

ANNUAL REPORT (January 1 – December 2012)

LABORATORY

Condensed Matter Physics Laboratory (CMPL) - National Institute of Physics

SUMMARY

The Condensed Matter Physics Laboratory Semiconductor Group (CMPL Semicon) is one of the two clusters of the five research laboratories/groups of the National Institute of Physics. In the past, CMPL-Semicon has focused its research only on the fabrication and characterization of high temperature superconductors (HTSCs). Today, the laboratory deals with researches on designing, fabricating, characterizing and testing of electronic devices suited for RF application.

The Condensed Matter Physics Laboratory Superconductor Group (CMPL Supercon) is one of the two clusters of the five research laboratories/groups of the National Institute of Physics. This year, the research program will find and explore novel routes for the synthesis of Zinc Oxide nano particles and characterize these particles according to their electro-optic (UV), Semiconducting, Spectroscopic characteristics and Photocatalytic properties. It will attempt to produce new habits and structures which will then be characterized as well. The program also aims to set up a nano manipulation and nanomaterials probing capability. This test platform will attempt to find routes that control growth of particular habits and/or structures.

I. Funded Research Projects (12):

1. Fabrication of Titania Nanotubes (TNTs) from RF-Sputtered Titanium Films, FUNDING AGENCY: University of the Philippines Office of the Vice Chancellor for Research and Development (OVCRD), AMOUNT: PhP 300,000.00
2. Fabrication of Bow-tie Photoconductive Antenna in IR-PLD Grown High Tc Superconducting Thin Films, FUNDING AGENCY: University of the Philippines Office of the Vice Chancellor for Research and Development (OVCRD), AMOUNT: PhP 60,000.00
3. Magnetic Susceptibility Measurement in a YBCO Superconductor under low AC and DC Magnetic Field, FUNDING AGENCY: University of the Philippines Office of Vice Chancellor for Research and Development (OVCRD), AMOUNT: PhP 300,000.00
4. Development of an Ultra-high Temperature Chemical Vapor Deposition System, FUNDING AGENCY: National Research Council of the Philippines (NRCP), AMOUNT: PhP 501,650.00
5. Infrared Pulsed Laser Deposition of Y-doped BSCCO, FUNDING AGENCY: National Research Council of the Philippines (NRCP), AMOUNT: PhP 514,620.00
6. Nanostructures for Solar Cell Applications PROGRAM TITLE: Nanostructured Solar Energy Devices SUB-PROGRAM: Solid State Based Solar Cells with Nanoparticles and Graphene, FUNDING AGENCY: Department of Science and Technology (DOST) Grants-in-Aid, University of the Philippines, AMOUNT: PhP 6,130,592.00
7. Transparent Electrodes for Solar Cell Applications PROGRAM TITLE: Nanostructured Solar Energy Devices SUB-PROGRAM: Solid State Based Solar Cells with Nanoparticles and Graphene, FUNDING AGENCY: Department of Science and Technology (DOST) Grants-in-Aid, University of the Philippines, AMOUNT: PhP 5,816,192.00
8. GaAs-based solar cell devices PROGRAM TITLE: Nanostructured Solar Energy Devices SUB-PROGRAM: Solid State Based Solar Cells with Nanoparticles and Graphene, FUNDING AGENCY: Department of Science and Technology (DOST) Grants-in-Aid, University of the Philippines, AMOUNT: PhP 8,043,392.00
9. Investigation of Morphological and Optical Properties of Porous Silicon and Its Applications as a Photonic Crystal, FUNDING AGENCY: National Research Council of the Philippines (NRCP), AMOUNT: PhP 572, 610.50
10. Project title: "Condensed Matter Physics Laboratory Superconductor Group Summer Immersion Program, Capacity Building and Developing Global Competitiveness in Science Education", FUNDING AGENCY: Department of Science and Technology - Science Education Institute (SEI), AMOUNT: PhP 130, 000.00
11. Synthesis of Highly Crystalline Zinc Oxide Nanostructures via Carbothermal Reduction Method, FUNDING AGENCY: University of the Philippines Office of the Vice Chancellor for Research and Development (OVCRD), AMOUNT: 300,000.00
12. "Infrared Pulsed Laser Deposition of Y-doped BSCCO", FUNDING AGENCY: National Research Council of the Philippines (NRCP), AMOUNT: PhP 514,620.00

II. Publications:**A. ISI-Journals (5)**

Cyril P. Sadia, Aleena Maria Laganapan, Mae Agatha Tumanguil, Elmer Estacio, Armando Somintac, Arnel Salvador, Christopher T. Que, Kohji Yamamoto, and Masahiko Tani, "Intense terahertz emission from molecular beam epitaxy-grown undoped GaAs on p-GaSb (100) substrates pumped by a femtosecond laser at 800 nm wavelength" *Journal of Applied Physics*, *In Press*

BOOK CHAPTER: BOOK TITLE: "Heat Treatment - Conventional and Novel Applications", CHAPTER TITLE: "Post Deposition Heat Treatment Effects on Ceramic Superconducting Films Produced by Infrared Nd:YAG Pulsed Laser Deposition", AUTHORS: J. De Vero, R. Lopez, W. Garcia and R. Sarmago; Edited by Frank Czerwinski, ISBN 978-953-51-0768-2, Physical Sciences, Engineering and Technology, (September 2012)

G. R. Blanca, J. De Vero, W. Garcia and R. Sarmago, "Enhanced flux pinning in IR PLD grown Bi-2212 films", *Physics C* 1252059 (2012).

E. Estacio,¹ C. Que,¹ F. C. Awitan, J. I. Bugante, F. I. de Vera, J. Azares, J. Afalla, J. de Vero, A. Somintac, R. Sarmago, A. Salvador, K. Yamamoto, and M. Tani, "Terahertz emission from Indium Oxide films grown on MgO substrates using sub-bandgap photon energy excitation", *Optics Express* 20, 4, (February 2012).

Preparation of $\text{Bi}_{1.6}\text{Pb}_{0.4}\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{10+\delta}$ films using sedimentation process and melt-quenched method. Jonalds L. Tacneng, Roland V. Sarmago. *Physics Procedia*, Volume 27, pp. 288-291, 2012

B. Local (Peer Reviewed) Samahang Pisika ng Pilipinas (36)

Maria Herminia Balgos rafael Jaculbia, Anne Margarette Maallo, Gerold Pedemonte, Jessica Pauline Afalla, Joselito Muldera, Arnel Salvador and Elmer Estacio, "Single cycle azimuthal dependence of the THz emission from GaAs on Si (100)"

Fritz Christian Awitan, Mae Agatha Tumanguil, Neil Irvin Cabello, Horace Andrew Husay, Joselito Muldera, Armando Somintac and Arnel Salvador, "Controlling the dimensions of In_2O_3 nanoarrows grown via direct thermal oxidation on AuIn films on glass substrates"

Jan Isaac Bugante, Benjamin Villaflor and Roland Sarmago, "Intrinsic superconducting electrical characteristics of a submicron Bi-2212 sedimentation film"

Sheryl Ann Vizcara, Jessica Pauline Afalla, Kaye Ann de las Alas, Maria Heminia Balgos, Rafael Jaculbia, Arnel Salvador and Armando Somintac, "Photoluminescence excitation of GaAs/AlGaAs single quantum wells"

Joseph Christopher Ragasa and Armando Somintac, "Raman Scattering spectroscopy of harvested silicon nanowires"

Fritz Christian Awitan, Mae Agatha Tumanguil, Neil Irvin Cabello, Francesca Isabel de Vera, Joseph Christopher Ragasa, Joselito Muldera, Armando Somintac and Arnel Salvador, "Growth of Indium Oxide (In_2O_3) on Single-Crystalline Silicon (Si) (100) Substrate via Direct Thermal Oxidation"

Nemensio Mangila and Peter Jeffrey Maloles, "Annealing study of AlN thin films grown on Si (100) and Si(111) substrates via Reactive RF Magnetron Sputtering"

Rhenish Simon, Jessica Afalla, Elmer Estacio and Armando Somintac, "Photoluminescence Line dependence on Number of Wells of GaAs-AlGaAs Multiple Quantum Wells"

Jonathan Ray Abat, NM Iv, Anel Salvador and Armando Somintac, "Photoluminescence Line dependence on Number of Wells of GaAs-AlGaAs Multiple Quantum Wells"

Peter Jeffrey Maloles, Mae Agatha Tumanguil, AM Laganapan, Maria Herminia Balgos and Armando Somintac, "Reciprocal space maps and Raman phonon modes of GaAs-AlGaAs core-shell nanowires grown on Si (111) substrate"

M.A. Faustino, L Jr. Lopez, M. Cainglet, R. Oquias, Arvin Mabilangan, Arnel Salvador and Armando Somintac, "Fabrication and characterization of laterally-graded Distributed Bragg reflector based on porous silicon"

A.C. Santiago, J. Pangasinan and Roland Sarmago, "Effect of sintering temperature on composition and critical temperature of $\text{Bi}_2\text{Sr}_{1.7}\text{Mn}_{0.3}\text{CaCu}_2\text{O}_{8+\delta}$ "

E.A. Dilla, A. Somintac, J. Mendoza, and J. Ang, "Natural dyes extracted from Gerbera hybrida as possible photosensitizers for dye-synthesized solar cells"

Shiello Namuco and Roland Sarmago, "Model Fitting of buk $\text{GdBa}_2\text{Cu}_3\text{O}_{7-d}$ sample at the imaginary component of AC magnetic susceptibility"

Louisse Anne Fulgencio and Roland Sarmago, "Surface Morphological Characteristics of Electrophically Deposited Bi-2212 on Ag-coated MgO Substrate after Melt-Quenching and Post-Annealing"

M.A Camacho, H. Ramos, and Armando Somintac, "Influence of Carbonyl Index on the Microstructure and Adhesion Properties of CuO Interconnect on Polypropylene"

MF Permejo, B Singidas, L V Sayson, R Vargas and Roland Sarmago, "Charge Pattern writing on ZnO microribbon using conductive AFM tips"
L Bambao and Roland Sarmago, "Investigation of the effect of Mn ²⁺ doping on Bi ₂ Sr _{2-x} Mn _x CaCu ₂ O _y superconducting properties, critical current, and pinning potential via the four point probe method"
Jefferson Abrenica, Annaliza Amo, Heinritz Majella Miguel, Arnel Salvador and Armando Somintac, " Fabrication and characterization of undoped zinc oxide thin films through spray pyrolysis technique"
A Santos, R Vargas, Roland Sarmago, K Yamanoi, Mcadatal-Raduban, S Toshihiko and S Nobuhiko "Comparison of Annealing Temperature on the luminescent spectra of ZnO nanorods"
NI Cabello, J C Ragasa, N G Saplagio, N Mangila, M Laguerta, F C Awitan, J D Vasquez, J Azares, J Muldera, A Salvador and A Somintac, "A proof-of-concept p-n junction silicon nanowire photodetector device"
M J Empizo, M M Alcanzare, J I Bugante, A M Laganapan, M Lao, M H Balgos, R Jaculbia, J ulderra, A Somintac, A Salvador, R Sarmago, and E Estacio, "Enhancement of THz emission of Si wafers by the deposition of ZnO films"
E Ann Prieto, JJ Ibanes, R Delos Santos, R Cabral, R Awayan, J Muldera, M H Balgos, R Jaculbia, A Somintac, A Salvador, E Estacio, "Strong THz Emission from a LTG-GsaAs/n-GaAs/Si-GaAs Epitaxial Layer"
J Chan, F De Los Rees, A Somintac and C Yu, "Effect of dopant concentration and deposition time in the properties of fluorine-doped tin oxide (FTO) film deposited via spray pyrolysis"
C J Garcia and A Somintac, "Structural and Morphological Analysis of Zn-Doped Anatase TiO ₂ Using Precipitation Method"
J R Abat, E Anguluan, K de las Alas, A Mabilangan, R Payod, J Muldera, A Salvador, A Somintac and E Estacio, " Terahertz Emission from a Double Asymmetric Quantum Well p-i-n structure"
F Awitan, S Crosby, C A Borja, M A Tumanguil, A Somintac and A Salvador, " Influence of the temperature o the properties of indium oxide obtained via wet oxidation method"
Benjamin Villafior, J I Bugante and Roland Sarmago, " Synthesis of Bi-2212 Superconducting Film Through Sedimentation, Melt quenching, and Post-Annealing Assisted with KCl"
A M Geronimo, J Amado and R Sarmag, " Microstructural Investigation of Y(Ba _{2-x} Mn _x)Cu ₃ O ₇ via Low AC Field Magnetic Susceptibility"
E A Mondarte, N. Mangila, and A Somintac, " Determining Thermo-optic Coefficients of Wide Band-gap Thin Films via Thermoelectric Effect"
L M De Juan, R Corpuz, and A Somintac, "Modified Silica Superhydrophobic Coating on Stainless Steel"
J Abrenica, P M Calaque, M A Calleja, E L Galvez, L Jr. Lopez, M Laguerta, A Salvador, and A Somintac, " Deposition of Zinc Oxide film as Anti-Reflectivity Coating (ARC) through Mist Deposition for Sola Cell Application"
R. Vargas, E. Estacio, A. Somintac and R. Sarmago, "Birefringence of ZnO microribbon with ultrawide [100] parallel surfaces"
F. I. de Vera and R. Sarmago, "X-ray imaging thru Talbot effect"
R. Lopez and R. Sarmago, "Effects of Variations in the Oxygen-Annealing Profile in Mn Doped YBa ₂ Cu ₃ O _{7-δ} Bulk Superconductors"
L. Bambao and R. Sarmago, " Investigation of the effect of Mn ²⁺ doping on Bi ₂ Sr _{2-x} Mn _x CaCu ₂ O _y superconducting properties, critical current, and pinning potential"

C. International Conference Proceedings (12)

Cyril P. Sadia, Christopher T. Que, Elmer Estacio, Kohji Yamamoto, Masahiko Tani, Aleena Maria Laganapan, Mae Agatha Tumanguil, Jessica Afalla, Armando Somintac, and Arnel Salvador, "Intense terahertz emission from MBE-grown undoped GaAs films on GaSb substrates pumped by a femtosecond laser at 800 nm", The 17th International Conference on Molecular Beam Epitaxy, Nara, Japan, August 2012

Cyril P. Sadia, Christopher T. Que, Elmer Estacio, Kohji Yamamoto, Masahiko Tani, Aleena Maria Laganapan, Mae Agatha Tumanguil, Jessica Afalla, Armando Somintac, and Arnel Salvador, "Intense terahertz emission from MBE-grown undoped GaAs films on GaSb substrates pumped by a femtosecond laser at 800 nm", 31st International Conference on the Physics of Semiconductors, Zurich, Switzerland, July 2012

Jessica Afalla, Jasher Ibanes, Maria Herminia Balgos, Arnel Salvador, Armando Somintac, "Picosecond Carrier Lifetime of GaAs/AlGaAs Single Quantum Wells at 77K", 7 JSAP-OSA Joint Symposia (73rd JSAP Autumn Meeting, 2012), Ehime University, Matsuyama, Ehime, Japan, September 2012)

Jasher Ibanes, Elmer Estacio, Arnel Salvador, Armando Somintac, Christopher Que, Satoshi Tsuzuki, Kohji Yamamoto, Masahiko Tani, "THz-TDS of GaAs/AlGaAs/n-GaAs core-shell-skin nanowires on Si (100) and Si (111) substrates", 7 JSAP-OSA Joint Symposia (73rd JSAP Autumn Meeting, 2012), Ehime University, Matsuyama, Ehime, Japan, September 2012)

M Balgos, R Jaculbia, S Vizcara, E Estacio, A Salvador, and A Somintac, "Carrier lifetimes of GaAs/AlGaAs/n-GaAs core-shell-skin nanowires at 300K", 7 JSAP-OSA Joint Symposia (73rd JSAP Autumn Meeting, 2012), Ehime University, Matsuyama, Ehime, Japan, September 2012)

R. B. Jaculbia*, M. H. M. Balgos, M. J. Defensor, K. delas Alas, K. Omambac, E.S. Estacio, A.A. Salvador and A.S. Somintac, "Evidence of tunneling in the 300K TRPL spectra of GaAs/AlGaAs coupled quantum well", 7 JSAP-OSA Joint Symposia (73rd JSAP Autumn Meeting, 2012), Ehime University, Matsuyama, Ehime, Japan, September 2012)

J. Elvina and R. Sarmago, "Characterization of bulk $BaM_{1-x}Fe_xO_3$ ($M = Bi, Pb; x = 0.00, 0.10, 0.20, 0.30$) produced via solid state reaction method", International Union of Materials Research Societies - International Conference of Young Researchers on Advanced Materials, 30 Biopolis St. Singapore July 1-6, 2012.

M. Lao and R. Sarmago, "AC Magnetic Susceptibility Study on $YBa_2Cu_3O_{7-\delta}$ Superconductor under AC and DC Magnetic Field within the Meissner Regime", International Conference on Superconductivity and Magnetism, Kumburgaz, Istanbul, Turkey, April 29 - May 4, 2012.

B. Villaflor, JI Bugante and R. Sarmago, "Growth of Superconducting $Bi_2Sr_2CaCu_2O_{8+\delta}$ Thin Film using Sedimentation Method with KCl", International Symposium on Superconductivity, Funabori, Tokyo, Japan, December 3-5 2012.

AM. Geronimo, J. Amado and R. Sarmago, "Morphology and low AC Magnetic Susceptibility of $Y(Ba_{2-x}M_x)Cu_3O_7$ ", International Symposium on Superconductivity 2012, Funabori, Tokyo, Japan, December 3-5 2012

R. Vargas, R. Sarmago, K. Yamanoi, M. Cadatal-Raduban, T. Shimizu and N. Sarukura, "Synthesis and optical characterization of ZnO microribbon with ultrawide (100) parallel surfaces grown by carbothermal reduction method", The 7th International Conference on Photonics and Application, Ho Chi Minh City, Vietnam, November 26-29, 2012

S. Namuco and R. Sarmago, "Granular responses of $GdBa_2Cu_3O_{7-\delta}$ using AC magnetic susceptibility measurement under AC and DC magnetic fields", International Symposium on Superconductivity 2012, Tokyo, Japan, December 3-5 2012.

III. Graduates:	
A. BS Physics (3)	
Joseph Christopher Ragasa	Thesis Title: "Silicon nanowire fabrication via silver-assisted electroless etching and transfer for characterization"; Adviser: Dr. Armando S. Somintac
Jonalds Tacneng	Thesis title: "Fabrication of (Bi,Pb)-2223 superconducting films via sedimentation-melt-quenching method", Adviser: Dr. Roland Sarmago
Myles Allen Zosa	Thesis title: "Defect modeling on AuCu ₃ and its effects on the XRD pattern", Adviser: Dr. Roland Sarmago
B. BS Applied Physics (6)	
Nemesio Mangila IV	This Title: "Electrical and optical properties of AlN thin films synthesized via reactive RF magnetron sputtering"; Adviser: Dr. Armando Somintac
Mark Francis de Leon	Thesis title: "Yttrium substitution on the iron site of BaY _x Fe _(1-x) O _(3-y) ", Adviser: Dr. Roland Sarmago
Mel Anthony Duldulao	Thesis title: "Iron substitution in the calcium site of Bi ₂ Sr ₂ CaCu ₂ O _(8+Δ) ", Adviser: Dr. Roland Sarmago
Jessmond Elvina	Thesis title: "Characterization of bulk BaBi _(1-x) Fe _x O ₃ (x = 0.00 - 1.00) and BaPb _(1-y) Fe _y O ₃ (y = 0.00 - 0.30) produced via solid state reaction method", Adviser: Dr. Roland Sarmago
Rusty Lopez	Thesis title: "Effects of Ba-site Mn doping in a Yba ₂ Cu ₃ O _(7-Δ) system", Adviser: Dr. Roland Sarmago
Shiello Namuco	Thesis title: "Granular responses of bulk GaBa ₂ Cu ₃ O _{7-d} using AC magnetic susceptibility under superposed Ac and DC magnetic field", Adviser: Dr. Roland Sarmago
C. MS Physics (4)	
Neil Irvin Cabello	Thesis Title: "X-ray diffractometry and Raman Spectroscopy Investigation of Silicon Nanowires Fabricated via Electroless Etching"; Adviser: Dr. Armando S. Somintac
Maria Hermie Balgos	This Title: "Silicon nanowire growth via silver-assisted electroless etching and aligned transfer for characterizations"; Dr. Armando S. Somintac
Jonathan Azares	Thesis Title: "Performance of a stacked p-i-n and high electron mobility transistor (HEMT) layers on a single GaAs substrate for optoelectronic integrated circuits"; Adviser: Dr. Armando S. Somintac
Rengie Mailig	Thesis Title: "Reactive Ion Etching of GaAs Structures using BCl ₃ "; Adviser: Dr. Armando S. Somintac
Melvin John Empizo	Thesis title: "Synthesis and growth of zinc oxide by direct thermal oxidation", Adviser: Dr. Roland Sarmago
Francesca Isabel de Vera	Thesis title: "Construction of symmetric Talbot interferometer for x-ray imaging", Adviser: Dr. Roland Sarmago
D. MS Material Science And Engineering (2)	
Fritz Christian Awitan	Thesis title: "Growth off Indium Oxide (In ₂ O ₃) Nanostructures via Direct Thermal Oxidation of Gold (Au)-Coated Indium (In) Films", Adviser: Dr. Armando S. Somintac
Claude Ceniza	Thesis Title: "Growth of Indium Aluminum Nitride Films Using Reactive RF-Magnetron Sputtering"; Thesis Adviser: Dr. Armando Somintac
E. PhD Physics	
none	

IV. Members and apprentices:		
A. BS Physics (9)		
Condes, Raymond	Galvez, Erik Lorenzo	Gonzales, Karl Cedric
Bulacan, Cheeny Rose	Dominguez, Victor Michael	Tabacon, Dominique
De Los Reyes, Alexander	Garcia, Rome	Zosa, Myles Allen
B. BS Applied Physics (30)		
Abrenica, Jefferson	Bareza, Nestor Jr.	Masil, Bernadette
Dudulao, Mel Anthony	Buan, Dyan	Mata, Anna Carmela
Elvina, Jessmond	Calaque, Precy Mae	Namuco, Shielo
Exconde, Maria Maridel	Carinan, Camille Louise	Oulutan, Lance Kristoferson
Fulgencio, Louise Anne	de Leon, Mark Francis	Tingzon, Philippe
Gawaran, Ma. Charmaine Joie	Duanan, John Levine	Tuico, Anthony
Husay, Horace Andrew	Ferrolino, John Paul	Villaflor, Benjamin
Maloles, Peter Jeffrey	Geronimo, Ana Marie	Villanueva, Hannah Margaret
Miguel, Heinritz Majella	Guevara, Venice Kaye	Vizcara, Sheryl Ann
Saplagio, Niel Gabriel	Lopez, Rusty	Fernando, Isabel Ophelia
C. MS Physics (20)		
Abat, Jonathan Ray	de Vera, Francesca Isabel	Santiago, Alvin Carl
Anguluan, Eloise	Duldulao, Mel Anthony	Simon, Rhenish
Amado, Jerine	Mabilangan, Arvin	Tacneng, Jonalds
.Azares, Jonathan	Lopez, Rusty	Vargas, Ray
Balgos, Maria Herminia	Payod, Renebeth	Vistro, Victor DC Andres
Bambao, Leonalyn	Permejo, Michael Francis	Zosa, Myles Allen
De Las Alas, Kaye Ann	Ragasa, Joseph Christopher	
D. MA Physics (2)		
Gianan, Lara Jennina	Rivera, Arianne Gail	
E. MS Material Science And Engineering (16)		
Ballesteros, Lauren Ida M.	Lebitania, Julie Ann D.	Sayson, Lucevida
Borja, Celestino Andew	Lopez, Lorenzo Jr. P.	Tumanguil, Mae Agatha
Ceniza, Claude	Lopez, Roma	Uy, Mayrene
Dilla, Ed Adrian	Pangasinan, Jamaica	Vergara, Christopher Jude T.
Faustino, Maria Angela B.	Santos, Alexandra	Yu, Clairecynth
Ferrer, Marleane Rovi R.		
F. PhD Physics (21)		
Afalla, Jessica Pauline	Lao, Mayraluna	Guaio, Luisito
Blanca, Glaiza Rose	Omambac, Karim	Jaculbia, Rafael
Bugante, Jan Isaac	Presto, Jorge Michael	Muldera, Joselito
Cabello, Neil Irvin	Prieto, Elizabeth Ann	Rillera, Hannah
de Vero, Jeffrey	Roca, Ronel Christian	Sadia, Cyril
Ibanes, Jasher John	Blanca, Glaiza Rose	Singidas, Bess
Laganapan, Aleena Maria	Defensor, Michael	Empizo, Melvin John

V. Award/s

Best Poster Award, 30th SPP Congress; TITLE: Charge pattern writing on ZnO microribbon using conductive AFM tips; Authors: M. F. Permejo, B. Singidas, L. V. Sayson, R. Vargas, and R. Sarmago

VI. Extension Programs:

1. On the Job Training

Duration: April to May 2008 (200hours)

Description: 200 hours of on the job training for the BS Physics students from different universities, as one of the requirements of their undergraduate program. The students, whose names are given below worked with the different stations of the laboratory from bulk and thin film fabrication of superconductors and ZnO, XRD, Transport, Susceptibility and AFM measurements.

2012 CMPL Supercon Summer Immersion Program; Duration: April 02 to May 26 2012

Beneficiaries: C. V. Castro , K. Simfroso, X. Galapia , C. Zabala, J. P. Porcadilla , S. L. Tenorio , A. G. Cuevas , A. B. Villalba, D. L. Almanza , J. Posadas , B. G. Lumanta , A. Guingab, Y. L. Rola , R. Difuntorum, V. Agulto, D. Crisostomo, M. G. Reyes, M. E. K. Guanzon, J. Ramores, L. Panis, J. de Leon, S. M. Enario and M. Bricenio

VII. Laboratory Activities

NIP Open House. This event happens during the 2nd week of February where the institute opens its doors to high school students and students from other university for them to see what the researches being done in the institute. The laboratory participated in this said event by giving brief and simple explanations on the concepts tackled in the laboratory such as superconductivity, properties of superconductors, nanostructures, technological application of superconductors and ZnO nanostructures. There are also demonstrations for each concept especially on magnetic levitation on superconductors.

Visiting Professor. During early February our very own coordinator and professor, Dr. Roland V. Sarmago was invited to Osaka University in Japan as a visiting Professor. There he was able to do some experiments on optical properties of ZnO nanostructures.

Summer Workshop. By the end of the 2nd semester, the annual summer workshop was held in Batangas. Here the members of the laboratory were able to present the progress of their research during the past academic year. It was also the time for the members to unwind and relax by the beach before the summer classes and research starts.

Post-Doc at Korea. One of the members of the laboratory, Dr. Jeffrey C. De Vero, was accepted as a Post-Doc fellow in Chungnam National University in Daejeon, South Korea. He is currently studying the formation of thin film superconductors via Pulsed Laser Deposition.

PhD student at Austria. Ms. Mayraluna Lao, a PhD student in the laboratory, was accepted as a PhD student in the Institute of Atomic and Subatomic Physics in Vienna, Austria. Her research is about the susceptibility of different materials.

ISS 2012. The International Symposium on Superconductivity 2012 was held 1st week of December in Tokyo Japan where four member of the laboratory and our research coordinator participated. They presented three papers, where two of these is about susceptibility and a paper on film deposition.



Elmer Estacio, Ph. D.

Laboratory Coordinator

Condensed Matter Physics Laboratory

National Institute of Physics

University of the Philippines - Diliman