

PHOTONICS RESEARCH GROUP
National Institute of Physics
U.P. - Diliman Campus, Quezon City

2011 ACCOMPLISHMENT REPORT

Program Coordinator : Dr. Wilson O. Garcia

Members:

1. Dr. Percival Almoro
2. Dr. Jeffrey De Vero

Student Members:

Ph.D. Students

1. Celine Catalan
2. Maria Vanessa Balois
3. Anne Margarete Maallo
4. Lean Dasallas

M.S. Students

1. Eloieda Stephanie Famador
2. Jae Lord Dexter Filipinas

B.S. Students

A. B.S. Physics

5th Year

1. Jessa Jayne Miranda

4th Year

1. Mark Ashley Dela Rosa
2. Arriane Lacaba
3. Cherrie Olaya

3rd Year

1. Esmerando Escoto
2. Josemaria Grana

B. B.S. Applied Physics

5th Year

1. Timothy Joseph Abregana
2. Charmaine Rose Delos Reyes
3. Adonis Gallentes

4th Year

1. Rommel Bartolome
2. Justine Patricia Carpio
3. Krizia Isabel Lampa
4. Mark Xavier Tarcelo

3rd Year

1. Joshua Beringuela
2. Cristina Manejero
3. Floyd Willis Patricio

BS Thesis

Name Victor Angelo C. Gonzalez
Thesis Title Enhanced object localization using axial variation of reconstructed phase maps
Adviser Percival F. Almoro
Date April 2011

MS Thesis

Name Anne Margarete S. Maallo
Thesis Title Phase map analysis using axial behavior of reconstructed wavefronts
Adviser Percival F. Almoro
Date April 2011

Name Jaziel R. Vitug
Thesis Title Study of Femtosecond and Nanosecond Pulsed Laser ablation of BSCCO and Y-doped BSCCO
Adviser Wilson O. Garcia
Date October 2011

Name Lean L. Dasallas
Thesis Title fs Pulsed Laser (785nm) Deposition of Nd:YAG Film on Silicon Substrate
Adviser Wilson O. Garcia
Date October 2011

Ph.D.Dissertation

Name Jeffrey C. De Vero
Thesis Title Infrared Pulsed Laser Deposition of Superconductor Materials
Co-Adviser Wilson O. Garcia
Co-Adviser Roland V. Sarmago
Date October 2011

PUBLICATIONS :

Anne Margarete S. Maallo and Percival F. Almoró

Numerical correction of optical vortex using a wrapped phase map analysis algorithm
Optics Letters 36(7), 1251-1253 (2011)

Percival F. Almoró, Giancarlo Pedrini, Phanindra N. Gundu, Wolfgang Osten, and Steen G. Hanson
Enhanced Wavefront Reconstruction by Random Phase Modulation with a Phase Diffuser
Optics and Lasers in Engineering 49, 252-257 (2011)

De Vero, J.C., Blanca, G.R.S., Vitug, J.R., Garcia, W.O., Sarmago, R.V.
Infrared pulsed laser deposition of yttrium doped BSCCO superconducting films
Advances in Optoelectronics and Micro/Nano-Optics (AOM), 2010 OSA-IEEE-COS

Jae Lord C. Filipinas and Percival F. Almoró
Fringe Localization using Focus Measure
Optics Letters 36(19), 3798- 3800 (2011)

Jeffrey C. De Vero, G. R. S. Blanca, Jaziel R. Vitug, Wilson O. Garcia, and R. V. Sarmago
Stoichiometric transfer of material in the infrared by infrared (1064 nm) pulsed laser deposition of Y
doped Bi-2212 films
Physica C 47, 378-383,(June, 2011).

Jaziel R. Vitug, Jeffrey C. De Vero, G. R. S. Blanca, R. V. Sarmago, and Wilson O. Garcia
Stoichiometric transfer of material in the infrared pulsed laser deposition of yttrium doped Bi-2212 films
Journal of Applied Spectroscopy, Vol. 78. No.6, (November, 2011).

CONFERENCE PROCEEDINGS :

Local

Francesca C. I. Catalan, Anne M. S. Maallo and Percival F. Almoró
Enhanced strain analysis using statistics of axial shearograms
78th NRCP, Manila, (March 9, 2011)

Victor A. Gonzalez, Anne M. S. Maallo and Percival F. Almoró
Enhanced object localization using axial variation of phase maps
78th NRCP, Manila, (March 9, 2011)

Jaziel R. Vitug, Jeffrey C. de Vero, Glaiza Rose Blanca, Roland V. Sarmago, and Wilson O. Garcia
Real time analysis of LPP during PLD
78th NRCP, Manila, (March 9, 2011)

Jeffrey C. De Vero and Wilson O. Garcia
Uniquely Filipino, First in the Southeast: Infrared Pulsed Laser Deposition Technique
78th NRCP, Manila, (March 9, 2011)

Xylene A. G. Azurin, Jaziel R. Vitug, Jeffrey C. De Vero, Rusty. A. Lopez, Lean L. Dasallas, Melvin F. Empizo, Roland V. Sarmago, and Wilson O. Garcia
Optical emission spectroscopy of laser-produced YBaCuO plasma
78th NRCP, Manila, (March 9, 2011)

Francesca C. I. Catalan, Charmaine R. B. delos Reyes, Anne M. S. Maallo and Percival F. Almoró
Enhanced detection of sub-surface defects using statistical variation of numerically phase-shifted shearograms
31st PAASE, NIP-U.P. Diliman (June 2011)

Timothy J. T. Abregana, Anne. M. S. Maallo and Percival F. Almoró
A Statistical Approach to Object Localization in Digital Holographic Microscopy in the Presence of Residual Aberration
31st APAM, National Institute of Physics (June 15-18, 2011)

Rommel L. Bartolome, Anne. M. S. Maallo and Percival F. Almoró
3D Tracking of Optical Vortices using a Statistical Algorithm for Phase Map Analysis
31st APAM, National Institute of Physics (June 15-18, 2011)

Jaziel R. Vitug, Jeffrey C. De Vero, Roland V. Sarmago and Wilson O. Garcia
Study of Plasma Emission Spectral Properties and Film Characteristics of Pulsed Laser Deposited Bi₂Sr₂CaY_{1-x}Cu₂ in Vacuum and Ambient Air
31st APAM, National Institute of Physics (June 15-18, 2011)

Charmaine R. B. delos Reyes and Percival F. Almoró
Computer Generated Holograms of Optical Vortices
31st APAM, National Institute of Physics (June 15-18, 2011)

Jae L. D. C. Filipinas and Percival F. Almoró
High Resolution Technique for the Evaluation of Object Tilt and Rotation Using Amplitude Variance of Reconstructed Wavefronts
31st APAM, National Institute of Physics (June 15-18, 2011)

Jeffrey C. De Vero, Wilson O. Garcia and Roland V. Sarmago
High T_c superconducting films prepared by 1064 nm Nd:YAG Pulsed Laser Deposition
31st PAASE, NIP-U.P. Diliman (June 2011)

Jae L. D. C. Filipinas and Percival F. Almoró
Rough object distance measurement and fringe localization using focus measures
29th National Physics Congress, National Institute of Physics (Oct. 24-26, 2011)

Jeffrey C. De Vero, Rusty A. Lopez, Wilson O. Garcia and Roland V. Sarmago
YBa₂Cu₃O_{7- δ} films prepared by IR Nd:YAG PLD
29th National Physics Congress, National Institute of Physics (Oct. 24-26, 2011)

Francesca C. I. Catalan, Anne. M. S. Maallo and Percival F. Almoró
Enhanced characterization of sub-surface defects using fringe-shifted shearograms
29th National Physics Congress, National Institute of Physics (Oct. 24-26, 2011)

Anne. M. S. Maallo and Percival F. Almoró
Deformation analysis using spatial evolution of fringe densities
29th National Physics Congress, National Institute of Physics(Oct. 24-26, 2011)

Jaziel R. Vitug, Krizia I. A. Lampa, Cherrie M. M. Olaya, Jeffrey C. De Vero, Gil N. Santos, Wilson O. Garcia and Roland V. Sarmago
Nanosecond and femtosecond laser ablation of pure and Y-doped BSCCO
29th National Physics Congress, National Institute of Physics(Oct. 24-26, 2011)

Jeffrey C. De Vero, Jaziel R. Vitug, Rusty A. Lopez, Roland V. Sarmago and Wilson O. Garcia
Time- Integrated Optical Emission Spectroscopy of Y-Ba-Cu-O Plasma Produced by Infrared Nd: YAG Pulse Laser
29th National Physics Congress, National Institute of Physics(Oct. 24-26, 2011)

Timothy J. T. Abregana and Percival F. Almoró
Phase Structure Localization Using Standard Deviation Contrast and Phase Retrieval
29th National Physics Congress, National Institute of Physics(Oct. 24-26, 2011)

Rommel L. Bartolome, Charmaine R. B. delos Reyes, Anne. M. S. Maallo and Percival F. Almoró
Optical vortex tracking using standard deviation of phase maps with application in deformation analysis
29th National Physics Congress, National Institute of Physics(Oct. 24-26, 2011)

Mark A. L. dela Rosa, Cherrie M. M. Olaya, Jeffrey C. De Vero and Wilson O. Garcia
Spectroscopic characterization of Er:YAG, Nd:YAG, Ruby and Ti:Sapphire laser crystals
29th National Physics Congress, National Institute of Physics(Oct. 24-26, 2011)

Lean L. Dasallas, Arriane P. Lacaba, Adonis T. Gallentes, Gil, N. Santos, Jeffrey C. De Vero and Wilson O. Garcia
Femtosecond Pulsed Laser Deposition of Nd: Yag Laser Crystal Films
29th National Physics Congress, National Institute of Physics(Oct. 24-26, 2011)

International
J. C. De Vero, G. R. S. Blanca, J. R. Vitug, W. O. Garcia, and R. V. Sarmago
Infrared Pulsed Laser Deposition of Y-doped BSCCO Superconducting thin films
Advances in Optoelectronics and Micro/Nano-Optics (2010 AOM), OSA-IEEE-COS (February 2011)

A. C. Jasmin, J. C. De Vero, L. L. Dasallas, W. O. Garcia, R. V. Sarmago
Synthesis of Fe₂O₃ nanostructures by carbothermal oxidation of Fe spheroidal particulates on Si substrates generated by infrared pulsed laser
5th International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management, (HNICEM), Manila, Philippines, March 2011, ISSN 1908-6180.

M. J. Empizo, J. C. De Vero, R. A. Lopez, W. O. Garcia, R. V. Sarmago.
Infrared Pulsed Laser Deposition of Transparent Zinc Oxide Films
International Conference on Materials for Advanced Technologies (ICMAT) 2011, Singapore, July, 2011. ISBN 978-981-877-0.

J. C. De Vero, R. A. Lopez, J. R. Vitug, W. O. Garcia, and R. V. Sarmago
Study on the effect of post heat treatments on Bi-Sr-Ca-Cu-O and Y-Ba-Cu-O films produced by IR
Nd:YAG PLD
24th International Symposium on Superconductivity (ISS 2011), FDP-22, Tokyo Japan (October 2011).

G. R. S. Blanca, J.C. De Vero, W.O. Garcia, and R. V. Sarmago
Enhanced flux pinning in IR PLD grown Y doped Bi-2212 films
24th International Symposium on Superconductivity (ISS 2011), FDP-22, Tokyo Japan (October 2011).