn_{0.06}As$ samples, we extracted conduction electron spin polarization of 76%/74% from our model, instead of 90%/82% from the one with the effective temperature.

- Submicron to nano meter linewidth magnetic structures, including single layer, trilayer, and multilayers, in ring or oval shapes etc., were fabricated to study the magnetization reversal behavior. The interplay between exchange energy, Zeeman energy, shape anisotropy etc determines the complex phase diagram of how magnetization reverses. The edge roughness effect, large current density induced effect, were also studied.

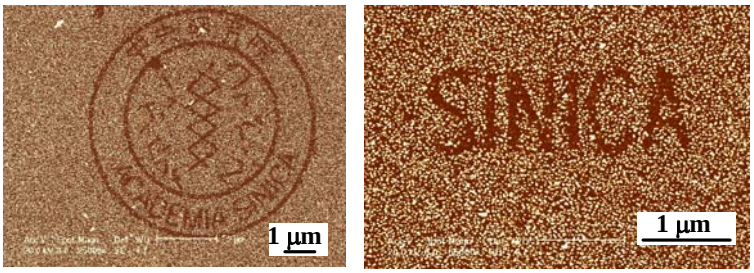
## IV. Quantum electronics physics

Taking advantage of modern electron-beam lithography technology, we are able to fabricate various nanometer-scaled structures and electronic devices with the critical dimension well below 100 nm. Our research directions can be largely divided into two categories: to study novel (quantum) effects associate the small length scale of the devices and to investigate possible applications of the fabricated nano-devices. In the first category, we study superconductor-insulator phase-transition in arrays of Josephson junction arrays, transport in superconducting single electron transistors and in nanowires of various materials (such as silicon, carbon nanotube). In the second category, we develop new techniques for fabrication of photonic crystals, patterns of Au nanoparticles. Our recent research work mainly focuses on combined molecular engineering and advanced nano-lithographic techniques for fabrication of functional devices and detectors. Particularly, attempts have been made on manipulation and detection of individual DNA molecules. In addition, we continue to work on topics that are related to the transport properties of nano-electronics, including nanowire devices and lithographically made silicon devices. In the following, we present high lights of our recent research works.

- DNA as an Electron-Beam Sensitive Reagent for Nano-Patterning (Advanced Materials, *18*, 1517–1520 (2006))

  In this study, we propose and demonstrate a new application using DNA as an e-beam sensitive reagent for patterning. The technique allows direct electron-beam patterning of oligonucleotides. To this end, thiolated single-strand

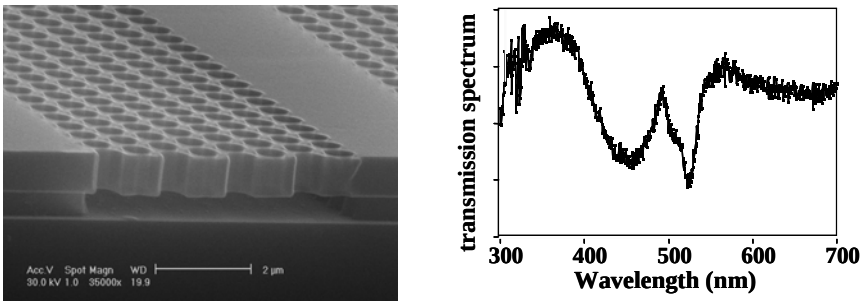
DNA was bombarded using a focused electron beam, resulting in the inhibition of hybridization to complementary strands. The degree of inhibition as a function of the exposure dose was studied using both fluorescence-probe and Au-nano-particle labeling. Finally, for demonstration purposes gold nano-particles were used as markers to produce nano-scaled patterns. The results of which are presented in this paper. This technique has potential applications in the fabrication of DNA-based nano-structures.




**Gold nano-particle pattern** produced by utilizing DNA molecular layer as an e-beam sensitive reagent. In this approach, thiolated single-strand DNA was bombarded using a focused electron beam, resulting in the inhibition of hybridization to complementary strands, and then gold nano-particles were used as markers to reveal nano-scaled patterns. This technique has potential applications in the fabrication of DNA-based nano-structures.

- Polymer-based photonic crystals fabricated with single-step electron beam lithography (Advanced Materials, 19, 3052 (2007))

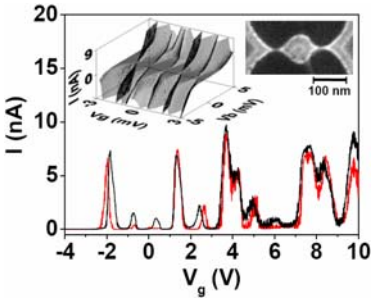
  We present a simple, versatile technique for the fabrication of quasi three dimensional suspended polymer photonic crystals (PCs) and three-dimensional multilayer polymer photonic crystals. For quasi-3D PC slabs, photonic band gap in the visible light region was evidenced from optical microscopic observation and transmission spectrum measurement. In addition, slabs with photonic band gap in both TE-like and TM-like modes for the telecommunication wavelength region were designed and fabricated. This unprecedented fabrication method utilizes only a single-step electron beam lithography process, and thus overcomes difficulties encountered by existing 3D PC techniques. This is a step forward to the realization of multifunctional PC integrated circuits.



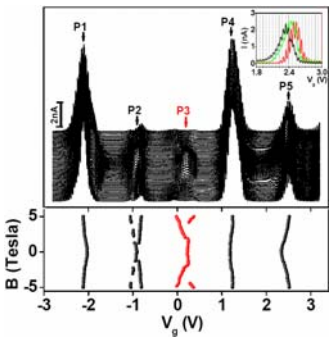

(left) SEM image of a suspended PMMA quasi-3D PC slab with a hexagonal array of air holes. The hole radius is 260nm, and the lattice constant is 800nm. (right) Measured transmission spectrum. The calculated gaps are 454~484nm and 491~508nm.

- Cyclotron Localization in a sub-10nm Silicon Quantum Dot Single Electron Transistor (Applied Physics Letters, 90, 032106 (2007))

  We have fabricated and measured a lateral Si-SET consisting of a succession of a big island and small quantum dots. In this device, small Coulomb oscillation wiggles, due to the big island, acted as a scale to reveal shifts in peaks of Coulomb oscillation envelopes, due to the small quantum dots, in the presence of a magnetic field. The observed shifts in peak position are analyzed in the context of field-induced Landau level shift in dots with a soft-wall confinement potential. Furthermore, the current peak was suppressed for fields beyond a threshold value. An explanation based on cyclotron localization at non-interacting Landau levels of the small quantum dots is presented.




The oscillatory current modulation in gate voltage at B=0 (black curve) and B=5T (red curve) measured at 70mK for the device shown in the top-right inset. The device contains a big island connected to leads via small dots present in the nano-constrictions. The top-left inset presents $IV_b$ curves at ramping $V_g$ clearly marking the Coulomb blockade diamond; a closer look reveals fine wiggles arising from Coulomb oscillation in the big island.

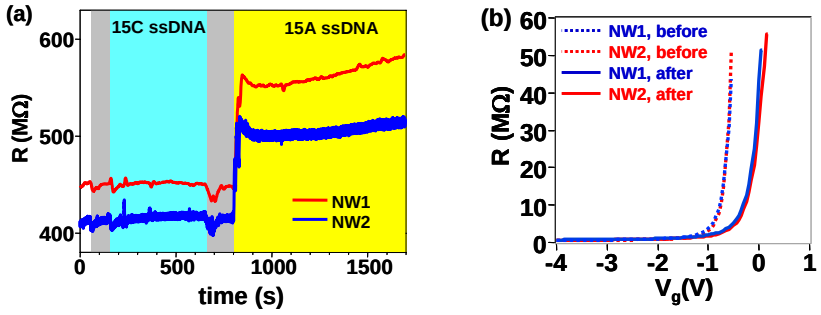



(top) Dynamics of 5 current peaks in magnetic field at a bias voltage of 1.8 mV. The curves shift with field from -5T at the bottom to +5T at the top. The current peaks at zero magnetic field are clearly suppressed as seen from peak P3. Refer to the main text for the description of the origin of the shift and suppression of the current peak. The inset presents enlarged view of P5 describing the evolution of current peak position with the applied fields of 0 (black curve), 2.5T (green curve) and 5T (red curve). Note also the small wiggles show no shift in the field. The peak position shift in (bottom) as a function of magnetic field for the 5 peaks are extracted from the raw data shown in (top) for further analysis. Peaks 2 and 3 show clear splitting in the presence of field, and the peaks shift in opposite directions.

- Control and detection of organosilane polarization on nanowire field-effect-transistors (Nano Letters, 2007)

  We demonstrated control and detection of UV-induced 3-Aminopropyltriethoxysilane (APTES) polarization using silicon nanowire field-effect-transistors made by top-down lithograph technology. Electric dipole moment in APTES films induced by UV-illumination was shown to produce negative effective charges. When individual dipoles were aligned with an externally applied electric field, the collective polarization can prevail over the UV-induced charges in the wires and give rise to an abnormal resistance enhancement in *n*-type wires. Real-time detection of hybridization of 15-mer poly-T/poly-A DNA molecules was performed, and amount of hybridization

induced charges in the silicon wire was estimated. Based on these results, detection sensitivity of the wire sensors was discussed.




Measured nanowire resistance in response to the injection of ssDNA molecules. Prior to the measurement the wires were modified with 15T ssDNA. (a) 15C ssDNA (cyan shade) and buffer (gray shade) solution were added at t=150 and 650 sec, respectively, and the wire showed no change in resistance. At t=800 sec, 15A ssDNA (yellow shade) was added and an abrupt increase in the resistance was observed. The two curves are for two SiNWs measured simultaneously. (b) The resistance of two p-type wires measured simultaneously as a function of gate voltage before addition of 15A ssDNA (dotted curve) and after hybridization (solid curve).

## V. Theoretical condensed matter physics

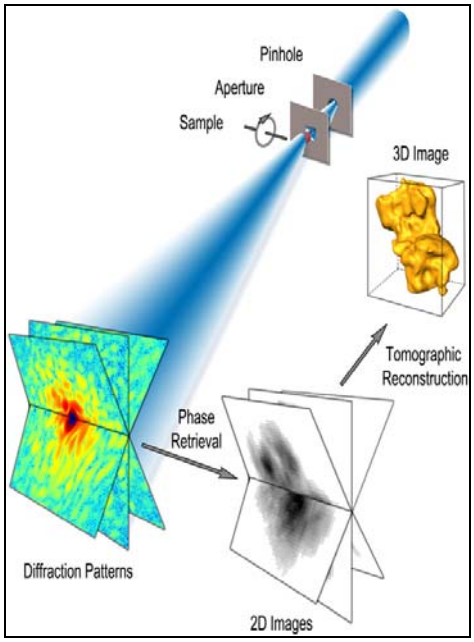
This group consists of two faculty members and more than 15 postdoctors, visiting scholars and research assistants including graduate students. The major research interests are High temperature superconductivity; Nano-materials; Protein structure prediction; Protein folding; Quantum Monte Carlo method. Theory of low temperature quantum systems; quantum many-body phenomena in cold-atoms, especially spinor Bose condensates and Fermionic superfluids, bosons and fermions in optical lattices; electronic transport in mesoscopic systems; properties of unconventional superconductors.

## VI. Computational physics

- New Algorithm for 3D image reconstruction of non-crystalline objects by using x-ray diffraction microscopy ( Phys. Rev. Lett. 97, 215503 (2006) )

  With the advance in nanoscience and nanotechnology, x-ray diffraction microscopy, a newly developed imaging technique, is becoming more and more important in the structural determination of non-crystalline micro- or nano-objects. The oversampling technique has been proposed to retrieve the lost phases of the measured intensities. By introducing the concept of optimization with the conventional hybrid input-output (HIO) algorithm, we developed a new algorithm with a much better accuracy in the reconstructed 2D images. We also developed a method to align all the reconstructed 2D images obtained at different angles. The method was demonstrated by carrying out a quantitative 3D imaging of a heat-treated GaN particle with each voxel corresponding to $17 \times 17 \times 17$ nm$^3$. We

observed the platelet structure of GaN and the formation of small islands on the surface of the platelets, and successfully captured the internal GaN-$Ga_2O_3$ core shell structure in three dimensions.



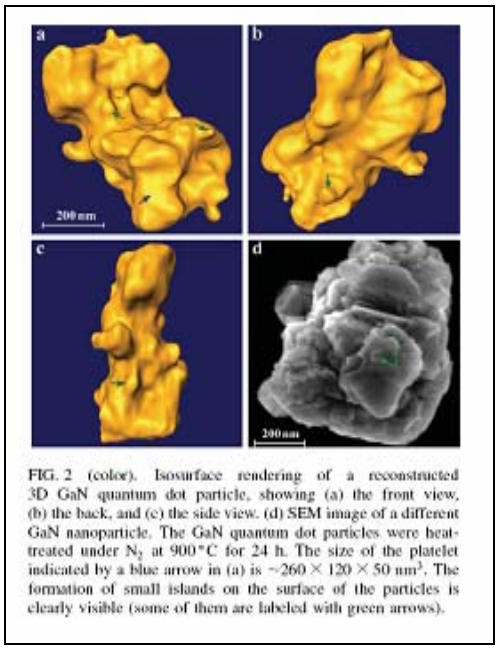




FIG. 2 (color). Isosurface rendering of a reconstructed 3D GaN quantum dot particle, showing (a) the front view, (b) the back, and (c) the side view. (d) SEM image of a different GaN nanoparticle. The GaN quantum dot particles were heat-treated under $N_2$ at 900 °C for 24 h. The size of the platelet indicated by a blue arrow in (a) is ~260 × 120 × 50 $nm^3$. The formation of small islands on the surface of the particles is clearly visible (some of them are labeled with green arrows).

Fig.1. Schematic layout of the 3D x-ray diffraction microscope, combining *ab initio* phase recovery with tomographic image reconstruction.

## Principal Investigators

Jason, Chia-Seng Chang
Research Fellow
Tel : 886-2-2789-6722 / jasonc@sinica.edu.tw
Ph.D., Arizona State University, USA
Research Interest： Surface physics and chemistry; Principles of atomic manipulation; Quantum effects in low-dimensional systems; Nanostructure sciences, and Development of SPM.

Chii-Dong Chen
Research Fellow
Tel : 886-2-2789-6766 / chiidong@phys.sinica.edu.tw
Ph.D., Chalmers University of Technology
Research interests：High operating temperature single electron transistors, Transport properties of nano-materials and bio-molecules**,** Physics and applications of

Superconducting/Ferromagnetic nanostructures.

Yang-Yuan Chen
Research Fellow
Tel: 886-2-2789-6725 / cheny2@phys.sinica.edu.tw
Ph.D., University of California, Irvine, USA
Research Interest： Low temperature physics, Low temperature specific heat Heavy Fermion, Nanoscience, Thermoelectricity, Ground freezing.

Chia-Fu Chou
Research Fellow
Tel：886-2-2788-0058 / cfchou@phys.sinica.edu.tw
PhD., State University of New York
Research Interests：Single-Molecule Biophysics；Biophotonics；Micro/nanofluidics；Nanobiotechnology；Liquid crystals

Ing-Shouh Hwang
Research Fellow
Tel: 886-2-2789-6764 / ishwang@phys.sinica.edu.tw
Ph.D., Harvard University, USA
Research interest： Surface science; Semiconductor physics; Scanning probe microscopy; Surface atomic and molecular dynamics; Mechanism of epitaxial growth.

Yeu-Kuang Hwu
Research Fellow
Tel : 886-2-2789-6721 / phhwu@sinica.edu.tw
Ph.D., University of Wisconsin Madison, USA
Research Interests： Application Research of Synchrotron Radiation, Photoelectron Spectromicroscopy Using Synchrotron Radiation.

Shien-Uang Jen
Research Fellow
Tel : 886-2-2789-6707 / physjen@gate.sinica.edu.tw
Ph.D., Carnegie-Mellon University, USA
Research Interests： Electron transport properties of ferromagnetic materials; Magnetostriction and application; Magnetic domains and domain walls; Magnetic anisotropy.

Horng-Tay Jeng
Assistant Research Fellow
Tel：886-2-2789-6765 / jeng@phys.sinica.edu.tw
Ph.D., National Tsing Hua University
Research Interests：computational physics, electronic structures of transitional-metal oxides, solid state physics, surface science, atomic and molecular physics

Hong-Shi Kuo
Assistant Research Fellow
Tel：886-2-2789-6737 / khs@phys.sinica.edu.tw
Ph. D. National Cheng Kung University
Research Interests：Preparation and Characterization of Single-Atom Tip, Electrochemical Scanning Probe Microscopy (EC-SPM), Focused Ion Beam (FIB) and Field Ionization, Electron Holography

Shang-Fan Lee
Associate Research Fellow
Tel : 886-2-2789-6767 / leesf@phys.sinica.edu.tw
Ph.D., Michigan State University, USA
Research interests include transport and magnetic properties and quantum phenomenon in metallic thin films and nano-structures

Ting-Kuo Lee
Distinguished Research Fellow
Tel : 886-2- 2789-6791 / tklee@phys.sinica.edu.tw
Ph.D., Brown University, USA.
Research Interest: High temperature superconductivity; Strongly correlated electronic systems,Optimization algorithms; X-ray diffraction microscopy

Wei-Li Lee
Assistant Research Fellow
Tel: 886-2-2789-6700 / wlee@phys.sinica.edu.tw
Ph.D. Dept. of Physics, Princeton University
Research Interests：Transport properties in novel magnetic materials; Strongly correlated electronic systems; Spin transport in magnetic nanostructures; Spin electronics

Yung Liou
Associate Research Fellow
Tel : 886-2-2789-6723 / yung@phys.sinica.edu.tw
Ph.D., The Pennsylvania State University, USA
Research interests：The growth mechanism, physical properties and applications of magnetic thin films. Molecular beam epitaxy of thin films and superlattices; magnetron sputtering of films and multilayers. The film structure, composition, surface morphology and magntic properties

Jessie Shiue
Associate Research Scientist
Tel: 886-2-2789-6762 / yshiue@phys.sinica.edu.tw
Ph.D., Rutgers University, USA
Research Interests: Nanomaterials, mechanical properties, instrumentation

Wei-Bin Su
Associate Research Fellow
Tel: 886-2-2789-6711 / wbsu@phys.sinica.edu.tw
Ph.D., National Tsing Hua University
Research Interest：Surface science, Scanning probe microscopy, Epitaxial growth of metal on semiconductor, Nanoscience, Observation of surface electronic structure

Maw-Kuen Wu
Distinguished Research Fellow & Director
Tel: (O) +886-2-2789-6716；Fax: +886-2-2788-9827
E-mail: mkwu@phys.sinica.edu.tw
Ph. D., Physics, University of Houston, USA
Research Interest ： Low Temperature Physics, High pressure physics, Superconductivity and Magnetism, Materials research in microgravity

Sungkit Yip
Research fellow
Tel: 886-2-2789-6785 / yip@phys.sinica.edu.tw
Ph.D., University of Illinois, Urbana-Champaign, USA
Research Interests: Superconducting phenomena; Quantum fluids; Strongly correlated electron systems

Tien-Tzou Tsong
Distinguished Professor
Tel:+886-2-2789-6727；Fax:+886-2-2789-9601
phtsong@ccvax.sinica.edu.tw; tsongtt@phys.sinica.edu.tw
Ph.D., in Physics, The Pennsylvania State University, USA
Research Interest： Surface Science, Surface Electron and Atom Dynamics, Atomic Resolution Microscopy, Field Emission Phenomena

L. Tung-Min Ho
Adjunct Faculty
Tel : 886-2-2789-6708 / ltho@gate.sinica.edu.tw
Ph.D., Purdue University, USA
Research Interest： Semiconductor Physics; Impurities and Defects in Crystals; Infrared Spectroscopy

Yeong-Der Yao
Adjunct Faculty
Tel : 886-2-2789-6717 / ydyao@phys.sinica.edu.tw
Ph.D., in Physics, Clarkson University, USA
Research Interests: Nano-Science, Magnetism, Low Temperature Physics, Superconductivity, Electrical Optics, Thin Films, and Nanosize Structures and their Physical Properties

## Postdoctoral Research Associates

Chang, Chung-Chieh; Chang, Tien-Chih; Chang, Yuan-Chih; Chen, Chi-Liang; Chen, Horng-Shyang; Chen, Kuo-Chi; Chen, Nan-yow; Chen, Ta-Kun; Chen, Tsung-Yu; Cheng, Li-Jing; Chou, Chung-Pin; Chung, Ming-Chiang; Dong, Chung-Li; Fang, Chung-Kai; Ho, I-Lin; Hsu, Pei-Cheng; Hu, Edwin; Hua, Tzu-en; Huang, Tzu-Wen; Huang, Yu-Chuen; Lee, Yi-Hsien; Leichle, Thierry; Liao, Chia-Ching; Liu, Chi-Jen; Lo, Tsung-Nan; Lu, Shin-Ming; Lu, Chi-Ken; Luo, Jiu-Yong; Patil, Deepak Rajaram; Tseng, Jie Jun; Wang, Cheng-Liang; Wang, Junyue; Wei, Huan-Sheng; Wu, Cheng-En; Wu, Sing-Lin; Yang, Chih-Wen; Yeh, Kuo-Wei ; Yuan, Fu-Te; Zhao, Li.

# Intermediate and High Energy Physics Research Group

## I. Theory Programs

### A. Particle Phenomenology

(1)Higher-order calculations in $k_T$ factorization
(2)Gluonic contributions in B meson decays
(3)New physics in $B \to K\pi$ decays
(4)Strong phases from annihilation diagrams in *B* meson decays
(5)Final-state interactions in hadronic B decays
(6)Hadronic *B* decays involving p-wave mesons
(7)Out of equilibrium and RHIC physics
(8)Photon production from nonequilibrium disoriented condensates in a spherical expansion
(9)Loop gravity
(10) p-brane production in fat brane or universal extra dimension scenario
(11) Nonperturbative bound on high multiplicity cross sections in theory in three dimensions from lattice simulation
(12)Neutrino mass and neutrino oscillation
(13)Quantum bit commitment

### B. Particle Astrophysics and Cosmology

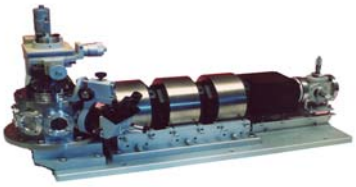
(1)Decaying superheavy dark matter and subgalactic structure of the Universe
(2)Bound on the time variation of the fine structure constant driven by quintessence
(3)Observational strategies of CMB temperature and polarization experiments
(4)Density perturbation in inflationary universe
(5)Correlated hybrid fluctuations from inflation with thermal dissipation
(6)Off-equilibrium dynamics of the primordial perturbations in the inflationary universe

### C. Theoretical Nuclear Physics

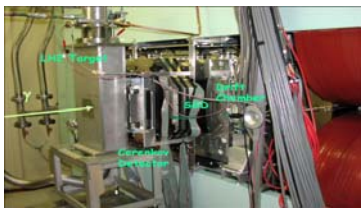
(1)Cascade production in heavy-ion collisions at SIS energies
(2)Two-level model and magnetic field effects on the hysteresis in n-GaAs
(3) Tsallis information theory

## II. Nuclear Physics Experimental

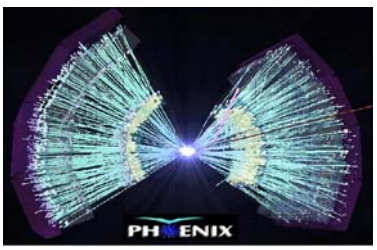
As for the high energy nuclear experiment, we participate at two international projects: SPring-8 LEPS experiment (Fig. 2) and BNL PHENIX experiment (Fig. 3). Photon beam with maximum energy up to 2.5 GeV can be generated from the backward Compton-scattering of incident eV laser photons with 8 GeV electrons circulating inside the storage rings of synchrotron facility, SPring-8 in Japan. We study the mechanism of interactions between photon and quarks at a few GeV via the reconstruction of $\gamma N \rightarrow \phi N$ reaction. In year 2003, we published the first observation of penta-quark state $\Theta^+$ (1540) which decays into neutron and kaon. The following confirmations by other experiments have triggered tremendous effort of studying pentaquark experimentally and theoretically. In Brookhaven National Lab, U.S., RHIC collider can crate a collision of Au nuclei of center of mass energy to be 200 GeV. PHENIX experiment is capable of measuring the di-lepton and photon signal of Quark Gluon Plasma. The experimental confirmation of QGP will greatly help the understanding the effect of finite temperature and baryon density on QCD and also the story of universe creation.



The newly-installed Oxford micro-beam system.



SPring-8 LEPS experiment



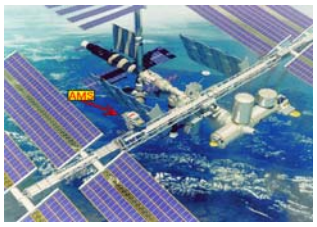

BNL PHENIX experiment

## III. Particle Physics Experimental

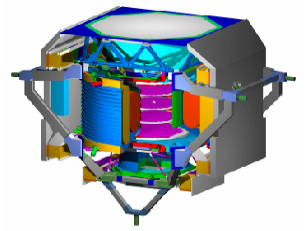
### (A) Collider Detector at Fermilab

### (B) AMS Experiment at International Space Station

The goal of the AMS experiment is to build the first precision magnetic spectrometer to be placed on the International Space Station in 2010 to search for anti-matter and dark matter in the Universe and to study cosmic ray physics and other exotic phenomenon. A simplified detector successfully operated on board the space shuttle Discovery for 10 days in June 1998, already producing important results. The AS group is leading the Taiwan participation in AMS, which includes the construction of the superconducting magnet, electronics and computing systems, thermal control system , as well as simulation and analysis.



1. AMS at the International Space Station



2.Schematic drawing of the AMS Detector.

### (C) Neutrino and Astro-particle Physics

The program was started in 1997 with the goal of pursuing an experimental program in neutrino and astro-particle physics in Taiwan. The TEXONO Collaboration, at present 30-member strong and under the leadership of the Academia Sinica group, is an international team with the participation research institutes from China, Turkey and India. The "flagship experiment" is based on scintillating crystal and solid state detectors placed near the core of Kuo-Sheng Nuclear Power Plant II at the northern coast of Taiwan to study low-energy neutrino and dark matter physics. This is the first particle physics experiment performed in Taiwan. World-level results have been achieved in the studies of neutrino magnetic moments and on dark matter searches. Our efforts and achievement have been widely covered by the international press and have garnered various awards. Present focus is on the development of 1-kg scale germanium detector at 100-eV threshold for neutrino-nucleus coherent scatterings and

dark matter searches.

Researchers make headway in neutrino study

By Myra Lu

After six years of painstaking work, researchers on the TEXONO project, or Taiwan Experiment on Neutrinos, have published the first results of what is admittedly a small experiment compared to what is being done at international laboratories. Nevertheless, the significance of the contribution for all the Chinese and Taiwanese scientists involved is no less evident.

Neutrinos are one of the more than 20 fundamental particles that make up the universe. Scientists around the world have conducted numerous experiments to learn more about this particle, which remains one of the least understood. Neutrinos are produced in the Earth's atmosphere, the sun, particle accelerators and nuclear power reactors.

Physicists believe that neutrino studies will help shed light on questions about the particle's

The Kuo-Sheng Nuclear Power Station, which produces electricity used by millions of households in northern Taiwan, also houses the research facilities of the TEXONO project.

Wong said. The results of international collaborations such as the Super-Kamiokande in Japan and Sudbury Neutrino Observatory in Canada gave the Taiwan project what Wong described as a "positive impact."

This is because these earlier experiments have confirmed that the neutrino does have mass and that neutrino oscillation does take place. The latter refers to a phenomenon where neutrinos change from one type to another while traveling great distances. Such oscillation would not occur if neutrinos were entirely without mass, which scientists used to believe to be the case.

"These experiments use much larger instruments to explore different aspects of the neutrino properties from those pursued by the TEXONO experiment. However, given their findings, we know there is a grander picture behind and which direction to go," Wong noted.

1. Headlines in Taiwan Journal, with the Kuo-Sheng Nuclear Power Plant.

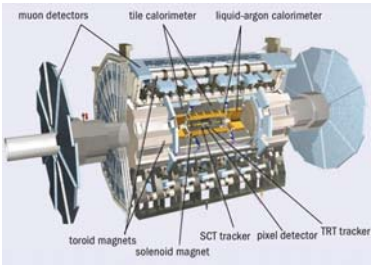
2. TEXONO Collaboration Members.

3. The shielding and control room at the Kuo Sheng Neutrino Laboratory.

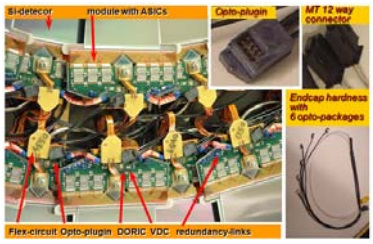
**(D) LHC-ATLAS at CERN**

The European Laboratory of Particle Physics (CERN) is constructing the Large Hadron Collider (LHC) scheduled to start operation in Fall of 2009. It will provide experimental usage of proton-proton collisions at center of mass energy of 14 TeV. The ATLAS detector is constructed for high energy experiment at LHC. The Academia Sinica high energy group joined the ATLAS Collaboration in September 1999. Our responsibility includes the development and construction of compact opto-packages for the optical links of the Inner Detector (PIXEL and Semi Conductor Tracker (SCT)), and the high-speed (1.6GHz) optical transmitter and receiver modules for Liquid Argon Calorimeter (LAr). A miniature opto-package (1.6mm in height) which consists of two VCSEL's (Vertical Cavity Surface Emitting Laser) and one epitaxial Silicon PIN diode has been developed for SCT to readout the 6 million

channel silicon micro-strip detector. The other responsibility for inner detectors is to provide the 12-channel VCSEL and PIN array modules for use in the readout driver (ROD) of both SCT and PIXEL.




1. Schematic drawing of the ATLAS detector.




2. Opto-packages mounted on the Semi-Conductor Tracker detector modules.

## IV. Grid Computing

The WLCG (Worldwide LHC Computing Grid) infrastructure is being established to store, manage and analyse the unprecedented amounts of data – tens of millions of Gigabytes per year - that will be produced by the experiments of the Large Hadron Collider, the world's biggest particle physics accelerator at CERN. By 2008, WLCG will integrate the equivalent of over one hundred thousand of today's PCs from over 200 institutes (in over 40 countries) into a computing and data grid system. In 2005, ASGC (Academia Sinica Grid Computing), led by Dr. Simon C. Lin, has formally become one of the 11 Tier-1 centers (the only Tier-1 in Asia) providing services, coordination and support for WLCG. ASGC has proven to be one of the most reliable Tier-1 Centers worldwide.

ASGC participates the WLCG technology development, including (1) GSTAT which is a Grid information monitoring system now widely used by over 200 WLCG institutes, (2) gLite middleware certification and testing, and (3) distributed analysis tools for LHC. In addition, ASGC also leads in the development of important Grid technologies such as Grid Application Platform (GAP) and the interoperability of two major Grid storage systems: SRM and SRB.

Based on the experiences of WLCG, ASGC joins the European Union e-Science flagship project (Enabling Grid for E-sciencE, EGEE) providing grid services to scientists from various domains. As the Asia Federation Coordinator, ASGC is

helping 9 Asian countries to participate the EGEE activities, especially, the application area. In April 2006, a collaboration of ASGC, AS Genomics Research Center and European laboratories has analysed 300,000 possible drug candidates against the Avian Flu Virus H5N1 by using the WLCG infrastructures. Over 2000 computers were used during 4 weeks, this is equivalent to 137 years on a single computer. This is the biggest cross-continental public collaboration project ever in Drug Discovery, the story was widely reported by the international media such as BBC.

**Principal Investigators**

Wen-Chen Chang
Associate Research Fellow
Tel: 886-2-2789-6794 / changwc@phys.sinica.edu.twPh.D., SUNY at Stony Brook, U.S.
Research Interest: Relativistic Heavy Ion Collisions, Quark Nuclear Physics, Vector Meson Photoproduction.

Hai-Yang Cheng
Research Fellow
Tel : 886-2-2789-6768 / phcheng@ccvax.sinica.edu.tw
Ph.D., Purdue University
Research Interest: Particle Physics Phenomenology.

Chi-Yee Cheung
Research Fellow
Tel : 886-2- 2789-6788 / cheung@phys.sinica.edu.tw
Ph.D., University of Washington, U.S.A.
Research Interests : Medium and High Energy Physics.

Ming-Lee Chu
Senior Research Scientist
Tel : 886-2-2789-6796 / chu@phys.sinica.edu.tw
Ph.D., National Chiao Tung University
Research Interests: High energy experiment, Radiation hard electronics/ opto-electronics, optical data transfer system, electronic instrumentation.

Suen Hou
Associate Research Fellow
Tel : 886-2-2789-6703 / suen.hou@cern.ch
Ph.D., University of Maryland
Research Interests: Experimental high energy physics, instrumentation.

Shih-Chang Lee
Research Fellow
Tel : 886-2-2789-6706 / sclee@sinica.edu.tw
Ph.D., Princeton University.
Research Interests: Particle physics, field theory, nonlinear physics.

Sai-Ping Li
Research Fellow
Tel : 886-2-2789-6728 / spli@phys.sinica.edu.tw
Ph.D., University of Washington, Seattle, USA.
Research Interests: Theoretical physics; particle and field theory.

Hsiang-nan Li
Research Fellow
Tel : 886-2-2789-6726 / hnli@phys.sinica.edu.tw
Ph.D., SUNY at Stony Brook, U.S.
Research Interest: Perturbative Quantum Chromodynamics, *B* physics

Simon C. Lin
Associate Research Fellow
Tel : 886-2-2789-9254 / sclin@sinica.edu.tw
Ph.D., University of Edinburgh, Scotland.
Research Interest: Computational Physics, Statistical Mechanics, Scalable Algorithm in Simulated Annealing, Cluster Computing, Internet Strategic Planning, Digital Library/Museum.

Guo-Ching Jon
Associate Research Scientist
Tel: 886-2-2789-6787 / phjon@phys.sinica.edu.tw
Ph.D., Tohoku University, Japan
Research Interests: Experiment nuclear physics, Accelerator physics, Radiation protection.

Kin-Wang Ng
Research Fellow
Tel : 886-2-2789-6702 / nkw@phys.sinica.edu.tw
Ph.D., University of Minnesota, USA.
Research Interests: Particle astrophysics and cosmology; early universe; inflationary cosmology and quantum fluctuations; dark matter; cosmic microwave background.

Ping-Kun Teng
Research Fellow
Tel : 886-2- 2789-6792 / pkteng@sinica.edu.tw
Ph.D., Rensselaer Polytechnic Institute.
Research Interests: Particle physics, Nuclear Physics.

Yiharn Tzeng
Research Fellow
Tel : 886-2- 2789-6795 / phtzengyh@ccvax.sinica.edu.tw
Ph.D., Physics, UCLA
Research Interest: Theoretical Nuclear Physics, Intermediate Energy Nuclear Physics, Nuclear Many-Body Problems and Nuclear Structure, Quark Models, Hypernuclear Systems.

Henry Tsz-King Wong
Reasarch Fellow
Tel : 886-2- 2789-6789 / htwong@phys.sinica.edu.tw
Ph.D. in Physics, California Institute of Technology, USA.
Research Interests: Neutrino Physics and Astrophysics, Astro-particle Physcis, Particle Physics Instrumentation, Cross-Strait Academic Collaboration.

Hoi-Lai Yu
Research Fellow
Tel : 886-2-2789-6783 / hlyu@phys.sinica.edu.tw
My Projects Digital and Physics:
http://www.phys.sinica.edu.tw/~hoilai/
Ph.D., University of Pittsburgh, USA.
Research Interests: Field Theories, Cosmology, Non-equilibrium Physics, Digital Physics and Cosmology.

Yueh-Chung Yu
Associate Research Fellow
Tel：886-2- 2789-6769 / phycyu@phys.sinica.edu.tw
Ph.D., University of North Texas.
Research Interest：Accelerator based atomic physics and materials characterization.

Tzu-Chiang Yuan
Associate Research Fellow
Tel：886-2- 2789-67605/ tcyuan@phys.sinica.edu.tw
Ph.D., Northeastern University
Research Interests: Particle Physics Phenomenology, Dark Matter

Song-Ming Wang
Assistant Research Fellow
Tel：886-2-2789-6793/ smwang@fnal.gov
Ph.D., University of Iowa, U.S.A.
Research Interest：Experimental high energy Physics

## Postdoctoral Research Associates

Yang-Hwan Ahn ; Yen-Chu Chen；Hiroaki Koyama ; Ankush Mitra；Ling Li ; Hau-Bin Li； Di Qing； Zhong-Liang Ren； Chia-Ming Kuo； Suijian Zhou； Shin-Ted Lin；Jyh-You Hsu； Yuh-Kuei Chang； Yue-Long Shen ; Jie Jun Tseng； Chun-Hsien Wu；Shang-Yuu Tsai；Seokcheon Lee；Yu-Kuo Hsiao； Yu-Chun Chen； Deniz Muhammed 。

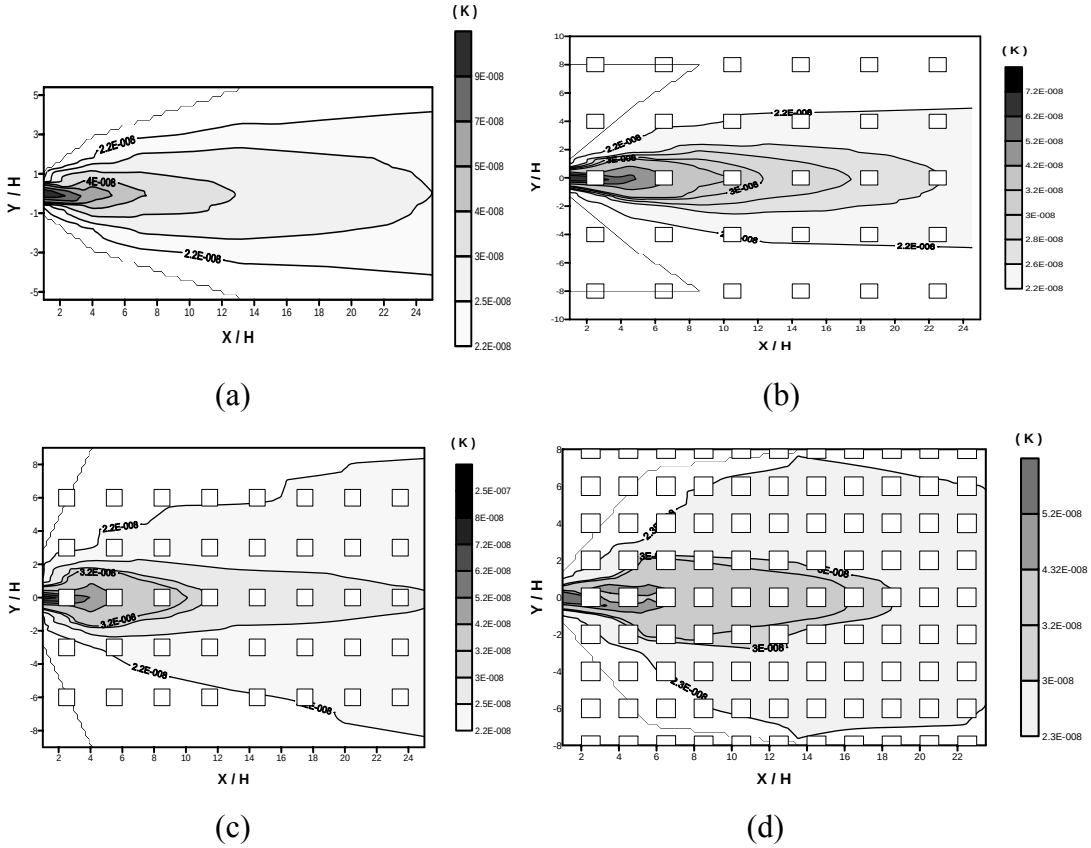
## Complexity Research Group

Complex systems are systems consisting of many simple elements which interact with each other nonlinearly. In general, the most interesting aspect of complex systems is the cooperative behavior among the elements mediated by their nonlinear interaction. Such cooperative behavior is manifested in the spatial and/or temporal patterns, which give the systems a variety of structures. In our institute, there are ten faculty members and over ten postdocs and several graduate students working in different areas of complexity and non-linear science. Our studies of nonlinear and complex systems consist of the following directions.

### I. Hydrodynamics and Atmospheric Environment Physics

Dispersion of emitted airborne pollutants in urban environment is mainly affected by the buildings density and wind attack angles on the buildings. Due to the complexity of the buildings arrangements in the urban region, it is difficult to predict precisely the dispersion of pollutant by the numerical model. Field study can achieve the goal in a more precision status. But works of the field investigation cost much. Wind tunnel experimental simulation is therefore a feasible alternative. Experiments of wind tunnel study on the dispersion of pollution in urban environment of cubic building array in-line configuration for different wind attack angles were conducted in cooperation with the Environmental Wind Tunnel Laboratory of National Taiwan Ocean University (NTOU) (Bao-Shi Shiau).

View of the Environmental Wind Tunnel, NTOU; (Total length 22.6 m, and test section: 12.6m (L) x 2 m (W) x 1.4~1.6 m (H); speed range 0~20 m/s; 10-blade axial fan driven by a motor power of 75 HP)




Horizontal concentration contours for different building array gap at height Z/H=0.5, $\theta=0^{o}$; (a)open terrain, (b)G/H=3, (c)G/H=2, (d)G/H=1; where G: building gap, H: building height.

The radar data was assimilated into the semi-Lagrangian cloud model developed previously, which is a nonlinear atmospheric fluid dynamic prediction model with phase changes for meso-scale phenomena, using ensemble Kalman filter to investigate the the storm characteristics, such as the life cycle of the storm, precipitation area and amount of cumulated rainfall (Chung-Yi Tseng).

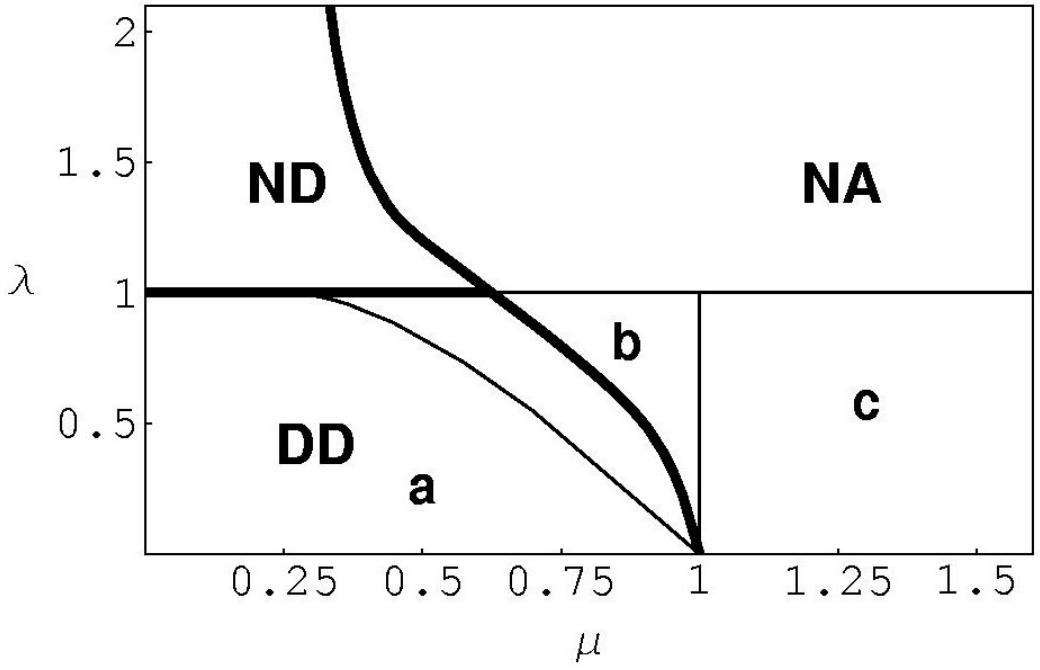
## II. Non-linear Phenomena in Complex Systems

Complex fluids, such as polymer and surfactant solutions, electrorheological fluids, and granular fluids, are among the most important materials studied in basic and applied sciences. We investigated phase transitions of binary liquid mixture with polymer and discovered a possibly new universality class at the critical point (Kiwing To).

Studies of granular flows are not only interesting topics by themselves but can also be related to a wide spectrum of condensed-matter phenomena. In two-dimensional hopper flow experiments, we are searching for a basic understanding of the jamming phenomenon. On vertically vibrating platforms, we are studying the phase transitions of granular gas as well as the conformations of granular chains, which may ultimately be related to dynamics of polymers (Kiwing To). Using cyclically sheared two-dimensional grains, we attempt to systematically investigate the transitions between different regimes, among which the idealized collisional dynamics (like molecular gases) and the so-called quasi-static behaviors (like stationary sands or soil) are believed to be the two extreme cases. Parallel studies using photo-elastic materials, or foams, may supplement our understandings of the rheological changes as the transitions occur (Jih-Chiang Tsai). Rheology data of protein and DNA solution may reveal the molecular structures as well as the formation mechanism of these biologically important macromolecules and single-molecule measurements have just been started (Chi-Keung Chan). Other nonlinear phenomena we studied include spiral wave dynamics in chemical reaction (Chi-Keung Chan); pattern formation in fracture phenomena(Kwan-tai Leung).

## III. Statistical and Computational Physics Approach to Complex Systems

Laboratory of Statistical and Computational Physics (LSCP, website: http://www.sinica.edu.tw/~statphys/) at our institute is devoted to frontier research in statistical and computational physics (SCP), applications of SCP to problems in physical, biological, and social sciences, sponsoring meetings in SCP, and promoting education and research of SCP in developing countries. The research topics at LSCP include: equilibrium critical systems, such as the Ising, dimer, and percolation models; non-equilibrium critical systems, such as sand-pile and avalanche models; synchronization in nonlinear coupled systems and analysis of physiological data; models of biological evolution; analytic and numerical studies of macromolecules, polymer, DNA, RNA, and proteins; stochastic dynamic model for stock-stock correlations; universality and scaling in statistical data of literary works (Chin-Kun Hu).




Schematic phase diagram for the interstrand couplingλversus the strand-surface couplingμfor DNA on plane surface. The bold lines confine three thermodynamical phase. **ND**: Naturation and desorption. **NA**: Naturation and adsorption. DD: Desorption and denaturation. [ A.E. Allahverdyan, Z. S. Gevorkian, C.-K. Hu & T. M. Nieuwenhuizen PRL 96, 098302(2006)]

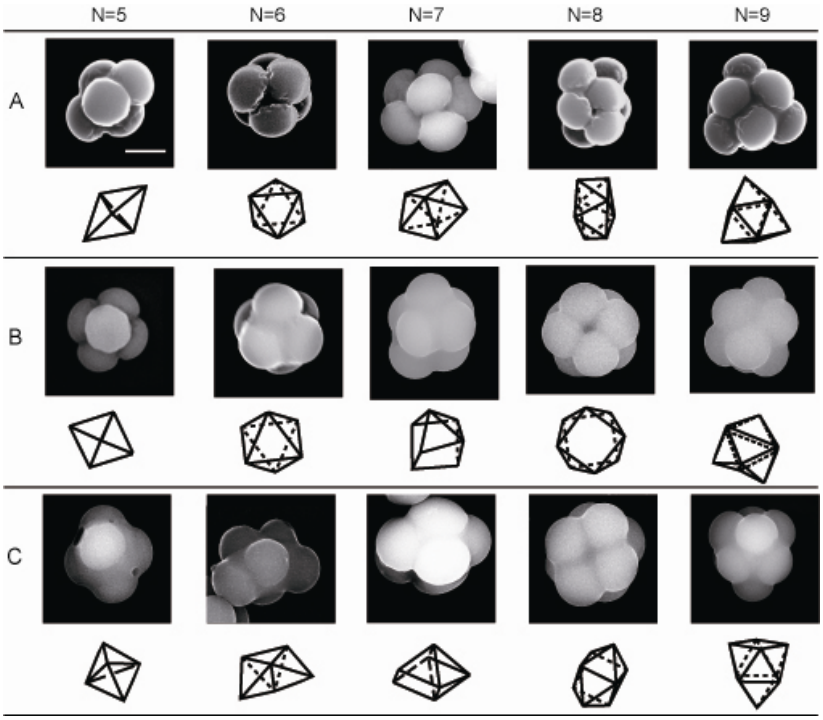
## IV. Biology-Inspired Physics

Biological organisms are likely the most complex and the least understood systems that one can imagine, due to their intricate biochemical and physical interactions among macromolecules. Biology is essentially an experimental science with huge amount of data, physicists hope to distill basic principles from them. Because all biological processes operate in a thermal environment, statistical physics is an indispensable tool in studying them. Equipped with such tools, we have been studying theoretically: biological and physiological signals (such as heart beat), development of algorithms and simulations of macromolecules (DNA, RNA and proteins) with parallel computers (Chin-Kun Hu), and collective behavior in animal flocking and bacteria (Kwan-tai Leung). Moreover, Experimental studies on synchronized firing of neural net has also been carried out (Chi-Keung Chan).

Experimental setup for synchronous firing of neural net.

## V. Self-assembly Phenomena in Colloidal Particles

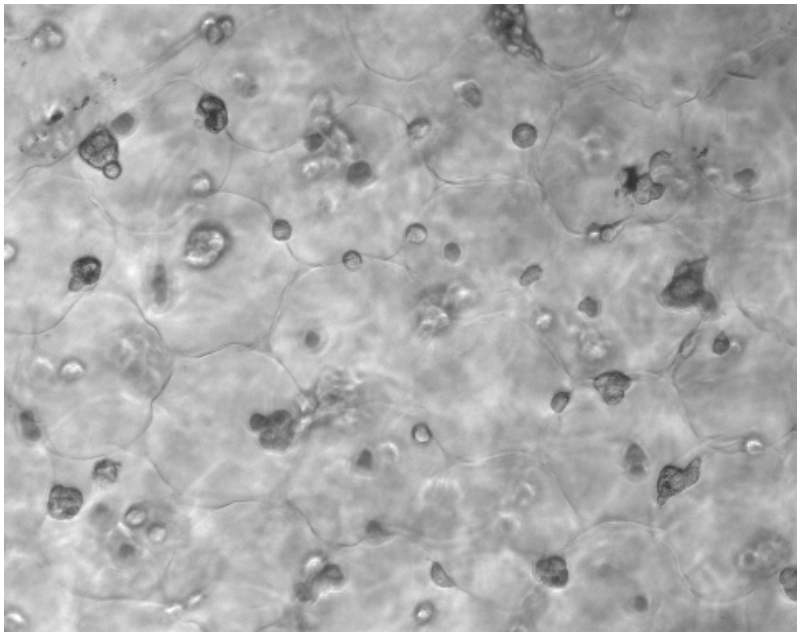
We are interested in the self-assembly phenomena, particularly in colloidal systems. In nature we observe many ordered structure which happens on its own. It is important to understand self-assembly and to explore it since this is the key to the bottom-up approach of nanotechnology. We choose colloidal particles because they are ideal model systems. In many ways it is the analogy of atomic systems but their interaction can be measured directly and they can be observed in real time and real space (Keng-hui Lin).




靠將膠體小球與高分子包在油滴中製造出的膠體分子.

Colloidal clusters made by encapsulating microspheres and polymers in emulsion droplets and evaporating oil from the droplets. The clusters are

categorized into three classes -- configurations that satisfy the minimal second moment, and the solutions to the spherical packings and none of the above.



由微流體製造三維有序的孔洞結構, 做爲組織工程的鷹架.
The 3D ordered macroporous foam are created by microfluidic device and used for tissue engineering scaffold.

## VI. Single-molecule Studies of Biological Macromolecules

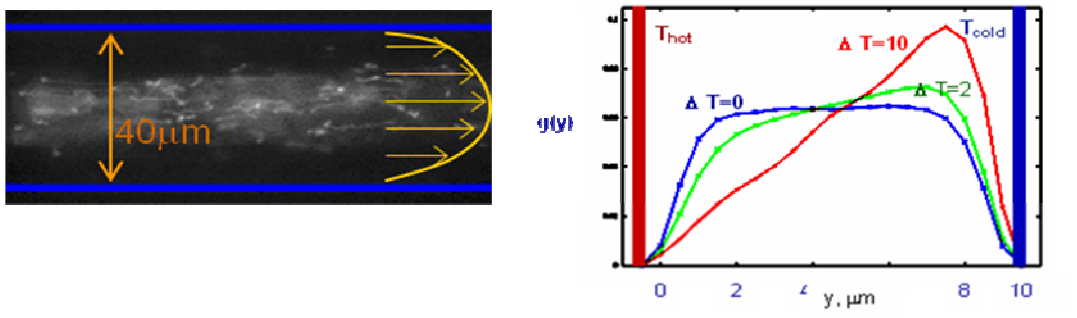
Research of biological macromolecules provides golden opportunities to bridge our understandings of polymer physics to many biophysics topics. Through fluorescence microscopy techniques, the dynamics of the biopolymers in solution at the single molecular level can be clearly observed. In addition to the study of physics of various polymeric solutions, the end-grafted DNA brushes have also been constructed and studied at both mesoscopic and single molecule levels (Wen-Tau Juan).

## VII. Dynamics of Biological Macromolecules and Complex Fluids

The dynamics and conformation of large polymers such as DNA in highly confined systems are of interest to microfluidic applications, nano-material design, and biophysical processes in micron-scale cellular environments. In nanoscale devices, it is crucial to be able to manipulate the conformation and dynamics of macromolecules. Theoretical and computer modeling allow us to investigate the dynamics of large, micron-sized, DNA molecules in micro- and nanofluidic flow. We are investigating thermal and electrostatic effects on DNA and polymer dynamics in strong confinement. Our studies could reveal new methods for molecular manipulation in

spatially restricted systems (Yeng-Long Chen).

(a) (b)




DNA molecules under (a) flow induced hydrodynamic migration and (b) thermal migration allows DNA separation and manipulation in micro-and nano-devices.

## Principal Investigators


Chi-Keung Chan
Research Fellow
Tel : 886-2-2789-6790 / ckchan@gate.sinica.edu.tw
Ph. D., Physics Department, University of Pittsburgh

Interests: nonlinear phenomenon in the dynamic behaviors of complex fluid systems, phase separation dynamics of simple fluids, polymer solutions and surfactant solutions, granular flows, Light scattering & imaging techniques, firing in neural net.


Yeng-Long Chen
Assistant Research Fellow
Tel : 886-2-2789-6747 / yenglong@phys.sinica.edu.tw
Ph. D., Department of Chemical Engineering, University of Illinois at Urbana-Champaign

Interests: polymer physics, fluid dynamics, equilibrium and non-equilibrium statistical mechanics, entropy-driven phase separation, collective phenomena of self-driven particles.


Chin-Kun Hu
Research Fellow
Tel : 886-2- 2789-6720 / huck@phys.sinica.edu.tw
Ph.D., National Tsing Hua University

Interests: Statistical and computational physics, nonlinear science, theoretical biophysics, complex systems.

Wen-Tau Juan
Assistant Research Fellow
Tel : 886-2-2789-6759 / wtjuan@phys.sinica.edu.tw
Ph. D., National Central University
Research Interests: Experimental Polymer Physics, Experimental Soft Condensed Matter Physics, Experimental Low Temperature Plasma Physics, Nonlinear Physics, Biophysics.

Kwan-tai Leung
Research Fellow
Tel: (886) 2-2789-6780 / leungkt@phys.sinica.edu.tw
Ph.D.,University of California, Santa Barbara
Research Interests: Nonequilibrium statistical mechanics; phase transitions & critical phenomena; modeling of biological motility.

Keng-hui Lin
Assistant Research Fellow
Tel : 886-2-2789-6763 / khlin@phys.sinica.edu.tw
Ph.D., University of Pennsylvania, USA
Research Interest: Soft Condensed Matter, Biophysics, Nano-material assembly.

Bao-Shi Shiau
Research Fellow (Joint Appointment)
Tel: 886-2-27896749 / bsshiau@gate.sinica.edu.tw
Ph.D., Department of Mechanical Engineering, National Taiwan University.
Research Interest: Wind Engineering, Marine and Atmospheric Pollution Dispersion, Wind Tunnel Modeling.

Kiwing To
Research Fellow
Tel：886-2- 2789-6770 / ericto@gate.sinica.edu.tw
Ph.D., Physics Department, University of Pittsburgh
Research Interests: Phase transitions and critical phenomenon; physics of fluids and hydrodynamics; electrorheological fluids; granular materials; polymer physics.

Jih-Chiang Tsai
Assistant Research Fellow
Tel：886-2- 2789-6729 / jctsai@phys.sinica.edu.tw

Ph.D., Physics Department, University of Pennsylvania
Research Interests: Physics of granular materials, foams, and fluids

Chung-Yi Tseng
Research Fellow
Tel : 886-2-2789-6748 / cytseng@phys.sinica.edu.tw
Ph.D. in Meteorology, University of Oklahoma, U. S. A. ;
Research Interests:Meteorological Numerical Modeling, Atmospheric Radiation and Remote Sensing.

## Postdoctoral Research Associates

Shura Hayryan； Wen-Jong Ma； Yong-Zhong Chen； Yao-Chen Hung； Karen Petrosyan； Yu-Pin Luo； Wei Chen ; Kuo-Yuan Chung ; Yuk-Gyn Lau ; Li-Lin Wang; Hwa-Yi Hsu

# III

# List of Ongoing Research Projects

## List of Ongoing Research Projects

中央研究院物理研究所九十六-九十七年度計劃清單一覽表

（ 2007 年 8 月 ~ 2009 年 7 月 ）

| 主持人 | 計　劃　名　稱 | 執行期間 | 計劃編號 |
|---|---|---|---|
| 杜其永 | 顆粒鍊實驗研究 | 95/08/01-98/07/31 | NSC95-2112-M-001-030-MY3 |
| 曾詣涵 | 特異核之研究 | 95/08/01-98/07/31 | NSC95-2112-M-001-032-MY3 |
| 余岳仲 | 荷電粒子在單元素與化合物薄膜的能量損失機制之研究 | 95/08/01-97/10/31 | NSC95-2112-M-001-034-MY2 |
| 章文箴 | 在日本SPring-8研究非微擾光致向量介子產生及尋找五夸克粒子 | 95/08/01-98/07/31 | NSC95-2112-M-001-046-MY3 |
| 李湘楠 | 超級B工廠的物理 | 95/08/01-98/07/31 | NSC95-2112-M-001-050-MY3 |
| 陳彥龍 | 極小侷域內高分子流體動力學和相變之理論研究 | 95/08/01-98/07/31 | NSC95-2112-M-001-051-MY3 |
| 吳建宏 | 暴脹宇宙的能量密度起伏 | 95/08/01-98/07/31 | NSC95-2112-M-001-052-MY3 |
| 李定國 | 以數值方法研究強關聯電子系統 | 95/08/01-98/07/31 | NSC95-2112-M-001-061-MY3 |
| 阮文滔 | 溶液中高分子之單分子研究 | 95/08/01-98/07/31 | NSC95-2112-M-001-069-MY3 |
| 葉崇傑 | 低溫原子中之多體問題 | 95/08/01-98/07/31 | NSC95-2112-M-001-054-MY3 |
| 蘇維彬 | 掃描穿隧能譜術於電子散射之研究 | 95/08/01-97/10/31 | NSC95-2112-M-001-055-MY2 |
| 陳啟東 | 能量耗散對庫柏電子對相干傳輸的影響 | 95/08/01-98/07/31 | NSC95-2112-M-001-062-MY3 |
| 劉　鏞 | 稀釋磁性半導體薄膜與奈米結構的研究 | 95/08/01-97/07/31 | NSC95-2112-M-001-063-MY2 |

| 主持人 | 計　劃　名　稱 | 執行期間 | 計劃編號 |
|---|---|---|---|
| 陳彥竹 | 在CDF實驗中對新物理的探求 | 95/08/01-98/07/31 | NSC95-2112-M-001-067-MY3 |
| 李世炳 | 科普活動計畫(C類)—踏向科學的第一步 | 95/08/01-98/01/31 | NSC95-2515-S-001-002-MY2 |
| 胡宇光 | 分子及奈米生醫影像核心設施之建構 | 95/08/01-97/10/30 | NSC95-2120-M-001-010 |
| 黃英碩 | 奈米級像散式量測系統之開發 | 95/12/01-98/11/30 | NSC95-3114-P-001-008-MY3 |
| 吳茂昆 | 奈米國家型科技計畫辦公室運作計畫 | 95/12/01-97/03/31 | NSC95-3113-P-001-003-Y |
| 于　淳 | 用非侷限自旋閥結構來測量磁壁在次微米與奈米線寬中被脈衝磁場與脈衝電流驅動時的移動率 | 96/01/01-97/12/31 | NSC96-2112-M-001-010-MY2 |
| 張嘉升 | 物理學門(凝態組)研究發展及推動計畫 | 96/01/01-96/12/31 | NSC96-2114-M-001-001 |
| 郭鴻曦 | 以電化學掃描穿隧顯微術研究單一分子在水溶液中之動態行為 | 96/02/01-98/07/31 | NSC96-2112-M-001-012-MY2 |
| 李世昌 | 建造AMS太空磁譜儀以搜尋反物質及暗物質(3/3) | 96/05/01-97/07/31 | NSC96-2745-E-001-001 |
| 吳茂昆 | 國際學術網路連線、維運與全球e-Science研究應用 | 96/01/01-98/12/31 | NSC96-2911-M-001-001-MY3 |
| 李尚凡 | 磁性奈米結構的點接觸量測(2/3) | 96/02/01-97/09/15 | NSC96-2112-M-001-008 |
| 李定國 | 前瞻人才培育暨科普推廣計畫 | 96/04/01-98/02/28 | NSC96-2745-M-001-001 |
| 周家復 | 以微奈米流體元件製備之粒子捕捉阱，探討電場對聚集生物分子及其對生物感測器內反應動力學上的效應 | 96/08/01-99/07/31 | NSC96-2112-M-001-024-MY3 |
| 李世炳 | 血液循環系統效率指標之研究-以數值模擬研究血液循環系統效率指標(3/3) | 96/08/01-97/07/31 | NSC96-2112-M-001-001 |

| 主持人 | 計　劃　名　稱 | 執行期間 | 計劃編號 |
|---|---|---|---|
| 鄭海揚 | 重味物理現象學之研究(3/3) | 96/08/01-97/10/31 | NSC96-2112-M-001-003 |
| 陳志強 | 台俄雙邊合作計畫--心肌和神經學科中可激發和振盪系統之同步和控制之研究(3/3) | 96/08/01-97/09/30 | NSC96-2112-M-001-005 |
| 林耿慧 | 微流體元件裡的熱泳現象(3/3) | 96/08/01-97/07/31 | NSC96-2112-M-001-007 |
| 梁鈞泰 | 運動性生物個體之動力學研究 | 96/08/01-99/07/31 | NSC96-2112-M-001-025-MY3 |
| 陳志強 | 非局部相互作用對可激發系統影響之研究 | 96/08/01-99/07/31 | NSC96-2112-M-001-035-MY3 |
| 胡進錕 | 統計和計算物理在複雜系統之應用 | 96/08/01-99/07/31 | NSC96-2911-M-001-003-MY3 |
| 李世昌 | 參與ATLAS實驗搜尋新物理現象暨以精密質譜儀探測宇宙中之反物質及暗物質Ⅶ暨CDF實驗光鍊維運/ATLAS實驗計算網格建構 | 96/08/01-97/10/31 | NSC96-2911-M-001-004 |
| 王子敬 | 台灣微中子實驗-微中子與原子核的同調散射與暗物質找尋超低能探測器的研究 | 96/08/01-97/10/31 | NSC96-2119-M-001-005 |
| 任盛源 | 軟磁薄膜之彈性性質研究(3/3) | 96/08/01-97/07/31 | NSC96-2119-M-001-006 |
| 李尚凡 | 磁性材料中電流引發磁矩翻轉之研究 | 96/08/01-99/07/31 | NSC96-2112-M-001-033-MY3 |
| 侯書雲 | 強子對撞實驗物理：CDF與Atlas實驗新物理及粒子搜尋--DF實驗eta-b meson搜尋暨ATLAS實驗di-boson物理研究 | 96/08/01-97/10/31 | NSC96-2739-M-001-002 |
| 黃榮鑑 | 孤立波通過隆起底床引致碎波流場之三維數值研究(3/3) | 96/08/01-97/07/31 | NSC96-2221-E-001-009 |
| 陳洋元 | 重費米系統中近藤效應,磁有序與超導之相關性研究 | 96/08/01-97/07/31 | NSC96-2112-M-001-036 |
| 陳洋元 | 奈米材料之新穎物理性質與量子尺寸效應研究(3/3) | 96/08/01-97/09/30 | NSC96-2120-M-001-003 |

| 主持人 | 計　劃　名　稱 | 執行期間 | 計劃編號 |
|---|---|---|---|
| 張嘉升 | 吸附、雜質、及襯底對單一奈米結構的原子重組及物性的影響(2/3) | 96/08/01-98/04/30 | NSC96-2120-M-001-006 |
| 胡宇光 | 利用相位與繞射對比強化的動態奈米生醫影像(1/3) | 96/08/01-97/10/31 | NSC96-2120-M-001-009 |
| 張嘉升 | 中央研究院奈米科技核心設施服務計畫(2/3) | 96/08/01-97/12/31 | NSC96-2120-M-001-007 |
| 吳茂昆 | 新穎過渡金屬硫屬化合物之磁性與超導研究-子計畫一:新穎過渡金屬硫屬化合物之磁性與超導研究 | 96/08/01-99/07/31 | NSC96-2112-M-001-026-MY3 |
| 李偉立 | 以新穎奈米結構製程技術，探索奈米結構元件之自旋相關特性 | 96/04/01-99/03/31 | NSC96-2628-M-001-007-MY3 |
| 黃英碩 | 非接觸式原子力顯微術在水中及在真空中的應用 | 96/08/01-99/07/31 | NSC96-2628-M-001-010-MY3 |
| 鄭弘泰 | 過渡金屬氧化物之電荷軌道序及奈米系統之電子結構研究 | 96/08/01-97/12/31 | NSC96-2628-M-001-027 |
| 李偉立 | 以新穎奈米結構製程技術，探索奈米結構元件之自旋相關特性研究 | 96/08/01-97/12/31 | NSC96-2738-M-001-002 |
| 黃榮鑑 | 波浪與透水結構物互制之研究 | 96/08/01-97/10/31 | NSC96-2221-E-001-033 |
| 陳啟東 | 以奈米線場效電晶體及光學感測器探討神經網路功能—電子束微影技術製備奈米線場效電晶體(子計畫二)(3/3) | 96/08/01-97/10/31 | NSC96-2627-M-001-007 |
| 李世昌 | AMS-02熱控系統研製、測試及運作計畫 | 96/01/01-97/12/31 | NSC96-2745-P-001-001-MY2 |
| 林誠謙 | 台灣WLCG Tier-2中心-Taiwan Analysis Facility之建置 | 96/08/01-97/08/31 | NSC96-2911-M-001-006 |
| 林誠謙 | 數位典藏海外推展暨國際合作網路推動計畫 | 96/01/01-97/06/30 | NSC96-3113-H-001-006 |
| 林誠謙 | 建立亞洲聯盟並推展歐盟EGEEⅡ計畫 | 96/06/01-97/04/30 | NSC96-2923-I-001-001 |

| 主持人 | 計　劃　名　稱 | 執行期間 | 計劃編號 |
|---|---|---|---|
| 王嵩銘 | 在CDF實驗中尋找超對稱模型存在的證據 | 96/10/01-97/07/31 | NSC96-2112-M-001-038 |
| 林誠謙 | 數位典藏國際組織營運與拓展計畫 | 96/12/01-97/11/30 | NSC96-3113-H-001-018 |
| 吳茂昆 | 第二期(2009-2014)奈米國家型科技計畫領域技術規劃 | 96/12/01-98/02/28 | NSC96-3011-P-001-003 |
| 胡宇光 | 利用奈米醫學及微聚焦X光加強癌症之放射治療 | 96/12/01-98/06/30 | NSC96-3011-P-001-004 |
| 陳彥龍 | 單一DNA分子在奈米尺度障礙物環境的靜力學與動力學研究 | 96/08/01-98/07/31 | NSC96-2112-M-001-039-MY3 |
| 張嘉升 | 以掃描穿隧顯微術取得半導體摻雜平面分佈資訊 | 96/01/01-96/12/31 | 台灣積體電路製造股份有限公司 |
| 胡宇光 | 分子與奈米生醫影像核心設施 | 96/07/01-96/12/31 | 財團法人國家同步輻射研究中心 |
| 李世昌 | AMS-02熱控系統研製、測試及運作計畫 | 96/12/01-98/11/30 | 財團法人國家實驗研究院國家太空中心96-NSPO(B)-SP-LA01-01 |
| 蕭葆義 | 基隆市污水下水道系統第一期實施計畫—和平島污水處理廠污水排放調查分析及因應對策放流水海域擴散及稀釋模擬 | 96/09/01-97/09/30 | 黎明興技術顧問股份有限公司 |
| 張嘉升 | 物理學門(凝體組)研究發展及推動計畫 | 97/01/01-97/12/31 | NSC97-2114-M-001-001 |
| 吳茂昆 | 奈米國家型科技計畫辦公室運作計畫 | 97/01/01-98/03/31 | NSC97-3113-P-001-001-PO |
| 李尚凡 | 磁性奈米結構的點接觸量測-台法合作計畫(3/3) | 97/02/01-98/10/31 | NSC97-2112-M-001-001 |
| 鄭海揚 | 重味物理之探討 | 97/08/01-100/07/31 | NSC97-2112-M-001-004-MY3 |
| 余海禮 | 量子重力研究 | 97/08/01-100/07/31 | NSC97-2112-M-001-005-MY3 |

| 主持人 | 計　劃　名　稱 | 執行期間 | 計劃編號 |
|---|---|---|---|
| 李世炳 | 以物理方法研究社會科學課題-總計畫暨子計畫一：以統計物理方法研究社會現象暨子計畫三：統計物理方法在社會經濟學的應用 | 97/08/01-100/07/31 | NSC97-2112-M-001-008-MY3 |
| 王子敬 | 台灣微中子實驗-製作超低能探測器以觀察微中子與原子核之同調散射及找尋暗物質 | 97/08/01-98/07/31 | NSC97-2112-M-001-010 |
| 余岳仲 | 離子撞擊於物質內之能量損失及輻射損傷效應研究 | 97/08/01-100/07/31 | NSC97-2112-M-001-011-MY3 |
| 王嵩銘 | 強子對撞實驗物理：CDF與Atlas實驗新物理及粒子搜尋-強子對撞實驗物理：子計畫一：CDF實驗Higgs boson搜尋 | 97/08/01-98/07/31 | NSC97-2112-M-001-015 |
| 林耿慧 | 新式膠體粒子的製作，組裝與行為 | 97/08/01-98/07/31 | NSC97-2112-M-001-016 |
| 任盛源 | 高導磁磁性膜件之超高頻磁阻抗研究 | 97/08/01-100/07/31 | NSC97-2112-M-001-023-MY3 |
| 劉　鏞 | 奈米結構半導體的磁性研究 | 97/08/01-100/07/31 | NSC97-2112-M-001-024-MY3 |
| 鄭弘泰 | 過渡金屬氧化物及奈米系統之電子結構研究 | 97/08/01-98/07/31 | NSC97-2112-M-001-025 |
| 薛韻馨 | 超導氧化物奈米級結構之製作及物性探討 | 97/08/01-99/07/31 | NSC97-2112-M-001-026-MY2 |
| 吳茂昆 | 科普活動計畫(C類)---與物理的第一次接觸 | 97/08/01-98/07/31 | NSC97-2515-S-001-001 |
| 林誠謙 | 數位典藏與數位學習國家型科技計畫・數位典藏與學習之海外推展暨國際合作計畫-數位典藏與學習之海外推展暨國際合作計畫・總計畫(II) | 97/04/01-98/03/31 | NSC97-2631-H-001-003 |
| 林誠謙 | 台灣WLCG Tier-2與高能物理網格應用共通平台之建置 | 97/08/01-98/07/31 | NSC97-2911-M-001-012 |
| 侯書雲 | 強子對撞實驗物理：CDF與Atlas實驗新物理及粒子搜尋-總計畫暨子計畫二：ATLAS實驗di-boson物理研究暨ATLAS實驗計算網格建構暨子計畫三：高速光電子讀出系統的輻射損壞與SLHC升級研發 | 97/08/01-98/07/31 | NSC97-2911-M-001-013 |

| 主持人 | 計　劃　名　稱 | 執行期間 | 計劃編號 |
|---|---|---|---|
| 李世昌 | 參與ATLAS實驗搜尋新物理現象-08暨以精密磁譜儀探測宇宙中之反物質及暗物質-08 | 97/08/01-98/07/31 | NSC97-2911-M-001-014 |
| 陳志強 | 台俄國合計畫-複合介質之動力學與控制以及其在心臟之應用 | 97/08/01-100/07/31 | NSC97-2923-M-001-002-MY3 |
| 張嘉升 | 中央研究院奈米科技核心設施服務計畫(3/3) | 97/08/01-98/07/31 | NSC97-2120-M-001-004 |
| 胡宇光 | 利用相位與繞射對比強化的動態奈米生醫影像(2/3) | 97/08/01-98/07/31 | NSC97-2120-M-001-006 |
| 陳洋元 | 以奈米科技研發高ZT熱電材料以為能源之應用(1/3) | 97/08/01-98/07/31 | NSC97-2120-M-001-007 |
| 張嘉升 | 吸附、雜質、及襯底對單一奈米結構的原子重組及物性的影響(3/3) | 97/08/01-98/07/31 | NSC97-2120-M-001-008 |
| 蘇維彬 | 掃描穿隧能譜術於強磁場中的表面電性結構之研究 | 97/08/01-100/07/31 | NSC97-2628-M-001-008-MY3 |
| 黃榮鑑 | 波浪與透水結構物互制之研究(Ⅱ) | 97/08/01-98/07/31 | NSC97-2221-E-001-024 |
| 陳啟東 | 奈米線場效電晶體探討與胞吐機轉相關蛋白間的交互作用—以SOISiNW場效應電晶體研究DNA雜交(子計畫二)(1/3) | 97/08/01-98/07/31 | NSC97-2627-M-001-002 |
| 林誠謙 | 建立亞洲聯盟並推展歐盟EGEE III計畫 | 97/05/01-99/04/30 | NSC97-2923-I-001-002-MY2 |
| 陳洋元 | 熱電材料熱傳導係數量測 | 97/01/01-97/12/31 | 財團法人工業技術研究院 |
| 胡宇光 | 利用奈米醫學及微聚焦X光加強癌症之放射治療 | 98/01/01-98/06/30 | NSC98-3011-P-001-001 |
| 吳茂昆 | 奈米國家型科技計畫—衛生署98及99年度相關研究計畫徵求、審查及計畫管考 | 97/12/12-98/12/31 | 行政院衛生署 |

# IV

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1. **C. C. Yang**, C.-M. Wu, W.-H. Li, T. S. Chan, R. S. Liu, Y. Y. Chan, and M. Avdeev, *Effects of oxygen deficiency on the magnetic ordering of Mn in* $Tb_{0.9}Na_{0.1}MnO_{2.9}$, J. Phys.: Conden. Matter, **20** 104234 (2008).
2. W.-H. Li, C.-W. Wang, C.-Y. Li, C. K. Hsu, **C. C. Yang**, and C.-M. Wu, *Coexistence of ferromagnetism and superconductivity in Sn nanoparticles.* Phys. Rev. B **77**, 094508 (2008).

## Yip, Sungkit(葉崇傑)

Journals:

1. Chi-Ken Lu and Sungkit Yip, “Signature of superconducting states in cubic crystal without inversion symmetry”, Phys. Rev. B. 77, 054515 (2008)
2. S. K. Yip, “Energy Levels of two identical fermions in a harmonic trap near a p-wave Feshbach resonance”, Phys. Rev. A 78, 013612 (2008)
3. Chi-Ken Lu and Sungkit Yip, “Zero-energy vortex bound states in

noncentrosymmetric superconductors", Phys. Rev. B 78 132502 (2008)

Conference Proceeding:

1. C. H. Pao and S. K. Yip, "Phase diagram of asymmetric Fermi gas across Feshbach resonance", Proceedings of the 25th International Conf on Low Temp. Physics (2008), arXiv:0809.2709

## Yu, Yueh-Chung（余岳仲）

1. Y.C. Yu, J.Y. Hsu, K.M. Chen and C.H. Wang, 2008, "Energy loss and straggling of 7Li ions in the polymer foils", Nuclear Instruments and Methods in Phys. Research B 266, 1166-1169. ( SCI )
2. J.Y. Hsu, Y.C. Yu, K.M. Chen and C.H. Wang, 2008, "Energy loss straggling in carbon foils by 1-2 MeV/atom lithium and carbon cluster-ions", Nuclear Instruments and Methods in Phys. Research B, 266, 1170-1172. ( SCI )
3. Y. M. Hu, J. W. Chiou, T. C. Han, Y. T. Chen, C.W. Hsu, G. J. Chen, W. Y. Chou, J. Chang, J. Y. Hsu, Y. C. Yu, 2008," Structural and morphological evolution in magnetron co-sputtered (Zn,Cr)O films", Journal of Physics D – Applied Physics, 41, 205301. (SCI)

## Yuan, **Tzu-Chiang(阮自強)**

1. Jia Jun Zhang, Chong Sheng Li, Jun Gao, Hao Zhang, Zhao Li, C.-P. Yuan, Tzu-Chiang Yuan, 2009, "Next-to-Leading-Order QCD Corrections to the Top-Quark Decay via Model-Independent Flavor-Changing Neutral-Current Couplings", *PHYSICAL REVIEW LETTER*, 102(7). ( SCI )
2. Kingman Cheung, Wai-Yee Keung, Tzu-Chiang Yuan, 2009, "Phenomenology of iquarkonium", *NUCLEAR PHYSICS B*, 811, 274-287. ( SCI )
3. Kingman Cheung, Cheng-Wei Chiang, Tzu-Chiang Yuan, 2008, " Partially Strong WW Scattering", *PHYSICAL REVIEW D*, 78(5),. ( SCI )
4. Kingman Cheung, Chong Sheng Li, Tzu-Chiang Yuan, 2008, "Higgs Boson Decays into Single Photon plus Unparticle", *PHYSICAL REVIEW D*, 77(9). ( SCI )
5. Kingman Cheung, Thomas W. Kephart, Wai-Yee Keung, Tzu-Chiang Yuan, 2008, "Decay of Z Boson into Photon and Unparticle", *PHYSICS LETTER B*, 662(5), 436-440. ( SCI )
6. Chun-Fu Chang, Kingman Cheung, Tzu-Chiang Yuan, 2008, "Unparticle effects in photon-photon scattering", *PHYSICS LETTER B*, 664(4-5), 291-294. ( SCI )

# V

# Academic Activities

Attendance in International Conference
中研院物理所九十七年度出席國際會議表
（2008年1月 ~ 2008年12月）

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| Pre Grid Deployment Board、Grid Deployment Board、CCRC'08 F2F | 97.01.09-97.01.10 | 瑞士日內瓦 | 林誠謙 | 國科會 |
| TIP2008 & APAN-25 | 97.01.20-97.01.25 | 美國夏威夷 | 陳信言 | 國科會 |
| TIP2008 & APAN-26 | 97.01.20-97.01.25 | 美國夏威夷 | 洪銓鴻 | 國科會 |
| Biophysical Society 2008 Annual Meeting | 97.02.02-97.02.06 | 美國加州 | 鄭天佑 | 本所 |
| EGEE 3rd User Forum | 97.02.11-97.02.14 | 法國 克勒蒙非隆 | 林誠謙 | 國科會 |
| EGEE 3rd User Forum | 97.02.11-97.02.14 | 法國克勒蒙非隆 | 李宏春 | 國科會 |
| EGEE 3rd User Forum | 97.02.11-97.02.14 | 法國克勒蒙非隆 | 黃珮華 | 國科會 |
| EGEE 3rd User Forum | 97.02.11-97.02.14 | 法國克勒蒙非隆 | 蔡富名 | 國科會 |
| 「nano tech 2008」展覽會 | 97.02.12-97.02.15 | 日本東京 | 洪紹剛 | 國科會 |
| 「nano tech 2008」展覽會 | 97.02.12-97.02.15 | 日本東京 | 楊志文 | 國科會 |
| 「nano tech 2008」展覽會 | 97.02.12-97.02.15 | 日本東京 | 廖先順 | 國科會 |
| 「nano tech 2008」展覽會 | 97.02.12-97.02.15 | 日本東京 | 莊博景 | 國科會 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| 「nano tech 2008」展覽會 | 97.02.12-97.02.15 | 日本東京 | 李嘉宜 | 國科會 |
| 「nano tech 2008」展覽會 | 97.02.12-97.02.15 | 日本東京 | 陳育琛 | 國科會 |
| 「nano tech 2008」展覽會 | 97.02.12-97.02.15 | 日本東京 | 甘貴銘 | 國科會 |
| 「nano tech 2008」展覽會 | 97.02.12-97.02.15 | 日本東京 | 劉姿汝 | 國科會 |
| SDSS Korean Scientist Group Workshop | 97.02.18-97.02.20 | 韓國江原 | 李碩天 | 本所 |
| 2008年龍平天文粒子與共形物理研討會 YongPyong Astro-Particle and Conformal Topical Physics 2008 | 97.02.25-97.02.29 | 韓國，龍平 | 李湘楠 | 國科會 |
| The 22nd Open Grid Forum–OGF22 | 97.02.25-97.02.29 | 美國劍橋 | 林宗賢 | 國科會 |
| The 22nd Open Grid Forum–OGF22 | 97.02.25-97.02.29 | 美國劍橋 | 蔡富名 | 國科會 |
| 臺灣-渥太華雙邊奈米研討會 | 97.03.01-97.03.08 | 加拿大渥太華 | 吳茂昆 | 本所<br>國科會 |
| 2008 Moriond 電弱作用和統一場論研討會 | 97.03.01-97.03.08 | 義大利La Thuile | 陳彥竹 | 國科會 |
| Pre Grid Deployment Board、Grid Deployment Board | 97.03.04-97.03.05 | 瑞士日內瓦 | 林誠謙 | 國科會 |
| 第四屆J-PARC設施核子粒子物理研討會 The 4th International Workshopon Nuclear and Particle Physics at J-PARC(NP08) | 97.03.05-97.03.07 | 日本<br>水戶、茨城 | 章文箴 | 國科會<br>自理 |
| LHC OPN Meeting | 97.03.10-97.03.11 | 西班牙馬德里 | 洪銓鴻 | 國科會 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| 2008美國物理學會年會<br>2008 APS March Meeting | 97.03.10-97.03.14 | 美國<br>新奧爾良 | 葉崇傑 | 國科會 |
| 2008美國物理學會年會<br>2008 APS March Meeting | 97.03.10-97.03.14 | 美國<br>新奧爾良 | 陳彥龍 | 本所 |
| 2008美國物理學會年會<br>2008 APS March Meeting | 97.03.10-97.03.14 | 美國<br>新奧爾良 | 周家復 | 本所 |
| 2008美國物理學會年會<br>2008 APS March Meeting | 97.03.10-97.03.14 | 美國<br>新奧爾良 | 林耿慧 | 本所 |
| 美國物理年會 | 97.03.10-97.03.14 | 美國紐奧良 | 呂欣明 | 本所 |
| 美國物理年會 | 97.03.10-97.03.14 | 美國紐奧良 | 周欣儀 | 國科會 |
| 美國物理年會 | 97.03.10-97.03.14 | 美國紐奧良 | 林俊良 | 本所 |
| 美國物理學會年會 | 97.03.10-97.03.14 | 美國新奧爾良 | 郭白嘉 | 本所 |
| 美國物理學會年會 | 97.03.10-97.03.14 | 美國新奧爾良 | 歐敏男 | 本所 |
| 美國物理學會年會 | 97.03.10-97.03.14 | 美國新奧爾良 | 陳正龍 | 本所 |
| 美國物理學會年會 | 97.03.10-97.03.14 | 美國新奧爾良 | 李秉中 | 國科會 |
| 美國物理學會年會 | 97.03.10-97.03.14 | 美國新奧爾良 | 陳志挺 | 國科會 |
| APS March Meeting 2008 | 97.03.10-97.03.14 | 美國新奧爾良 | 薛京 | 本所 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| APS March Meeting 2008 | 97.03.10-97.03.14 | 美國新奧爾良 | 陳穩旭 | 本所 |
| APS March Meeting 2008 | 97.03.10-97.03.17 | 美國新奧爾良 | 張人方 | 本所 |
| EPS Anniversary celebration | 97.03.25-97.03.31 | 法國Mulhouse | 吳茂昆 | 本所 |
| 2nd Global Research Library 2020 Workshop (GRL 2020) | 97.03.27-97.03.28 | 義大利比薩 | 林誠謙 | 國科會 |
| 第10屆亞太理論物理中心評議會<br>The 10th APCTP General Council Meeting | 97.03.28-97.03.29 | 韓國，浦項 | 李湘楠 | 主辦單位 |
| 60th Association for Asian Studies, AAS | 97.04.03-97.04.04 | 美國亞特蘭大 | 林誠謙 | 國科會 |
| 60th Association for Asian Studies, AAS | 97.04.03-97.04.05 | 美國亞特蘭大 | 范毅軍 | 國科會 |
| 60th Association for Asian Studies, AAS | 97.04.03-97.04.06 | 美國亞特蘭大 | 陳雪華 | 國科會 |
| 60th Association for Asian Studies, AAS | 97.04.03-97.04.06 | 美國亞特蘭大 | 陳希慈 | 國科會 |
| 60th Association for Asian Studies, AAS | 97.04.03-97.04.06 | 美國亞特蘭大 | 陳雅斐 | 國科會 |
| 60th Association for Asian Studies, AAS | 97.04.03-97.04.06 | 美國亞特蘭大 | 高芷彤 | 國科會 |
| 60th Association for Asian Studies, AAS | 97.04.03-97.04.06 | 美國亞特蘭大 | 陳泰穎 | 國科會 |
| 60th Association for Asian Studies, AAS | 97.04.03-97.04.06 | 美國亞特蘭大 | 蘇桂枝 | 國科會 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| 60th Association for Asian Studies, AAS | 97.04.03-97.04.06 | 美國亞特蘭大 | 洪一梅 | 國科會 |
| 語意及生態後設資料專家會議<br>(ILTER Information Management Workshop on Ontology/EML Integration) | 97.04.07-97.04.12 | 中國南京 | 柯智仁 | 國科會 |
| 語意及生態後設資料專家會議<br>(ILTER Information Management Workshop on Ontology/EML Integration) | 97.04.07-97.04.12 | 中國南京 | 陸聲山 | 國科會 |
| Journal of Physics D-Applied Physics<br>編輯委員會會議<br>Editorial Board for Journal of Physics D | 97.04.09-97.04.11 | 英國、倫敦 | 胡宇光 | 國科會<br>自理 |
| RRB(LHC Resources Review Board)會議 | 97.04.14-97.04.16 | 瑞士日內瓦 | 林誠謙 | 國科會 |
| 2008奈米材料在國防上的應用國際研討會<br>Nanoscience Around the World" Session at the 2008 NanoMaterials for Defense Conference | 97.04.21-97.04.24 | 美國華盛頓特區 | 張嘉升 | 本所 |
| WLCG Collaboration Workshop | 97.04.21-97.04.25 | 瑞士日內瓦 | 任宏哲 | 國科會 |
| WLCG Collaboration Workshop | 97.04.21-97.04.25 | 瑞士日內瓦 | 蔡明宏 | 國科會 |
| 從味物理尋求LHC的新物理<br>Flavour as a Window to New Physics at the LHC | 97.05.03-97.06.13 | 瑞士，日內瓦 | 鄭海揚 | 本所 |
| 國際電子電機工程協會2008年磁性會議<br>(IEEE International Magnetics Conference) | 97.05.05-97.05.08 | 西班牙馬德里 | 于淳 | 國科會 |
| 國際電子電機工程協會2008年磁性會議 | 97.05.05-97.05.08 | 西班牙馬德里 | 鄭凱文 | 自理 |
| 國際電子電機工程協會2008年磁性會議 | 97.05.05-97.05.08 | 西班牙馬德里 | 江典蔚 | 國科會 |
| EGEE PMB、EGEE II/III Transition meeting及 HEPix會議 | 97.05.05-97.05.09 | 瑞士日內瓦 | 林誠謙 | 國科會 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| HEPix Spring 2008 | 97.05.05-97.05.09 | 瑞士日內瓦 | 黃振維 | 國科會 |
| HEPix Spring 2008 | 97.05.05-97.05.09 | 瑞士日內瓦 | 黃珮華 | 國科會 |
| Symposium on "Symmetries and Properties of Condensed Matter Systems | 97.05.07-97.05.09 | 美國紐約 | 李定國 | 本所<br>國科會 |
| 分散資訊系統之物理<br>Physics of distributed information systems (PhysDIS) | 97.05.12-97.05.23 | 瑞典<br>斯德哥爾摩 | 胡進錕 | 本所 |
| 「生物多樣性研究--保障未來:第九屆締約國會前科學會」及「生物多樣性公約締約方第九次」會議 | 97.05.13-97.05.21 | 德國波昂 | 邵廣昭 | 國科會 |
| 「生物多樣性研究--保障未來:第九屆締約國會前科學會」與「生物多樣性公約締約方第九次會議」 | 97.05.13-97.05.21 | 德國波昂 | 陳麗西 | 國科會 |
| From Computational Biophysics to Systems Biology | 97.05.19-97.05.21 | 德國Juelich | 海耳倫 | 本所 |
| 第23屆微中子及天文物理國際會議<br>The XXIII International Conference on Neutrino Physics and Astrophysics | 97.05.25-97.05.31 | 紐西蘭基督城 | 王子敬 | 國科會<br>自理 |
| The XXIII International Conference on Neutrino Physics and Astrophysics | 97.05.25-97.05.31 | 紐西蘭基督城 | 李浩斌 | 本所 |
| 第五十二屆國際電子,離子,光束科技與奈米製作研討會 The 52nd International conference on Electron, Ion, and Photo Beam technology and Nanofabrication. | 97.05.27-97.05.29 | 波特蘭 | 郭鴻曦 | 本所 |
| 第五十二屆國際電子,離子,光束科技與奈米製作研討會 | 97.05.27-97.05.30 | 波特蘭 | 張哲誠 | 國科會 |
| 非中心對稱超導研討會<br>Workshop on non-centrosymmetric superconductivity | 97.05.30-97.05.31 | 瑞士蘇黎克 | 葉崇傑 | 國科會 |
| 從味物理尋求LHC的新物理Flavour as a Window to New Physics at the LHC | 97.06.01-97.06.13 | 瑞士，日內瓦 | 李湘楠 | 本所 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| HealthGrid 2008 | 97.06.02-97.06.04 | 美國芝加哥 | 林誠謙 | 國科會 |
| 「The 23rd Open Grid Forum–OGF23」會議 | 97.06.02-97.06.06 | 西班牙巴塞隆納 | 嚴漢偉 | 國科會 |
| 「The 23rd Open Grid Forum–OGF23」會議 | 97.06.02-97.06.06& | 西班牙巴塞隆納 | 蔡富名 | 國科會 |
| The Bio-Matter Workshop | 97.06.09-97.06.10 | 日本東京 | 陳志強 | 國科會<br>自理 |
| 「NA4 All Hands Meeting」會議 | 97.06.09-97.06.10 | 法國奧賽 | 嚴漢偉 | 國科會 |
| 「NA4 All Hands Meeting」會議 | 97.06.09-97.06.10 | 法國奧賽 | 蔡富名 | 國科會 |
| Grid Deployment Board 及<br>WLCG CCRC`08 Post-Mortem Workshop | 97.06.11-97.06.12 | 瑞士日內瓦 | 林誠謙 | 國科會 |
| 奈米科技國際會議:機會與挑戰<br>International Conference on Nanotechnology: Opportunities and Challenges | 97.06.14-97.06.19 | 沙烏地阿拉伯<br>吉達 | 陳啟東 | 本所 |
| 2008年卡布里重味物理理論、現象學與實驗研討會2008 Capri Workshop on Theory, Phenomenology, and Experiments in Heavy Flavour Physics | 97.06.16-97.06.19 | 義大利卡布里 | 李湘楠 | 本所 |
| 雙邊物理前沿問題研討會 | 97.06.18-97.06.22 | 中國北京 | 周家復 | 國科會 |
| 雙邊物理前沿問題研討會 | 97.06.18-97.06.22 | 中國北京 | 胡進錕 | 本所<br>國科會 |
| 雙邊物理前沿問題研討會 | 97.06.18-97.06.22 | 中國北京 | 陳志強 | 國科會 |
| 雙邊物理前沿問題研討會 | 97.06.18-97.06.22 | 中國北京 | 陳彥龍 | 本所 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| 雙邊物理學前沿問題研討會 | 97.06.18-97.06.22 | 中國北京 | 席瑞 | 主題<br>本所 |
| 雙邊物理學前沿問題研討會 | 97.06.18-97.06.22 | 中國北京 | 泰隆尼 | 主題<br>本所 |
| 雙邊物理學前沿問題研討會 | 97.06.18-97.06.22 | 中國北京 | 胡書銘 | 主題<br>本所 |
| 2008年「兩岸國家級研究所交流計畫」第一階段活動 | 97.06.18-97.06.23 | 中國北京 | 黎璧賢 | 院外 |
| 2008年「兩岸國家級研究所交流計畫」第一階段活動 | 97.06.18-97.06.23 | 中國北京 | 易台生 | 院外 |
| 2008年「兩岸國家級研究所交流計畫」第一階段活動 | 97.06.18-97.06.23 | 中國北京 | 陳宣毅 | 院外 |
| 2008年「兩岸國家級研究所交流計畫」第一階段活動 | 97.06.18-97.06.23 | 中國北京 | 羅孟凡 | 院外 |
| 2008年「兩岸國家級研究所交流計畫」第一階段活動 | 97.06.18-97.06.23 | 中國北京 | 余怡德 | 院外 |
| E906實驗組合作研討會 | 97.06.20-97.06.21 | 美國芝加哥 | 張定華 | 本所 |
| 雙邊物理前沿問題研討會 | 97.06.22-97.06.24 | 中國北京 | 杜其永 | 本所<br>自理 |
| Granular&Granular-Fluid Flow | 97.06.22-97.06.27 | 美國Waterville | 蔡日強 | 本所 |
| 第六屆海峽兩岸生物學啟發的理論問題 | 97.06.25-97.06.28 | 中國湖南<br>張家界 | 陳志強 | 國科會 |
| 第六屆海峽兩岸生物學啟發的理論問題研討會 | 97.06.25-97.06.28 | 中國湖南張家界 | 陳南佑 | 主題 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| 第六屆海峽兩岸生物學啟發的理論問題研討會 | 97.06.25-97.06.29 | 中國湖南張家界 | 胡進錕 | 本所國科會 |
| Fe-oxipnictide Symposium | 97.06.28-97.06.30 | 日本東京 | 吳茂昆 | 自理 |
| 「Castor external operations - Face-to-face meeting」及「WLCG CCRC-08 Workshop」 | 97.06-10-97.06.13 | 瑞士日內瓦 | 任宏哲 | 國科會 |
| 第十八屆國際離岸海洋與極地工程學術會議The 18th International Offshare(Ocean) and Polar Engineering Conference | 97.07.06-97.07.11 | 加拿大溫哥華 | 黃榮鑑 | 本所國科會 |
| EGEE-II FINAL REVIEW以及 WLCG OB meeting | 97.07.08-97.07.11 | 瑞士日內瓦 | 林誠謙 | 國科會 |
| 第13屆國際生物流變暨第6屆國際臨床血液 | 97.07.09-97.07.13 | Pennsylvania, USA | 詹明宜 | 本所 |
| 第四屆國際薄膜及表面鍍膜技術發展會議 | 97.07.13-97.07.16 | 新加坡 | 張晃暐 | 主題 |
| Seoul e-Science School 2008 | 97.07.17-97.07.18 | 韓國首爾 | 翁維瓏 | 國科會 |
| Seoul e-Science School 2008 | 97.07.17-97.07.18 | 韓國首爾 | 蔡富名 | 國科會 |
| 第六屆國際鈍形體氣動力學及應用研討會 The Sixth International Colloquium on Bluff Body Aerodynamics & Applications (BBAA VI) | 97.07.20-97.07.24 | 義大利米蘭 | 蕭葆義 | 本所自理 |
| 第三十九屆國際物理奧林匹亞競賽 | 97.07.20-97.08.02 | 越南河內 | 賈至達 | 國科會 |
| EUAsiaGrid Training Event at MIMOS | 97.07.28-97.07.31 | 馬來西亞吉隆坡 | 蔡明宏 | 國科會 |
| EUAsiaGrid Training Event at MIMOS | 97.07.28-97.07.31 | 馬來西亞吉隆坡 | 廖舒婷 | 國科會 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| 第34屆高能物理國際會議 | 97.07.28-97.08.05 | 美國費城 | 鄧立詩 | 本所 |
| 第34屆高能物理國際會議 | 97.07.28-97.08.05 | 美國費城 | 林興德 | 本所 |
| 2008國際熱電材料會議<br>(International Conference on Thermoelectrics2008) | 97.08.02-97.09.06 | Corvallis, Oregon, U.S.A. | 李秉中 | 本所<br>國科會 |
| 2008國際熱電材料會議<br>(International Conference on Thermoelectrics2008) | 97.08.02-97.09.06 | Corvallis, Oregon, U.S.A. | 藍天蔚 | 本所<br>國科會 |
| 2008國際熱電材料會議<br>International Conference on Thermoelectrics2008 | 97.08.03-97.08.07 | Corvallis, Oregon,U.S.A. | 陳洋元 | 本所<br>國科會 |
| 2008國際熱電材料會議<br>(International Conference on Thermoelectrics2008) | 97.08.03-97.08.07 | Corvallis, Oregon, U.S.A. | 陳正龍 | 本所 |
| 2008國際熱電材料會議(International Conference on Thermoelectrics2008) | 97.08.03-97.08.07 | Corvallis, Oregon, U.S.A. | 歐敏男 | 本所 |
| APAN 26：Sustainable Networking | 97.08.04-97.08.08 | 紐西蘭皇后鎮 | 林誠謙 | 國科會 |
| APAN 26：Sustainable Networking | 97.08.04-97.08.08 | 紐西蘭皇后鎮 | 傅可恩 | 國科會 |
| APAN 26：Sustainable Networking | 97.08.04-97.08.08 | 紐西蘭皇后鎮 | 李士傑 | 國科會 |
| APAN 26：Sustainable Networking | 97.08.04-97.08.08 | 紐西蘭皇后鎮 | 洪銓鴻 | 國科會 |
| APAN 26：Sustainable Networking | 97.08.04-97.08.08 | 紐西蘭皇后鎮 | 陳信言 | 國科會 |
| 25th International Conference on Low Temperature Physics<br>(25屆國際低溫物裡會議) | 97.08.04-97.08.14 | Amsterdam Netherlands | 張經霖 | 國科會 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| 2008年SLAC夏季研究所<br>SLAC Summer Institute 2008 | 97.08.04-97.08.15 | 美國，史丹福 | 吳建宏 | 國科會<br>自理 |
| 25th International Conference on Low Temperature Physics | 97.08.06-97.08.13 | 荷蘭<br>阿姆斯特丹 | 李定國 | 本所<br>國科會 |
| 74th IFLA General Conference and Council | 97.08.10-97.08.14 | 加拿大魁北克 | 蔡炯民 | 國科會 |
| 第二十屆加速器在研究與工業應用國際會議20th International Conference on the Application of Accelerators in Research and Industry | 97.08.10-97.08.15 | 美國，德州，<br>Forworth | 余岳仲 | 本所<br>國科會 |
| 第二十屆加速器在研究與工業應用國際會議 | 97.08.10-97.08.15 | 美國德州 | 許智祐 | 本所 |
| 74th IFLA General Conference and Council | 97.08.10-97.08.15 | 加拿大魁北克 | 陳雪華 | 國科會 |
| 暗物質偵測-2008 國際會議<br>Identification of Dark Matter 2008 | 97.08.17-97.08.24 | 瑞典<br>斯德哥爾摩 | 王子敬 | 本所<br>國科會<br>自理 |
| 8th International Meeting on Electrochromism<br>第八屆國際電致色變會議 | 97.08.24-97.08.28 | 韓國首爾 | 廖家慶 | 國科會 |
| 第八屆亞洲量子資訊會議 | 97.08.25-97.08.31 | 韓國首爾 | 張志義 | 本所 |
| 2008國際經濟物理會議<br>Econophysics Colloquium 2008 | 97.08.28-97.08.30 | Kiel, Germany | 李世炳 | 本所<br>國科會 |
| 「2008經濟物理論壇」會議 | 97.08.28-97.08.30 | Kiel, Germany | 曾玠郡 | 本所 |
| Frontiers in Laser Cooling, Single-Molecule Biophysics & Energy Science: Scientific Symposium Honoring Dr. Steven Chu | 97.08.29-97.08.31 | USA. Berkeley | 阮文滔 | 本所 |
| 第十一屆電子陶瓷會議 | 97.08.30-97.09.06 | 英國曼徹斯特 | 賈至達 | 國科會 |

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|---|---|---|---|---|
| Workshop on Granualr Physics and Complex Fluids | 97.09.05-97.09.09 | 中國北京 | 陳志強 | 本所<br>自理 |
| Workshop on granular physics and complex fluids | 97.09.07-97.09.11 | 中國、北京 | 杜其永 | 本所 |
| International Workshop on e-Science for Physics 2008 | 97.09.08-97.09.09 | 南韓、大田 | 林誠謙 | 國科會 |
| 第八屆國際水科學與工程研討會 | 97.09.08-97.09.12 | 日本名古屋 | 蕭葆義 | 本所<br>自理 |
| 第五屆國際CKM么正三角形會議<br>Fifth International Workshop on CKM Unitarity Triangle | 97.09.08-97.09.13 | 義大利，羅馬 | 蔣正偉 | 本所<br>自理 |
| Dynamics Day Asia Pacific | 97.09.09-97.09.12 | 日本東京 | 陳志強 | 本所<br>自理 |
| 第五屆非線性科學會議<br>Dynamics Days Asia-Pacific 5 – The 5th international Conference on Nonlinear Science | 97.09.09-97.09.12 | 日本、奈良 | 胡進錕 | 國科會 |
| Dynamics Days Asia Pacific 5 The 5th International Conference on Nonlinear Science | 97.09.09-97.09.12 | 日本奈良 | 陳唯 | 本所 |
| 第5屆國際非線性科學會議 | 97.09.09-97.09.12 | 日本奈良 | 鄒忠毅 | 國科會 |
| 第五屆么正三角形國際研討會<br>5th International Workshop on the Unitarity Triangle | 97.09.09-97.09.13 | 義大利，羅馬 | 鄭海揚 | 本所<br>國科會<br>自理 |
| 第五屆非線性科學國際研討會 | 97.09.09-97.09.14 | 日本奈良 | 洪耀正 | 本所 |
| 第34屆奈米工程研討會<br>34th International Conference on Micro and Nano Engineering 2008 | 97.09.15-97.09.18 | 雅典、希臘 | 周家復 | 本所<br>主題 |
| 第34屆奈米工程研討會 | 97.09.15-97.09.18 | 希臘雅典 | 葉佳唯 | 國科會 |

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|---|---|---|---|---|
| 第34屆奈米工程研討會 | 97.09.15-97.09.18 | 希臘雅典 | 泰隆尼 | 主題 |
| Grid Asia 2008 | 97.09.15-97.09.19 | 新加坡 | 黃珮華 | 國科會 |
| Grid Asia 2008 | 97.09.15-97.09.19 | 新加坡 | 林昭文 | 國科會 |
| 「The 24th Open Grid Forum–OGF24」及「GridAsia 2008」 | 97.09.15-97.09.19 | 新加坡 | 嚴漢偉 | 國科會 |
| 「The 24th Open Grid Forum–OGF24」及「GridAsia 2008」 | 97.09.15-97.09.19 | 新加坡 | 翁維瓏 | 國科會 |
| 2008年台美科技合作年會 | 97.09.18-97.09.19 | 美國<br>華盛頓特區 | 林誠謙 | 國科會 |
| EGEE'08 Conference | 97.09.22-97.09.26 | 土耳其<br>伊斯坦堡 | 林誠謙 | 國科會 |
| EGEE'08 Conference | 97.09.22-97.09.26 | 土耳其伊斯坦堡 | 黃珮華 | 國科會 |
| EGEE'08 Conference | 97.09.22-97.09.26 | 土耳其伊斯坦堡 | 簡禎儀 | 國科會 |
| EGEE'08 Conference | 97.09.22-97.09.26 | 土耳其伊斯坦堡 | 熊舜哲 | 國科會 |
| EGEE'08 Conference | 97.09.22-97.09.26 | 土耳其伊斯坦堡 | 施宏良 | 國科會 |
| International Conference on Dublin Core and Metadata Applications 2008 | 97.09.22-97.09.26 | 德國柏林 | 陳淑君 | 國科會 |
| 第二十一屆國際科技數據委員會學術會議（21st International CODATA conference） | 97.10.05-97.10.08 | 烏克蘭基輔 | 邵廣昭 | 國科會 |

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|---|---|---|---|---|
| EUGridPMA | 97.10.06-97.10.08 | 葡萄牙里斯本 | 簡禎儀 | 國科會 |
| 「Pre Grid Deployment Board及<br>Grid Deployment Board | 97.10.07-97.10.08 | 瑞士日內瓦 | 林誠謙 | 國科會 |
| 第三屆國際純粹與應用物理聯盟國際女性物理研討會 | 97.10.08-97.10.10 | 韓國首爾 | 吳茂昆 | 院方 |
| New Vision 400 | 97.10.12-97.10.15 | 中國北京 | 孫維新 | 國科會 |
| 國際純粹及應用物理聯合會第二十六屆會員大會<br>The 26th General Assembly of IUPAP (2008) | 97.10.14-97.10.18 | 日本筑波 | 胡進錕 | 院方<br>本所<br>主題 |
| Beijing International Workshop on Iron-(Nickel)-Based Superconductors研討會 | 97.10.16-97.10.20 | 中國北京 | 黃子文 | 主題 |
| Beijing International Workshop on Iron-(Nickel)-Based Superconductors | 97.10.17-97.10.19 | 中國北京 | 吳茂昆 | 國科會 |
| Beijing International Workshop on Iron-(Nickel)-Based Superconductors | 97.10.17-97.10.19 | 中國北京 | 葉國偉 | 主題 |
| 生物多樣性標準組織2008年度會議<br>(Biodiversity Information Standards Annual Conference 2008) | 97.10.19-97.10.25 | 澳洲伯斯 | 柯智仁 | 國科會 |
| 生物多樣性標準組織2008年度會議<br>(Biodiversity Information Standards Annual Conference 2008) | 97.10.19-97.10.25 | 澳洲伯斯 | 陳建文 | 國科會 |
| APS重建計劃合作研討會<br>APS Renewal Project Workshop | 97.10.20-97.10.21 | 美國、芝加哥 | 胡宇光 | 國科會 |
| LHC Official Inauguration | 97.10.20-97.10.21 | 瑞士日內瓦 | 嚴漢偉 | 國科會 |
| 簡併量子氣體前瞻會議<br>Frontier of Degenerate Quantum Gases | 97.10.20-97.10.24 | 中國北京 | 葉崇傑 | 本所 |

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|---|---|---|---|---|
| X光顯微影像之材料、設備及組織 合作研討會Workshop on X-Ray Micro Imaging of Materials, Devices, and Organisms | 97.10.22-97.10.24 | 德國<br>德勒斯登 | 胡宇光 | 國科會<br>自理 |
| 「The 3rd KIAS Workshop on Cosmology and Structure Formation」 | 97.10.27-97.10.28 | Korea, Seoul | 李碩天 | 本所 |
| 第四屆亞洲、澳洲真空及表面物理國際研討會4th Vacuum and Surface Sciences Conference of Asia and Australia (VASSCAA-4) | 97.10.27-97.10.31 | 日本、松江 | 張嘉升 | 主題 |
| 第四屆亞洲與澳大利亞地區真空與表面科學國際會議 4th Vacuum and Surface Sciences Conference of Asia and Australia (VASSCAA-4) | 97.10.28-97.10.31 | 日本、松江市 | 余岳仲 | 本所 |
| 國際宇宙學以及粒子天文學會議<br>CosPA 2008 – International Symposium on Cosomology and Particle Astrophysics | 97.10.28-97.11.01 | 韓國，釜山 | 余海禮 | 本所 |
| 「Asia Pacific Center for Theoretical Physics (APCTP), LeCosPA Center」 | 97.10.29-97.11.01 | Korea,Pohang | 李碩天 | 本所 |
| 全球生物多樣性資訊機構第15屆理事會暨節點委員會 | 97.11.01-97.11.07 | 坦尚尼亞阿魯沙 | 楊杰倫 | 國科會 |
| SA3 All-hands Meeting | 97.11.05-97.11.07 | 捷克布拉格 | 李宏德 | 國科會 |
| 第一屆泰國奈米會議<br>The 1st biannual NanoThailand Symposium (NTS) | 97.11.06-97.11.08 | 泰國曼谷 | 陳洋元 | 本所 |
| ISAQM2008 and The 7th APW | 97.11.07-97.11.10 | 日本東京 | 李定國 | 國科會 |
| ISAQM 2008 and 7th APW | 97.11.07-97.11.10 | 日本東京 | 吳茂昆 | 本所 |
| ISAQM2008 and The 7th APW | 97.11.07-97.11.10 | 日本東京 | 周崇斌 | 主題 |
| 2008年異常量子材料國際會議 | 97.11.07-97.11.10 | 日本東京 | 陸紀亙 | 本所 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| ISAQM2008 and The 7th APW | 97.11.07-97.11.10 | 日本東京 | 黃信銘 | 國科會 |
| 第七次中文文獻資源共建共享合作會議 | 97.11.08-97.11.10 | 澳門 | 林妙樺 | 國科會 |
| 第七次中文文獻資源共建共享合作會議 | 97.11.08-97.11.10 | 澳門 | 陳鴻森 | 國科會 |
| 第五屆表面及奈米科學國際研討會<br>5th International Symposium on Surface Science andNanotechnology | 97.11.09-97.11.13 | 日本東京 | 黃英碩 | 國科會 |
| 第五屆表面及奈米科學國際研討會 | 97.11.09-97.11.13 | 日本東京 | 張淵智 | 主題 |
| 第五屆表面及奈米科學國際研討會 | 97.11.09-97.11.13 | 日本東京 | 李奕賢 | 本所 |
| 2008年粒子與原子核物理國際會議<br>International Conference on Particles and Nuclei 2008 in Physics | 97.11.09-97.11.14 | 以色列<br>Eilat, Israel | 曾詣涵 | 本所<br>自理 |
| 39th NIPS Symposium & 7th OIB Symposium Frontiers of Biological Imaging Synergy of the Advanced Techniques | 97.11.10-97.11.13 | 日本剛崎市 | 華子恩 | 國科會 |
| 第53屆年度磁性及磁性材料會議<br>53rdAnnual Conference on Magnetism and Magnetic Materials | 97.11.10-97.11.14 | Austin,Texas<br>U.S.A. | 任盛源 | 國科會 |
| LHC Resources Review Board、Pre Grid Deployment Board、Grid Deployment Board、WLCG 2009 Data-Taking Readiness Planning Workshop | 97.11.10-97.11.14 | 瑞士日內瓦 | 林誠謙 | 國科會 |
| 53rd Magnetism and magnetic materials Conference (第53屆年度磁性及磁性材料會議) | 97.11.10-97.11.14 | Austin,Texas,U.S.A. | 張晃暐 | 主題 |
| 博物館電腦網路協會(Museum Computer Network, MCN)年會暨博物館機構交流參訪及僑教座談 | 97.11.10-97.11.15 | 美國華盛頓特區 | 蔡幸真 | 國科會 |
| 博物館電腦網路協會(Museum Computer Network, MCN)年會暨博物館機構交流參訪及僑教座談 | 97.11.10-97.11.15 | 美國華盛頓特區 | 林國平 | 國科會 |

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| 博物館電腦網路協會(Museum Computer Network, MCN)年會暨博物館機構交流參訪及僑教座談 | 97.11.10-97.11.15 | 美國華盛頓特區 | 林崇偉 | 國科會 |
| 博物館電腦網路協會(Museum Computer Network, MCN)年會暨博物館機構交流參訪及僑教座談 | 97.11.10-97.11.15 | 美國華盛頓特區 | 蔡炯民 | 國科會 |
| 博物館電腦網路協會(Museum Computer Network, MCN)年會暨博物館機構交流參訪及僑教座談 | 97.11.10-97.11.15 | 美國華盛頓特區 | 張志光 | 國科會 |
| 博物館電腦網路協會(Museum Computer Network, MCN)年會暨博物館機構交流參訪及僑教座談 | 97.11.10-97.11.15 | 美國華盛頓特區 | 陳淑君 | 國科會 |
| 第7屆RESCEU國際研討會<br>The 7th RESCEU International Symposium | 97.11.11-97.11.14 | 日本、東京 | 吳建宏 | 自理 |
| 「WLCG 2009 Data-Taking Readiness Planning Workshop 」與「Distributed Database Operations Workshop」 | 97.11.11-97.11.14 | 瑞士日內瓦 | 施宏良 | 國科會 |
| Super Computing 2008 (SC08) | 97.11.15-97.11.21 | 美國奧斯汀 | 翁維瓏 | 國科會 |
| Super Computing 2008 (SC08) | 97.11.15-97.11.21 | 美國奧斯汀 | 許正欣 | 國科會 |
| 2008 AIChE Annual Meeting | 97.11.16-97.11.21 | USA Philadelphia | 陳彥龍 | 國科會 |
| QPEC Workshop | 97.11.20-97.11.20 | 日本東京 | 李定國 | 國科會<br>主辦單位 |
| 2008台灣-義大利同步輻射與奈米結構合作研討會2008 Taiwan-Italy Workshop on “Highlights on Synchrotron Radiation and Nanostructures” | 97.11.20-97.11.21 | 義大利、 羅馬 | 胡宇光 | 國科會 |
| 中國史傳記資料數據庫第一屆國際研討會 | 97.11.21-97.11.23 | 美國波士頓 | 馮明珠 | 國科會 |
| 中國史傳記資料數據庫第一屆國際研討會 | 97.11.21-97.11.23 | 美國波士頓 | 劉錚雲 | 國科會 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| 61st Annual Meeting of the APS Division of Fluid Dynamics | 97.11.22-97.11.25 | USA San Antonio | 蔡日強 | 本所 |
| 61st Annual Meeting of the APS Division of Fluid Dynamics | 97.11.23-97.11.25 | USA San Antonio | 陳彥龍 | 國科會 |
| 「粒子物理、天文物理及量子場論：Solvay會議75年之後」Particle Physics, Astrophysics and Quantum Field Theory:79 Years Since Solvay | 97.11.26-97.12.01 | 新加坡 | 鄭海揚 | 本所 |
| 「粒子物理、天文物理及量子場論：Solvay會議75年之後」Particle Physics, Astrophysics and Quantum Field Theory:79 Years Since Solvay | 97.11.26-97.12.01 | 新加坡 | 阮自強 | 本所 |
| 粒子物理、天文物理及量子場論：Solvay會議75年之後 Particle Physics, Astrophysics and Quantum Field Theory:79 Years Since Solvay. | 97.11.27-97.11.29 | 新加坡 | 鄭海揚 | 本所 |
| 粒子物理、天文物理及量子場論：Solvay會議75年之後 | 97.11.27-97.11.29 | 新加坡 | 蕭佑國 | 本所 |
| 粒子物理、天文物理及量子場論：Solvay會議75年之後 | 97.11.27-97.11.29 | 新加坡 | 安良煥 | 本所 |
| 粒子物理、天文物理及量子場論：Solvay會議75年之後 | 97.11.27-97.11.29 | 新加坡 | 陳佑駿 | 本所 |
| EGEE SA1 Meetings | 97.12.01-97.12.05 | 英國牛津 | 黃惠慈 | 國科會 |
| EGEE SA1 Meetings | 97.12.01-97.12.05 | 英國牛津 | 廖舒婷 | 國科會 |
| 2008 International Conference on Asia-Pacific | 97.12.02-97.12.05 | 印尼巴里島 | 陳雪華 | 國科會 |
| 2008 International Conference on Asia-Pacific | 97.12.02-97.12.05 | 印尼巴里島 | 黃文樺 | 國科會 |
| 第十三屆生物醫學工程國際會議 | 97.12.02-97.12.06 | 新加坡 | 劉如熹 | 國科會 |

| 會 議 名 稱 | 會議期間 | 舉辦地點 | 出席人員 | 經費來源 |
|---|---|---|---|---|
| 第一屆光譜影像技術和同步輻射合作研討會1st International workshop on spectral imaging techniques with synchrotron radiation | 97.12.03-97.12.06 | 中國、北京 | 胡宇光 | 國科會 |
| 太平洋鄰里協會2008年年會 | 97.12.04-97.12.05 | 越南河內 | 林立傑 | 國科會 |
| 太平洋鄰里協會2008年年會 | 97.12.04-97.12.05 | 越南河內 | 林國平 | 國科會 |
| 太平洋鄰里協會2008年年會 | 97.12.04-97.12.06 | 越南河內 | 陳年興 | 國科會 |
| 太平洋鄰里協會2008年年會 | 97.12.04-97.12.06 | 越南河內 | 劉晨鐘 | 國科會 |
| 太平洋鄰里協會2008年年會 | 97.12.04-97.12.06 | 越南河內 | 洪淑芬 | 國科會 |
| 太平洋鄰里協會2008年年會 | 97.12.04-97.12.06 | 越南河內 | 胡家瑜 | 國科會 |
| 太平洋鄰里協會2008年年會 | 97.12.04-97.12.06 | 越南河內 | 杜正民 | 國科會 |
| 太平洋鄰里協會2008年年會 | 97.12.04-97.12.06 | 越南河內 | 劉靜怡 | 國科會 |
| 中國顆粒學會第六屆學術年會暨海峽兩岸顆粒學術研討會 | 97.12.08-97.12.11 | 中國上海 | 任盛源 | 本所自理 |
| 第十八屆印度高能物理會議 The 18th DAE-BRNS High Energy Physics Symposium | 97.12.14-97.12.18 | 印度 瓦拉那西 | 王子敬 | 本所自理 |
| 極端條件下交互作用研討會 Workshop on Radiation Matter Interaction under Extreme Conditions | 97.12.19-97.12.20 | 印度 瓦拉那西 | 王子敬 | 本所自理 |

# Institute Sponsored Meetings

## 本所協辦會議

| 研討會名稱 | 會議期間 | 地點 | 主辦人 |
|---|---|---|---|
| International Symposium on Grid Computing（ISGC）2008 | 97.04.07 - 97.04.11 | 人文社會科學館 | 林誠謙 |
| the 5Th Italian-Sino Workshop on Relativistic Astrophysics<br>第五屆華義相對論天體物理討論會 | 97.05.28 - 97.06.01 | 中央研究院<br>東華大學 | 吳建宏 |
| 2008 NCTS May Workshop on Critical Phenomena and Complex Systems | 97.05.02 - 97.05.02 | 中央研究院物理所 | 胡進錕 |
| The 9th Taiwan International Symposium on Statistical Physics<br>第九屆台灣統計物理會議 | 97.07.08 - 97.07.12 | 中央研究院物理所 | 胡進錕 |
| Summer Institute 2008 | 97.08.10 - 97.08.17 | 溪頭 | 李湘楠 |
| 中央研究院八十週年物理學術研討會 | 97.10.23 - 97.10.24 | 中央研究院物理所 | 吳茂昆 |

Seminars

中央研究院物理研究所九十七年度演講一覽表

(2008 January ~ December)

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| Baryon acoustic oscillation in galaxy redshift survey | Chia-Hsun Chuang | University of Oklahoma | 2008.01.03 |
| A Next-Generation DNA Sequencing Technology | Ying-Ja Chen | Department of Bioengineering, University of California, San Diego | 2008.01.03 |
| Higgs sector of the U(1)\' extended MSSM | Eibun Senaha | National Central University | 2008.01.04 |
| Highlight, recent results and prospect of dimuon experiments. | Jen-Chieh Peng | Dept. of Physics Univ. of Illinois at Urbana-Champaign 1110 W. | 2008.01.04 |
| Search for the Standard Model Higgs in the Dilepton+Neutrino Final State at CDF II | Shih-Chieh Hsu | University of California at San Diego | 2008.01.09 |
| 奈米球微影術的運用 | 陳培菱 | 中研院應用科學中心 | 2008.01.09 |
| Micro- and Nanofluidics for Cellular Physiology Studies | Shuichi Takayama | Biomedical Engineering and Macromolecular Science and Engineering | 2008.01.10 |
| Biophysics and Bioinfomatics of Gene Regulation | Marko Djordjevic | Ohio State University | 2008.01.11 |
| Nanobead Dielectrophoresis: A Microfluidic Platform for Rapid Biomolecular Identification | Hsueh-Chia Chang | University of Notre Dame | 2008.02.18 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| Turing patterns in threedimensions | Ohta | University of Kyoto | 2008.02.20 |
| Heterogeneous dynamics in bio- and nano-science | Kingshuk Ghosh | University of California, San Francisco | 2008.02.26 |
| Miniaturized platforms for synthesis, assembly, manipulation of colloids and biomolecules at nanoliter scales | Wei Hsien-Hong | Department of Chemical Engineering at National Cheng Kung University | 2008.03.03 |
| B-Meson Observables in the Maximally CP-Violating MSSM with Minimal Flavour Violation | Jae Sik Lee | National Central University | 2008.03.07 |
| Phenomenology of the Littlest Higgs model with T-parity | Chuan-Ren Chen | Michigan State University | 2008.03.13 |
| e^+ e^- -> t tbar near threshold at NNNLO | Yuichiro Kiyo | Universitat Karlsruhe, Germany | 2008.03.14 |
| Osmolyte counteracts urea-induced denaturation of α\\\-chymotrypsin | Pannur Venkatesu | Department of Chemical Engineering, National Taiwan University | 2008.03.17 |
| 極致想像與怪力亂神 | 陳文屏 | 中央大學天文所 | 2008.03.19 |
| Variational study of spinon-holon binding in the t-J model | 楊帆 | 北京理工大學 | 2008.03.20 |
| Quantum cosmology and nontrivial topologies | Teofilo Vargas | National Central Universit | 2008.03.21 |
| Measurement of W+photon production at CDF using 1/fb data | Ai Nagano | Tsukuba University | 2008.03.24 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| Micromechanical Properties of Living Cells | Daniel Ou Yang | Physics Department, Lehigh University | 2008.03.24 |
| Description of the Electroweak Interactions of Hadrons from a Different Approach | Swee-Ping Chia | INTI International University College, Malaysia | 2008.03.25 |
| 從2006諾貝爾物理獎到台灣AMiBA計畫成果 | 吳俊輝 | 台大物理系 | 2008.03.26 |
| Top Hypercharge Model | Cheng-Wei Chiang | National Central University | 2008.03.28 |
| Clusters at finite temperatures: Insight from Density functional molecular dynamics. | Dilip Kanhere | Dept. of Physics University of Pune, India | 2008.04.09 |
| 粒子物理與美 | 耿朝強 | 清華大學物理系 | 2008.04.09 |
| Rescattering effects in charmless B_{u,d,s} to PP decays | Chun-Khiang Chua | 中原大學 | 2008.04.11 |
| 埃秒（Attosecond)光脈衝-挑戰時空極限 | 孔慶昌 | 中央研究院<br>原子與分子科學研究所 | 2008.04.16 |
| Gauge-Higgs Unification in Warped Spacetime | Hisaki Hatanaka | CYCU | 2008.04.18 |
| Inflationary cosmology and late-time cosmic acceleration in non-minimal Maxwell-$F(R)$ gravity and the generation of large-scale magnetic fields | Kazuharu Bamba | National Tsing Hua University | 2008.04.25 |
| Interfacial Phenomena of a Ferrofluid Droplet | Ching-Yao Chen | National Chiao Tung University | 2008.04.28 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| Electronic transport through quantum dots in the Kondo regime | 仲崇厚 | 交通大學電子物理系 | 2008.04.30 |
| Electrical field control of local ferromagnetism using a magnetoelectric multiferroic. | 朱英豪 | 交通大學 | 2008.05.01 |
| Smoking Guns For New Physics and LHC No Lose Theorems | Ira Rothstein | Carnegie Mellon University | 2008.05.02 |
| 當物理遇上政治：物理政治學？政治物理學？ | 李世炳 | 中研院物理所 | 2008.05.07 |
| Evolution of curvature perturbation on super-Hubble scales | P. Chingangbam | Korea Institute for Advanced Study | 2008.05.12 |
| Light charged Higgs at the beginning of the LHC era | Enrico Lunghi | Fermilab | 2008.05.14 |
| 從金的顏色到光碟、從奈米線到喇叭磁鐵：奇妙的相對論效應/Wonderful | 郭光宇 | 台灣大學物理系 | 2008.05.14 |
| The Rouse–Mooney Model for Coherent Quasi-Elastic Neutron Scatterings of Single Chains Well-Entangled in Polymer Melts | 林銀潢 | Department of Applied Chemistry National Chiao-Tung University | 2008.05.19 |
| Mechanism involved in utilizing fluctuations by biosystems | Toshio Yanagida | Osaka University, Japan | 2008.05.20 |
| Novel SM and BSM Physics at Colliders | 阮自強 | 國家科學理論研究中心 | 2008.05.21 |
| Plasma in the Large-Scale Structure Formation | 賴光昶 | 交通大學 | 2008.05.23 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| Glassy Dynamics of Colloidal Suspensions under Confinement and External Forces | Elaine Yingxi Zhu | Dept. of Chemical and Biomolecular Engineering Notre Dame University | 2008.05.26 |
| Studying cosmic baryon fluid with hydrodynamic simulation | Li-Zhi Fang | University of Arizona | 2008.05.27 |
| Recently developing in Carbon Nanotube | Sumio Ijima | Nagoya University | 2008.05.27 |
| Nano-enable technology for energy harvesting: from nanogenerators to nanopiezotronics | Zhong Lin (Z.L.) Wang | Georgia Institute of Technology, Atlanta USA | 2008.05.27 |
| Speculations on HyperCP exotic events | Chuan-Hung Chen | NCKU | 2008.05.30 |
| Pattern formation in cardiac cells and tissue | Yohannes Shiferaw | Dept. of Physics and Astronomy California State University | 2008.05.30 |
| Low-Field Magnetoresistance From Phase Seperation in Manganites | Tien Ming Chuang | National High Magnetic Field Lab and Cornell University | 2008.06.02 |
| Iron Superconductors | Chia-Ling Chien | Dept. of Physics & Astronomy, The Johns Hopkins University | 2008.06.04 |
| Linking Interstellar Molecular Clouds with Solar Nebula | 管一政 | 師範大學地球科學系 | 2008.06.04 |
| Spatial variations of the electron-to-proton mass ratio in the Milky Way | Sergei A. Levshakov | Ioffe Physico-Technical Institute, Russia | 2008.06.06 |
| Anomalies of discrete symmetries | Takeshi Araki | 清華大學物理系 | 2008.06.13 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| High energy neutrinos from Dark Matter annihilations in the Sun | Wai-Yee Keung | University of Illinois, Chicago | 2008.06.20 |
| Effects of random density fluctuations on solar and supernovae neutrinos | Timur Rashba | Max Planck Institute, Munich, Germany | 2008.06.25 |
| Optical and X-ray studies of nano-scale helical pitch in one smectic liquid crystal phases | C. C Huang | University of Minnesota, U.S.A. | 2008.06.26 |
| Tunable superconducting cavities and dressed states in qubits | Per Delsing | Quantum Device Physics Lab. Microtechnology and Nanoscience, Chalmers University of Technology, Sweden | 2008.06.30 |
| Self-Organization in Amphiphilic Copolymer Solutions | Alexei R. Khokhlov | Moscow State University | 2008.07.02 |
| Menagerie of Viruses: Diverse Chemical Sequences or Simple Electrostatics? | Murugappan Muthukumar | University of Massachusetts, Amherst | 2008.07.02 |
| A spin-1 top partner | Hsin-Chia Cheng | University of California Davis | 2008.07.04 |
| 探索複雜網路金字塔 | 方錦清 | 中國原子能科學研究院 | 2008.07.21 |
| Shaping nanotubes with electron nano-beam: theoretical and experimental aspects | Alexandre Gloter | CNRS research associate at Solid State Laboratory, University of Orsay, France. | 2008.07.22 |
| Nonequilibrium transport at a quantum phase transition | 仲崇厚 | 交通大學電子物理系 | 2008.07.23 |
| 可激發系統中螺旋波與缺陷湍流的控制及在心臟除顫中的可能應用 | 胡崗 | 北京師範大學物理系 | 2008.07.24 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| Fibrobacter succinogenes 1,3-1,4-b-D-Glucanase: Structure and Function | 蔡麗珠 | 國立台北科技大學<br>分子科學與工程系 | 2008.07.28 |
| Theoretical and Experimental Studies on Peptide and Protein Aggregation | 袁建民 | Department of Physics, Drexel University, USA | 2008.07.29 |
| The BLAST Experiment: Polarized Electron Scattering from Hydrogen and Deuterium | Ricardo Alarco | Department of Physics, Arizona State University, Tempe, USA | 2008.08.05 |
| Sensitivity and Dynamic Studies on Cancer- and Diabetes-Related Signaling Pathways | 袁建民 | Department of Physics, Drexel University, USA | 2008.08.05 |
| Fibrobacter succinogenes 1,3-1,4-b-D-Glucanase: Structure and Function | 蔡麗珠 | 國立台北科技大學<br>分子科學與工程系 | 2008.08.12 |
| The Push and Pull of Chemical and Mechanical Forces on DNA | Brian A. Todd | Department of Physics, Purdue University | 2008.08.19 |
| Quantum Gravity effects in a system with cylindrical symmetry | Iñaki Garay | Instituto de Estructura de la Materia, CSIC , Spain | 2008.08.22 |
| Mechanical properties of chromatin fibers | Fan Tso Chien | Leiden University, the Netherlands | 2008.08.25 |
| Azimuthal angle correlation in vector-boson fusion processes at LHC | Kentarou Mawatar | KIAS | 2008.09.05 |
| Mott physics and screening of polarity fluctuations in Fe-As superconductors | Jeroen van den Brink | Universiteit Leiden, Netherlands | 2008.09.08 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| Why RNA do not form parallel-strand duplex? | Y. Mamasakhlisov | Yerevan State University, Armenia | 2008.09.18 |
| Micro-dynamics of sheared mesoscopic dusty plasma liquids | Chia-Ling Chan | University of Rochester Department of Physics and Astronomy | 2008.09.22 |
| Universal Dynamics of Stochastic Growth Processes | Alice Kolakowska | Department of Phys. and Space Sci Florida Institute of Technology, USA | 2008.09.26 |
| Wilson loop operators in AdS/CFT correspondence | Shoichi Kawamoto | NTNU | 2008.09.26 |
| Dissecting the structure and packaging mechanism of SARS coronavirus nucleocapsid protein | Huang Tai-Huang | Institute of Biomedical Sciences | 2008.09.29 |
| The Fractional Quantum Hall Effect: Correlations in Strongly Interacting Systems | John J. Quinn | University of Maryland | 2008.09.30 |
| From CIP to CPP GMR: Scaling impacts on Pinning Polarity Switching | 羅濟萱 | Hitachi Global Storage Technologies Inc., San Jose | 2008.09.30 |
| Electronic Properties of Graphene | Yuanbo Zhang | Miller Institute for Basic Research in Science,University of California,Berkeley | 2008.10.01 |
| Photon-in/Photon-out Soft-X-Ray Spectroscopy in Characterization of Solar Nanomaterials | Jinghua Guo | Lawrence Berkeley National Laboratory | 2008.10.02 |
| Polymer and Composite Activities at National Research Council of Canada | Johanne Denault | Industrial Materials Institute, National Research Council of Canada | 2008.10.03 |
| Modified D-term Inflation and Hilltop Inflation Models | 林家民 | 清華大學物理系 | 2008.10.03 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| Active Soft Matter | 陳宣毅 | 中央大學 | 2008.10.06 |
| DNA dynamics in confined slits、<br>DNA tug of war in Nanoslit: theory and experiment | 張人方<br>Alessandro Taloni | 中央研究院物理所 | 2008.10.13 |
| Critical magnetic field in the holographic superconductor | 溫文鈺 | 台大物理系 | 2008.10.17 |
| Assessing Causality and Its Applications | Kuo-Yuan Chung<br>Yao-Chen Hung | 中研院物理所 | 2008.10.20 |
| Energy Spectrum and Source Distributions of Ultrahigh Energy Cosmic Rays | 林貴林 | 交通大學 | 2008.10.24 |
| The characterization and application of a synthetic autoregulatory circuit | Pohan Lee | 師大附中 | 2008.10.27 |
| Sensors based on miniature bridges, diving boards and lids | Anja Boisen | Department of Micro and Nanotechnology , Technical University of Denmark, DK | 2008.10.29 |
| A scenario of Higgs physics | 張敬民 | 清華大學物理所 | 2008.10.31 |
| Beyond Diffraction Limit and Visualizing Cellular Molecular Dynamics | 高甫仁 | 陽明大學生醫光電所 | 2008.11.04 |
| Toward single molecule 3D imaging with bright coherent x-rays | Changyong Song | RIKEN Advanced Science Institute | 2008.11.05 |
| Quantum Spin Chain with Magnetic Impurity and Site Alternation | Sujit Sarkar | Poornaprajna Institute of Scientific Research, Bangalore, India | 2008.11.06 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| M-theory superalgebta from multiple membranes (with introductory reviews on string and M-theory) | Furuuchi, Kazuyuki | 國家理論中心 | 2008.11.07 |
| Strongly correlated photons in nanophotonics and plasmonics | 沈榮聰 | GInzton Laboratory, Standfort Universty | 2008.11.10 |
| 量子的氣味 | 林秀豪 | 清華大學物理系 | 2008.11.11 |
| Spontaneaous nanostructure formation at surface | Klaus Wandelt | Institute of Physical and Theoretical Chemistry of the University Bonn, Germany | 2008.11.12 |
| Neutrino parameters in resonant flavor conversion of supernova neutrinos | 邱紹玄 | 長庚大學 | 2008.11.14 |
| CP Violation for the Heaven and the Earth | 侯維恕 | 台灣大學物理系 | 2008.11.18 |
| Toward the covariant formulation of fractional superstring theory | Hirotaka Irie | 台灣大學物理系 | 2008.11.21 |
| Manipulating and detecting single biomolecules: Resolving cadherin interactions at the single molecule level. | Sanjeevi Sivasankar | Iowa State University | 2008.11.24 |
| 前進月亮-月球科學計畫的進展和遠景 | 葉永烜 | 中央大學天文所 | 2008.11.25 |
| III-V MOSFET as a Key Technology beyond Si CMOS | 郭瑞年 | 清華大學物理系 | 2008.12.02 |
| Information paradox, fuzzball conjecture and microstate geometries. | 王志偉 | NCTS | 2008.12.05 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
|---|---|---|---|
| Melting and Frustration in Temperature-Sensitive Colloids | Arjun G. Yodh | Department of Physics & Astronomy University of Pennsylvania | 2008.12.08 |
| Topological Phases of Noncentrosymmetric Superconductors | Satoshi Fujimoto | Kyoto University | 2008.12.08 |
| Free surface of superfluid $^3$He studied by Wigner solid | Kimitoshi Kono | Low Temperature Physics Laboratory, RIKEN, JAPAN | 2008.12.10 |
| In Vivo Optical Virtual Biopsy | 孫啟光 | 台灣大學光電所 | 2008.12.11 |
| N×N Mixing Matrices for Quarks and Leptons and Möbius Transformations for Direct CP Violations | Ling-Lie Chau | Physics Department, University of California, Davis | 2008.12.12 |
| Transport in 1 Dimensional and 0 Dimensional Systems | 張綿福 | 美國杜克大學物理系 | 2008.12.12 |
| Soft squishy tissue: investigating the depth dependent shear properties of cartilage | Itai Cohen | Cornell University | 2008.12.15 |
| Beyond Standard Model Higgs | Ling-Fong Li | Carnegie-Mellon University | 2008.12.19 |
| Probing New Physics in Hyperon CP Violation | Jusak Tandean | 國立台灣大學 | 2008.12.26 |
| Biophysical studies of the SARS coronavirus nucleocapsid protein - from (un)structure to function | Chung-ke Chang | IBMS | 2008.12.29 |
| 物理之美在太空 | 郝玲妮 | 中央大學太空科學研究所 | 2008.12.30 |

| 演講題目 | 演講者 | 所屬機構 | 日期 |
| --- | --- | --- | --- |
| Electrochemical assembly on patterned semiconductor surfaces for the fabrication of molecular device junctions and modulation of nanotubular titania interfaces | NATHAN SANTHANAM | Department of Electrical & Computer Engineering, University of Virginia | 2008.12.31 |

**Visiting Scholars**

中央研究院物理所九十七年度訪問學人表

**( 2008 年 1 月- 2008 年 12 月)**

| 訪 問 學 人 | 所 屬 機 構 | 訪 問 期 間 |
|---|---|---|
| David Chien | 美國 Dept of Mathematics CSU | 2007.10.28 - 2008.01.10 |
| Nickolay Izmailian | 亞美尼亞 Yerevan Physics Institute | 2007.12.06 - 2008.01.05 |
| Alexandder Gurevich | 美國 National High Magnetic Field Laboratory | 2007.12.12 - 2008.01.12 |
| Chiou, Wen-An | 美國 Maryoland University | 2007.12.16 - 2008.01.06 |
| Chiou, GeorgeWen | 美國 Maryoland University | 2007.12.16 - 2008.01.06 |
| Lawrence H. Ford | 美國 Tufts Univ. | 2007.12.26 - 2008.01.13 |
| Rong-Gen Cai | 中國 中科院理論物理所 | 2008.01.01 - 2008.01.15 |
| Arun Kumar Soma | 印度 Banaras Hindu University | 2008.01.01 - 2008.12.05 |
| 馬遠榮 | 東華大學應用物理研究所暨物理系 | 2008.01.12 - 2008.02.18 |
| 李大興 | 東華大學物理系 | 2008.01.12 - 2008.02.27 |
| Grigory V. Osipov | 俄羅斯 Nizhny Novgorod State University | 2008.01.15 - 2008.02.15 |
| 鄒忠毅 | 文化大學物理系 | 2008.01.15 - 2008.02.15 |
| 曹慶堂 | 淡江大學物理系 | 2008.01.15 - 2008.02.15 |
| 湯兆倫 | 中正大學物理系 | 2008.01.17 - 2008.02.17 |
| 蔡志申 | 國立台灣師範大學物理系 | 2008.01.20 - 2008.02.19 |
| 何健民 | 美國 Wichita State Univ. | 2008.01.23 - 2008.02.21 |
| Andreas Oelsner | 德國 Univ. of Mainz | 2008.01.26 - 0008.01.30 |
| 厚美瑛 | 中國 中國科學院物理所 | 2008.02.04 - 2008.02.17 |
| 袁簡鵬 | 美國 Michigan State Univ. | 2008.02.18 - 2008.03.28 |
| Lee, Kuen Ho | 韓國 Pohang University | 2008.02.25 - 2008.12.31 |
| Chuan-Ren Chen | 美國 Michigan State Univ. | 2008.03.06 - 2008.03.16 |
| Yuichiro Kiyo | 德國 Univ. of Karlsruhe | 2008.03.06 - 2008.03.22 |
| Nickolay Izmailian | 亞美尼亞 Yerevan Physics Institute | 2008.03.06 - 2008.05.30 |
| 楊帆 | 中國 北京理工大學 | 2008.03.07 - 2008.07.01 |
| Norihito Muramatsu | 日本 Osaka University | 2008.03.11 - 2008.03.15 |

| 訪問學人 | 所屬機構 | 訪問期間 |
|---|---|---|
| H. J. Choi | 韓國 Inha University | 2008.03.16 - 2008.03.19 |
| 謝鏡暲 | 中央研究院物理研究所 | 2008.03.16 - 2008.04.13 |
| Armen Allahverdyan | 亞美尼亞 Yerevan Physics Institute | 2008.04.04 - 2008.05.04 |
| Dang Van Soa | Hanoi Univ. of Education | 2008.04.10 - 2008.06.10 |
| Keh-Feu Liu | 美國 University of Kentucky | 2008.04.13 - 2008.05.12 |
| 鄭天佐院士 | 美國 賓州大學 | 2008.04.18 - 2008.05.07 |
| Tomoaki Hetta | 日本 Osaka University | 2008.04.30 - 2008.05.03 |
| Yorihito Sugaya | 日本 Osaka University | 2008.04.30 - 2008.05.03 |
| Takashi Nakano | 日本 Osaka University | 2008.04.30 - 2008.05.03 |
| Hiroshi Watanabe | 日本 Nagoya University | 2008.05.01 - 2008.05.08 |
| Ira Rothstein | 美國 Garnegie Mellon University | 2008.05.02 - 2008.05.08 |
| 盛偉德 | 印度 貝拿勒斯印度教大學 | 2008.05.03 - 2008.06.30 |
| Mihael Hategan | 美國 Argonne National Lab. | 2008.05.04 - 2008.05.09 |
| Enrico Lunghi | 美國 Fermilab, Theoretical Physics Department | 2008.05.04 - 2008.05.15 |
| Geghan Asryan | 亞美尼亞 Yerevan Physics Institute | 2008.05.09 - 2009.06.30 |
| Satoshi Mishima | 美國 Institute of Advanced study School of Natural Science | 2008.05.10 - 2008.05.17 |
| Toshio Yanagida | 日本 Osaka University | 2008.05.20 - 2008.05.23 |
| H. J. Choi | 韓國 Inha University | 2008.05.24 - 2008.05.29 |
| Yingxi Elaine Zhu | 美國 University of Notre Dame | 2008.05.25 - 2008.05.30 |
| Li-Zhi Fang | 美國 University of Arizona | 2008.05.26 - 2008.06.04 |
| 莊天明 | 美國 高磁場實驗室 | 2008.05.26 - 2008.06.04 |
| Remo J. Ruffini | 義大利 University L Sapienza | 2008.05.29 - 2008.06.01 |
| 袁簡鵬 | 美國 Michigan State Univ. | 2008.06.11 - 2008.08.17 |
| 曹慶堂 | 淡江大學物理系 | 2008.06.15 - 2008.09.15 |
| 藍志成 | 加拿大 Univ. of British Columbia and Mcgill Univ. | 2008.06.19 - 2008.07.01 |
| 高鐘 | 美國 University of Oklahoma | 2008.06.20 - 2008.07.03 |
| 蔡志申 | 國立台灣師範大學物理系 | 2008.06.20 - 2008.09.19 |

| 訪問學人 | 所屬機構 | 訪問期間 |
|---|---|---|
| 梁宗嶽 | 美國 Univ. of Delaware | 2008.06.21 - 2008.07.06 |
| 李金 | 中國科學院物理研究所 | 2008.06.22 - 2008.07.20 |
| Per Delsing | 瑞典 Chalmers University of Technology | 2008.06.24 - 2008.06.30 |
| 伍法岳 | 美國 東北大學 | 2008.06.24 - 2008.07.11 |
| 湯兆倫 | 中正大學物理系 | 2008.06.25 - 2008.09.15 |
| 葉乃裳 | 美國 加州理工大學 | 2008.06.29 - 2008.07.09 |
| Hsin-Chia Cheng | 美國 Univ. of California | 2008.06.30 - 2008.07.10 |
| 鄒忠毅 | 文化大學物理系 | 2008.07.01 - 2008.09.15 |
| 陳元宗 | 義守大學材料科學與工程學系 | 2008.07.01 - 2008.09.15 |
| 蔡麗珠 | 台北科技大學 | 2008.07.01 - 2008.09.15 |
| 李大興 | 東華大學物理系 | 2008.07.01 - 2008.09.16 |
| 馬遠榮 | 東華大學應用物理研究所暨物理系 | 2008.07.01 - 2008.09.30 |
| 廖思善 | 中興大學物理系 | 2008.07.01 - 2008.09.30 |
| 洪東興 | 銘傳大學電腦資訊工程系 | 2008.07.01 - 2008.09.30 |
| 張經霖 | 淡江大學物理系 | 2008.07.01 - 2008.12.31 |
| 李梅樹 | 波蘭 Polish Academy of Sciences | 2008.07.02 - 2008.08.31 |
| Yevgeni Mamasakhlisov | 亞美尼亞 Yerevan state Univ. | 2008.07.02 - 2008.09.21 |
| 胡 崗 | 中國 北京師範大學 | 2008.07.03 - 2008.07.27 |
| 歐陽鐘燦 | 中國 Institute of Theoretical , CAS | 2008.07.04 - 2008.07.12 |
| 汪秉宏 | 中國 Univ of Science and Technology of China | 2008.07.05 - 2008.07.20 |
| Fu-Chun Zhang | 香港 Hong Kong University | 2008.07.06 - 2008.07.11 |
| Hans-Rudolf Ott | 瑞士 LFET, Zurich | 2008.07.06 - 2008.07.11 |
| Sung-Ik Lee | 韓國 Pohang University | 2008.07.06 - 2008.07.11 |
| Sadamichi Maekawa | 日本 IMR, Tohoku University | 2008.07.06 - 2008.07.11 |
| Shigetoshi Ohsjima | 日本 Yamagata University | 2008.07.06 - 2008.07.11 |
| Antonio Barone | 義大利 Naples University | 2008.07.06 - 2008.07.11 |
| Michael Farle | 德國 Duisberg University | 2008.07.06 - 2008.07.11 |

| 訪問學人 | 所屬機構 | 訪問期間 |
|---|---|---|
| Hanns-Ulrich Habermeier | 德國 Max Planck Institute-FKF | 2008.07.06 - 2008.07.11 |
| 崔章琪 | 美國 IBM Watson Research Center, New York | 2008.07.07 - 2008.07.13 |
| Alexandre Gloter | 法國 Univ. Of Orsay | 2008.07.09 - 2008.07.23 |
| 喻純旭 | 中國 南開大學物理學院 | 2008.07.14 - 2008.08.30 |
| Yong Yeon Keum | 日本 National Astronomical Observatory of Japan | 2008.08.01 - 2008.08.05 |
| 李翠蓮 | 中國 上海交通大學 | 2008.08.01 - 2008.08.31 |
| 趙忠賢 | 中國 中科院理論物理所 | 2008.08.02 - 2008.08.17 |
| 楊金龍 | 中國 山東大學 | 2008.08.03 - 2008.09.05 |
| Ricardo O. Alarcon | 美國 Arisona Univ. | 2008.08.04 - 2008.08.06 |
| Jens Paul Artur Erler | 墨西哥 National Autonomous University of Mexico | 2008.08.09 - 2008.08.17 |
| Koji Hashimoto | 日本 Theoretical Physics lab., RIKEN | 2008.08.10 - 2008.08.13 |
| David Shih | 美國 Institute for Advanced Study | 2008.08.10 - 2008.08.17 |
| John Rivers | 英國 Imperial College | 2008.08.30 - 2008.09.07 |
| Francois Grey | 中國 清華大學 | 2008.09.01 - 2008.09.03 |
| Alice Kolakowska | 美國 Florida Institute of Technology | 2008.09.01 - 2008.09.30 |
| Nickolay Izmailian | 亞美尼亞 Yerevan Physics Institute | 2008.09.01 - 2009.03.31 |
| John J. Quinn | 美國 Univ. of Maryland | 2008.09.29 - 2008.10.07 |
| 李仁吉 | 交通大學電子物理系 | 2008.10.01 - 2008.11.30 |
| 何健民 | 美國 Wichita State Univ. | 2008.10.19 - 2008.11.25 |
| 韓良 | 中國科學技術大學 | 2008.10.22 - 2008.10.27 |
| Xinhua Peng | 中國科學技術大學 | 2008.10.22 - 2008.10.27 |
| 郭國平 | 中國科學技術大學 | 2008.10.22 - 2008.10.27 |
| 馬文淦 | 中國科學技術大學 | 2008.10.22 - 2008.10.27 |
| 陳增兵 | 中國科學技術大學 | 2008.10.22 - 2008.10.27 |
| 金革 | 中國科學技術大學 | 2008.10.22 - 2008.10.27 |
| 周正威 | 中國科學技術大學 | 2008.10.22 - 2008.10.27 |
| 汪曉蓮 | 中國科學技術大學 | 2008.10.22 - 2008.10.27 |

| 訪問學人 | 所屬機構 | 訪問期間 |
|---|---|---|
| 杜江峰 | 中國科學技術大學 | 2008.10.22 - 2008.10.27 |
| 費少明 | 中國　北京首都師範大學數學科學院 | 2008.10.25 - 2008.10.26 |
| 張首剛 | 中國　中國科學院國家授時中心 | 2008.10.25 - 2008.10.26 |
| 李志兵 | 中國　中山大學物理科學與工程技術學院 | 2008.10.25 - 2008.10.26 |
| 周小計 | 中國　北京大學信息科學技術學院量子電子學研究所 | 2008.10.25 - 2008.10.26 |
| 高克林 | 中國　中國科學院武漢物理與數學研究所 | 2008.10.25 - 2008.10.26 |
| 馬永利 | 中國　復旦大學物理系 | 2008.10.25 - 2008.10.26 |
| Davit Sahakyan | 亞美尼亞 Yerevan Physics Institute | 2008.10.26 - 2009.02.20 |
| 魏運成 | 加拿大 多倫多大學物理系. | 2008.11.01 - 2008.11.09 |
| Manabu Miyabe | 日本 京都大學 | 2008.11.07 - 2008.11.23 |
| Klaus Wandelt | 德國 Institute of Physical and Theoretical Chemistry of the University Bonn | 2008.11.12 - 2008.11.12 |
| Lakhwinder Singh | 印度 拿勒斯印度教大學 | 2008.11.15 - 2009.11.30 |
| Sanjeevi Sivasankat | 美國 Iowa State University | 2008.11.22 - 2008.11.30 |
| Nickolay Izmailian | 亞美尼亞 Yerevan Physics Institute | 2008.12.01 - 2009.01.31 |
| Davis Ling-Lie Chua | 美國 University of California | 2008.12.08 - 2008.12.14 |
| Nikolay V. Dokholyan | 美國 University of North Carolina | 2008.12.11 - 2008.12.16 |
| D. Gront | 美國 University of Washington | 2008.12.11 - 2008.12.16 |
| Itai Cohen | 美國 Cornell University | 2008.12.11 - 2008.12.20 |
| Dang Mau Chien | 越南 Vietnam National University | 2008.12.15 - 2008.12.20 |
| Chuan-Ren Chen | 日本 Univ. of Tokyo | 2008.12.15 - 2009.01.05 |
| Nathan Swami | 美國 University of Virginia | 2008.12.21 - 2008.12.24 |
| 尼斯瓦 | 印度 Indraprastha Univ. | 2008.12.21 - 2009.01.04 |
| Keh-Feu Liu | 美國 Univ. of Kentrcky | 2008.12.23 - 2008.12.27 |
| 高鐘 | 美國 Univ. of Oklahoma | 2008.12.24 - 2009.01.02 |