
CIOp-UNLP Student Chapter. Annual Report. December 2008.

This is the activity report of our chapter for the Dec. 2007 – Dec. 2008 period. Some of the chapter activities were held at the Optical Research Center (CIOp), and also at the Faculty of Agrarian and Forest Sciences , National University of La Plata.

1. Names, email addresses and Member number of elected Officers.

- ◆ President Forte Gustavo (gforte@ciop.unlp.edu.ar) 3169506
- ◆ Vice President Amaya Dafne (amayad@ciop.unlp.edu.ar) 3169501
- ◆ Treasurer Weber Christian (cweber@ciop.unlp.edu.ar)
- ◆ Secretary Videla Fabian (fabianv@ciop.unlp.edu.ar) 659878

2. List of current CIOp-UNLP Student Chapter members.

Mosso Fabián
Lencina Alberto
Lambert Claudio
Paulucci Emmanuel
Costanzo Pablo
Bulus Laureano
Santillan Jesica
Sendra Hernán
Forte Gustavo
Amaya Dafne
Weber Christian
Videla Fabián

3. Details of Chapter activities.

- ❖ Lectures at CIOp

Guest Lecturers:

- ◆ “How, why and what do we make scientific research with? Some scientific research experiences in Germany, USA, Canada and Argentina”, **Dra. Silvia Braslavsky**, *Retired Researcher of the Max Planck Institut fur Bioanorganische Chemie, CONICET*

member, *President of the Photochemistry Subcommittee of the International Union of Pure and Applied Chemistry (IUPAC)*. **June, 27.**

- ◆ “Ultra-Rapid Phase Transitions Induced by Ultra-Short Laser Pulses”, **Prof. Dr. Martin E. Garcia**, *Department of Natural Sciences, Theoretical Physics, Kassel University, Germany*. **July, 7.**
- ◆ “Photonic 3D Laser Writing in laser crystals: manufacture and characterization”, **Lic. Airán Ródenas**, *Physics of Materials Department, Faculty of Sciences, Universidad Autónoma de Madrid, Spain*. **July, 21.**
- ◆ “Novel Thin Film Technology for Hybrid Optoelectronics Integration”, **Prof. R. Morandotti**, *INRS-EMT, Québec, Canada*. **August, 12.**
- ◆ “Didactic Experiments with Light”, **Dr. Mayo Villagrán Muñoz**, *Applied Sciences and Technological Development Center, Universidad Nacional Autónoma de México*. **September, 20.**
- ◆ “RSOFT: Software for Simulation of Photonic Systems”, **Aldo Peruggia**, *Photonics and Communications Solutions, Distributor for South-America of RSoft Design Group* **October, 20.**
- ◆ “Synchronized Chaotic Phase Masks for image encryption and de-encryption”, **Mg. Edgar Rueda**, *Óptics and Photonics, Universidad de Antioquia and Antioquia OSA Student Chapter, Colombia*. **November, 10.**
- ◆ “Visible and UV Optoelectronics based in III-N semiconductors”, **Dr. Elias Muñoz**, *Professor of the Optoelectronics System and Microtechnology ETS Institute, Universidad Politécnica de Madrid, Spain*. **November, 21.**
- ◆ “Photochromatic Materials and their Application”, **Dr. José Ferrari**, *Universidad de la República, Uruguay*. **November, 24.**

Local Lecturers:

- ◆ “Bragg Gratings Recorded in Optical Fibers and their Applications”, **Ing. Emanuel Paulucci**, *CIOp*. **September, 29.**
- ◆ “About the Spherical Aberration in a Plane Interface: Interpretative Precedents and Consequences”, **Dafne Amaya Robayo, Alexander Rodríguez, Mariano Creus, Rosa Enrich and Mario Garavaglia**, *CIOp*. **October, 6.**
- ◆ “Optical Diffraction by Three-Dimensional Inhomogeneous Objects”, **Lic. Gustavo F. Forte**, *CIOp*. **November, 3.**

❖ Optics Academic Program at Faculty of Agrarian and Forest Sciences, 03/31/2008.

Speakers: Christian Weber, Alberto Lencina and Fernando Alvira.

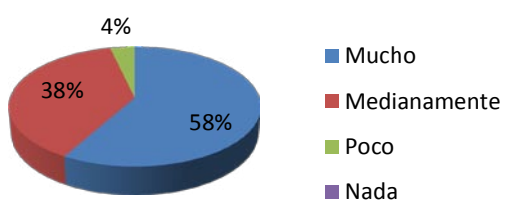
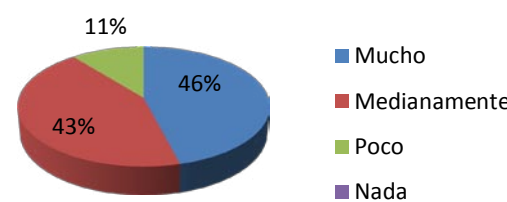
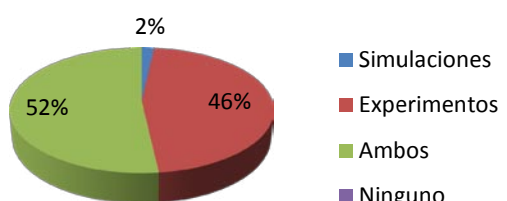
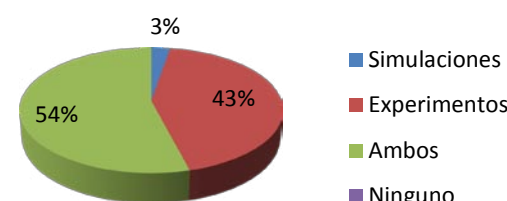
It was two classes, one at the morning with 56 Agronomy Engineering students and other at evening with 37 students. The class starts with a review about the Optical Research Center (CIOp), the OSA/SPIE CIOp-UNLP Student Chapters and the Optical and Photophysical Argentinean Youth (JOFA). After that, the following aspects were approached:

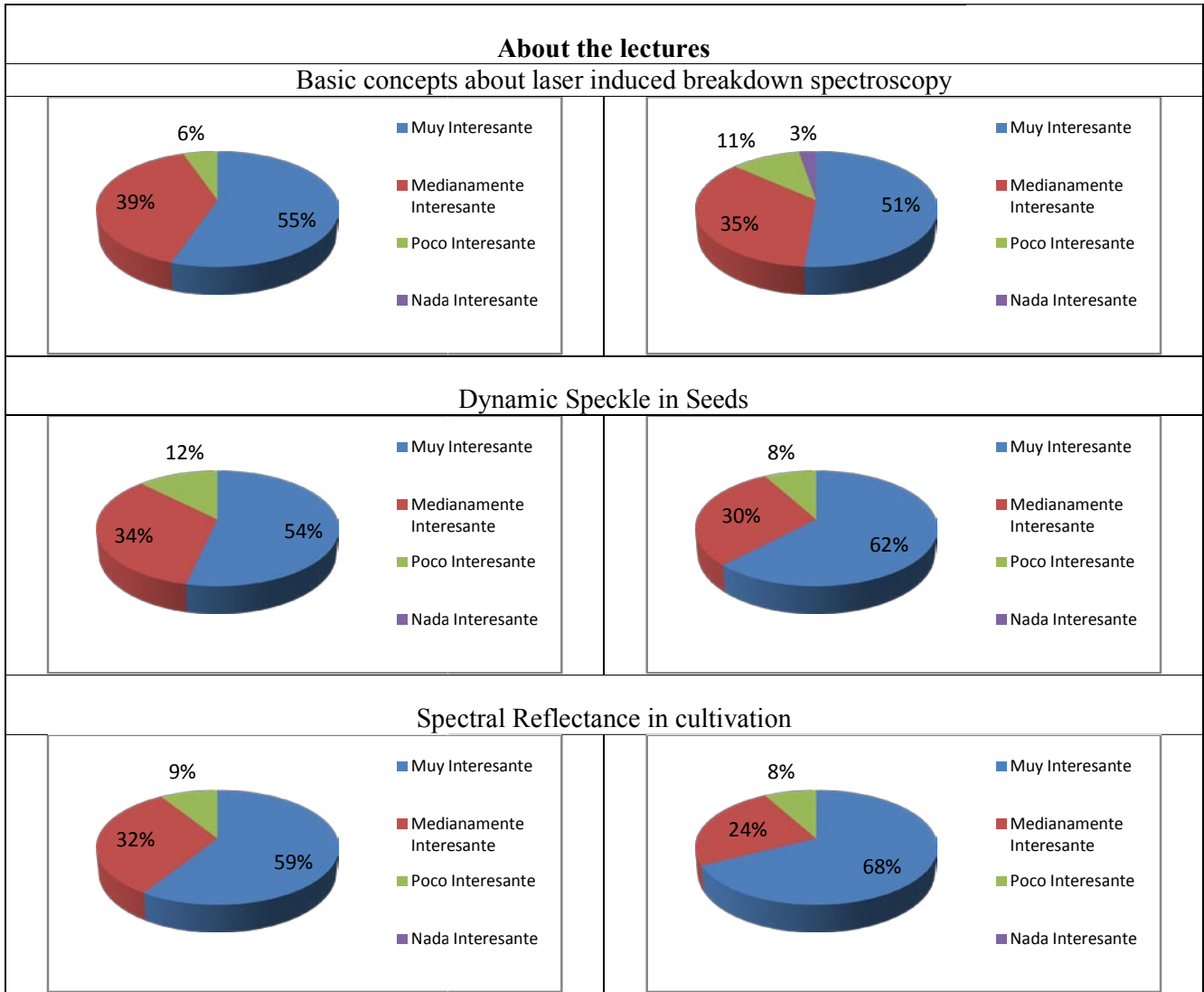
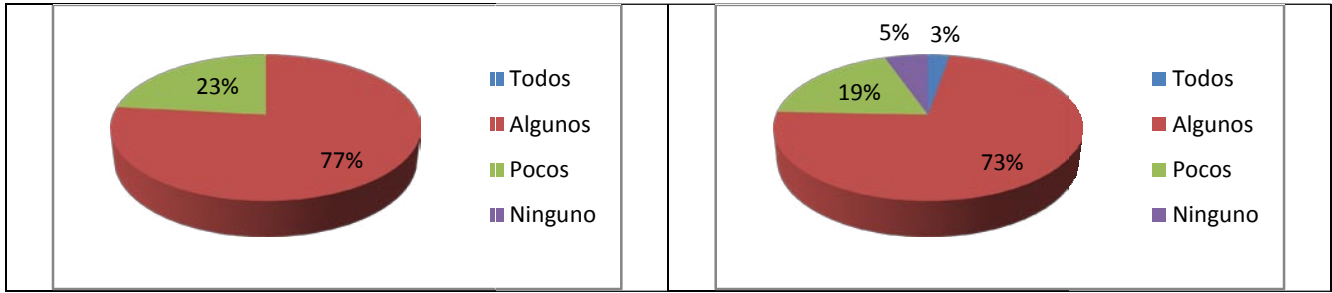
- Review about wave concept.
- The Electromagnetic Spectrum and the atomic model.
- Reflection y refraction.
- Interference and diffraction.

After a break, where the interaction among the speakers and the alumni was promoted, three lectures were presented:

- 1) Basic concepts about Laser Induced Breakdown Spectroscopy.
- 2) Dynamic Speckle in Seeds.
- 3) Spectral Reflectance in cultivation

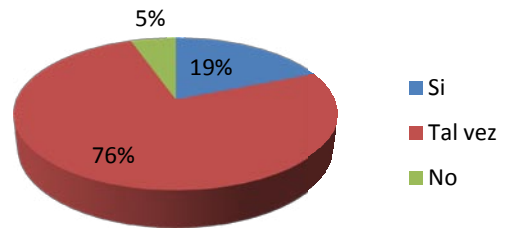
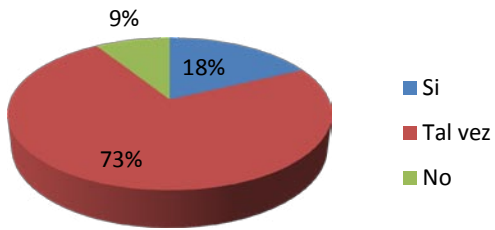
Analysis of the Survey made by the alumni:

Morning, 56 alumni	Evening, 37 alumni																
Do you consider that the theoretic-experimental class was helpful to fix the ideas previously acquired?																	
 <table border="1"> <tr><td>Mucho</td><td>58%</td></tr> <tr><td>Medianamente</td><td>38%</td></tr> <tr><td>Poco</td><td>4%</td></tr> <tr><td>Nada</td><td>0%</td></tr> </table>	Mucho	58%	Medianamente	38%	Poco	4%	Nada	0%	 <table border="1"> <tr><td>Mucho</td><td>46%</td></tr> <tr><td>Medianamente</td><td>43%</td></tr> <tr><td>Poco</td><td>11%</td></tr> <tr><td>Nada</td><td>0%</td></tr> </table>	Mucho	46%	Medianamente	43%	Poco	11%	Nada	0%
Mucho	58%																
Medianamente	38%																
Poco	4%																
Nada	0%																
Mucho	46%																
Medianamente	43%																
Poco	11%																
Nada	0%																
What aspect do you find more interesting?																	
 <table border="1"> <tr><td>Simulaciones</td><td>2%</td></tr> <tr><td>Experimentos</td><td>46%</td></tr> <tr><td>Ambos</td><td>52%</td></tr> <tr><td>Ninguno</td><td>0%</td></tr> </table>	Simulaciones	2%	Experimentos	46%	Ambos	52%	Ninguno	0%	 <table border="1"> <tr><td>Simulaciones</td><td>3%</td></tr> <tr><td>Experimentos</td><td>43%</td></tr> <tr><td>Ambos</td><td>54%</td></tr> <tr><td>Ninguno</td><td>0%</td></tr> </table>	Simulaciones	3%	Experimentos	43%	Ambos	54%	Ninguno	0%
Simulaciones	2%																
Experimentos	46%																
Ambos	52%																
Ninguno	0%																
Simulaciones	3%																
Experimentos	43%																
Ambos	54%																
Ninguno	0%																
Do you think that you will apply the concepts developed in class in your professional life?																	

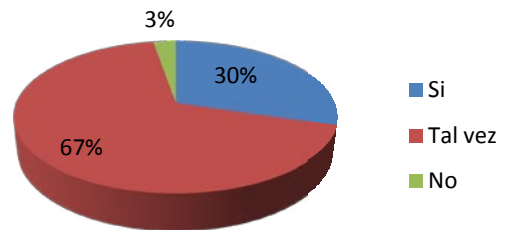
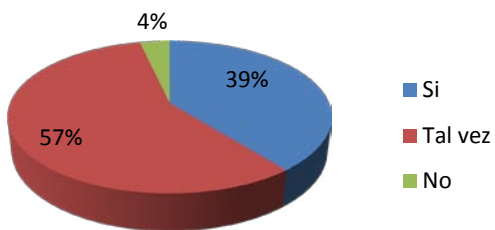


Do you think that the lectures could be applied in your professional life?

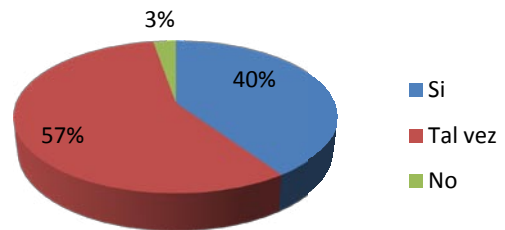
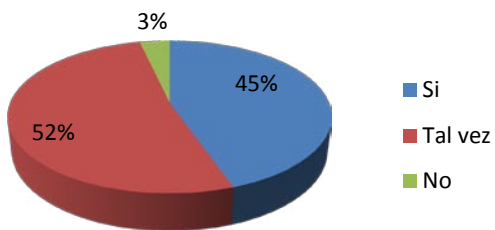
Basic concepts about laser induced breakdown spectroscopy



Dynamic Speckle in Seeds



Spectral Reflectance in cultivation



Concluding Remarks:

The survey reveals a high interest and compromise from the alumni.

- It is apparent a higher receptivity at morning than at evening.
- Experiments were very important to help the understanding of the exposed ideas. But, more than 50% of the alumni were interested in simulations.
- The physics agrarian applications, and the optics in particular, were interesting and potentially useful for the alumni.
- More than 90% of the alumni thank that the class has to be repeated next year.
- Approximately 25% of the alumni suggest some modification in the class, i.e.:
 - ✓ More detailed discussions in their previous theoretical classes.
 - ✓ To increment the class duration.
 - ✓ The class has to be included as a formal part of the course.

- ✓ The class has to be optional.
- ✓ The class has to have an exam.
- ✓ The students have to realize the experiences.
- ✓ More agrarian examples.
- ✓ To visit the CIOp.
- ✓ To have special classes about other topics.

❖ Short symposium about Optical Vortex.

In November, 25 a short symposium was organized at CIOp. See www.ciop.unlp.edu.ar . It was taken advantage of the Visiting Lecturer Program to invite Prof. José Ferrari and we organize the miniSymposium around his topic. About 20 students and researchers from the CIOp, the Physics Department of the National University of La Plata (UNLP), the Physics Department of the Sciences Faculty and the Faculty of Engineering of the Buenos Aires University (UBA), the Physics Institute of Rosario (IFIR) and the Physics Department of the Tandil University (UNICEN) participate in the miniSymposium.

Four lectures were organized. Two from Student Chapter Members, one from a CIOp researcher and one from the Visiting Lecturer.

Lecture 1: “Introduction to the Optical Vortex” , Dr. Alberto Lencina, *CIOp, Argentina*

Lecture 2: “Dislocated interference fringes, observed with a Fizeau interferometer, associated to a confocal laser scan microscopy” , Dr. Mario Garavaglia, *CIOp, Argentina* .

Lecture 3: “Pseudo-vortex applied to optical metrology”, Ing. Hernan Sendra, *CIOp, Argentina*

Lecture 4: “Optical Vortex generation with polarizer elements”, Dr. Jose Ferrari, *Universidad de la Republica, Uruguay*.

- ❖ The Student Chapter members have collaborated in the organization of the IV TOPFOT (National Workshop in Optics and Photophysics). The meeting was held at Physics Department, Exact and Natural Sciences Faculty, Buenos Aires University, from 06/09/08 to 06/11/08.
- ❖ In the same way, we collaborated in the 93° annual meeting of the AFA (Argentine Physics Association), which was realized from 09/15/08 to 09/19/08 at Physics Department, Exact and Natural Sciences Faculty, Buenos Aires University.
- ❖ Several social activities were developed during the reported period. We organized various meetings with the undergraduate students of the Agronomy and Forest Sciences Faculty and those who attended at miniSymposium to show them the activity Student Chapter.
- ❖ We are going to have our webpage before the end of year. We hope can show our work better, including pictures of the Academic Program and short Symposium.

- ❖ We realized the Chapter Poster which was presented in the SPIE Student Chapter Pavilion at Optics & Photonics 2008 Conference, San Diego Convention Center, San Diego, California, USA, from 12-14 August 2008. Besides, we used printed information and publicity to advertise the different Chapter activities reported above.

4. Details of planned activities for the future.

- ❖ Collaboration in the TOPFOT 2009 (National Workshop in Optics and Photophysics), to be realized in June 2009, at the Physics Department, Exact and Natural Sciences Faculty, National University of Mar del Plata.
- ❖ Collaboration in the 94° annual meeting of the AFA (Argentine Physics Association), to be realized in September 2009, at the Physics Department, Exact and Agrarian Sciences and Engineering Faculty, National University of Rosario.
- ❖ Organization of a short Symposium about the Visiting Lecturer's topic.
- ❖ Organization of an Optics Academic Program at Faculty of Agrarian and Forest Sciences.
- ❖ Local and guest Lecturers at CIOp and UNLP, Physics Department, Exact Sciences Faculty and Engineering Faculty.
- ❖ Meetings and CIOp-UNLP SPIE Chapter membership drives.
- ❖ Maintaining of Chapter Website.
- ❖ Printed information and publicity.

5. Financial information.

- SPIE Chapter Activity Grant.....U\$S 500
- Beginning balance.- U\$S 500**
- Lectures at CIOp: café, snacks and printed information.....- U\$S 100
- Optics Academic Program at Faculty of Agrarian and Forest Sciences:
snacks, beverages, printed information and publicity- U\$S 40
- Minisymposium about Optical Vortex:
 - One night at Diamante Hotel (+54 221 4827912, La Plata) to Hernan Sendra (SPIE member and speaker).....- U\$S 55
 - Travel from Mar del Plata to La Plata to Hernan Sendra.....- U\$S 35
 - Snacks and beverages.....- U\$S 10
 - Attendees badges.....- U\$S 5
- Chapter Web page-U\$S 160
- Meetings with undergraduate students: snacks and beverages.....-U\$S 55
- Chapter poster.....-U\$S 40
- Total : -U\$S 500

Ending balance.- U\$S 0

Some activity pictures.

1)



2)



- 1) Gustavo Forte showing the Chapter Poster at Optics&Photonics 2008, San Diego, USA.
- 2) Alberto Lencina speaking about Optical Vortex at miniSymposium (11/25/08, CIOp, La Plata, Argentina)

Gustavo Forte
President
SPIE CIOp-UNLP Student Chapter
December 1, 2008