

Report

11th IUVSTA School on Lasers in Materials Science - SLIMS

8-15 July 2012, Isola di San Servolo, Venice

(SLIMS 2012)

The 11th IUVSTA International School on Lasers in Materials Science (SLIMS2012) was held on Isola di San Servolo, Venice, Italy, from 8th to 15th of July, 2012. The School was organized in the framework of the IUVSTA activities within the Surface Engineering Division (SED) and in cooperation with the Venice International University (VIU), NSF, Politecnico di Milano, Laserlab Europe and the AIV - Associazione Italiana di Scienza e Tecnologia. The school continued the tradition of the first two editions of the School that took place in the same location in 2008 and 2010. This year, SLIMS was recognized and supported as the 11th IUVSTA School. The co-chairman of the school from IUVSTA (SED) were Prof. Paolo Ossi, Milano, Italy (Italian representative to IUVSTA and Prof. Peter Schaaf, Ilmenau, Germany (Vice president of IUVSTA-SED).

The main purpose of the School has been to provide PhD students and young research scientists working in the field of laser-materials interactions with robust fundamental roots that are often usually lacking in their training, so that they could profitably interact with colleagues working in areas neighboring, but not coincident, with their own research field. This research area usually involves plenty of questions related to vacuum science and technology. Although the School has been geared towards the level of a PhD student, advanced undergraduate and Master students, as well as postdoctoral researchers have joined in this edition. A total number of 35 students, from 13 countries have attended the School.

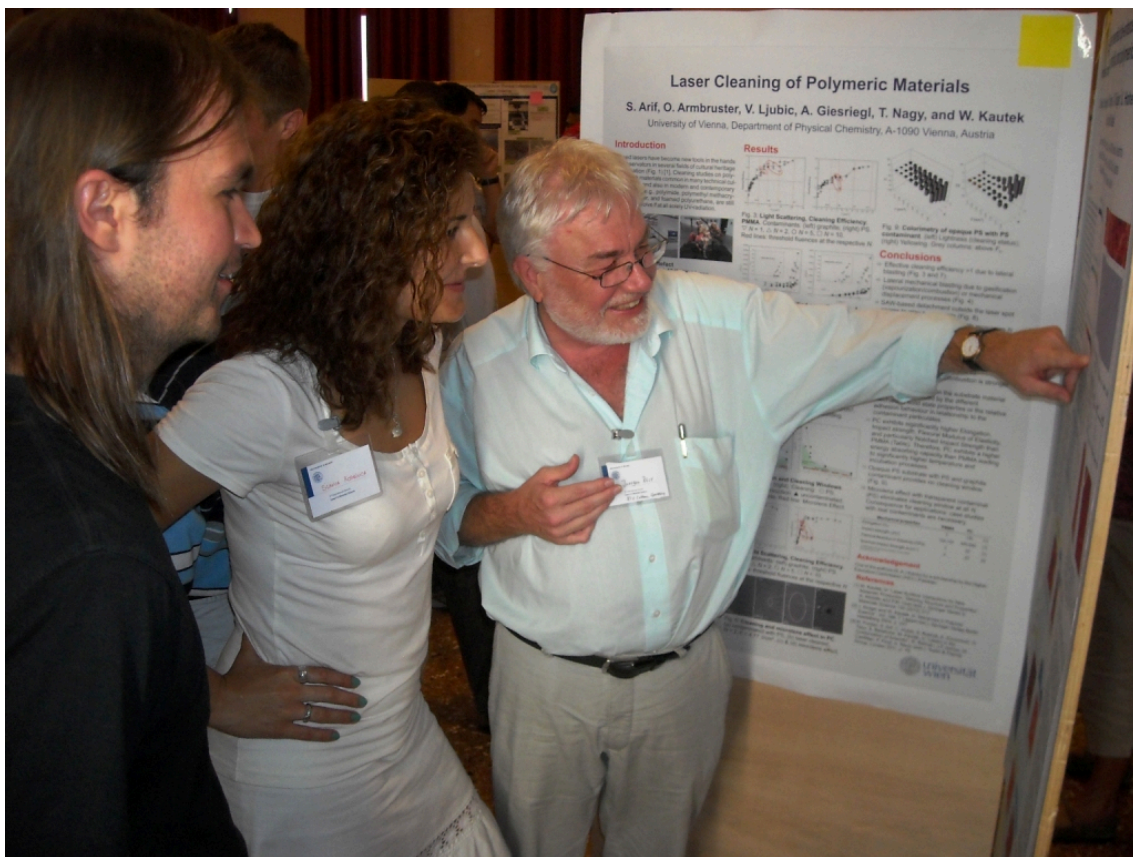
The School had encompassed various activities including a set of lectures imparted by 17 international experts in the field of laser-materials interaction and vacuum science and technology (according with the Program displayed in the web <http://www.slims.polimi.it/program.htm>). The participation of students was articulated through poster and brief oral contributions. Structured discussions among lecturers and students took place in two specialized dedicated sessions. Several “classrooms” enforced the discussion and questions of the students. Prizes were awarded in a closing ceremony for the best students contributions.

The school also included a presentation of IUVSTA, presenting its structure and its scientific and educational activities. The structure, divisions, conferences, and publications of IUVSTA were presented to the students and participants as well.

Some pictures of the school are attached.

Peter Schaaf





Programme

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Sunday, July 8

14.00-20.00: **Registration**

Monday, July 9

07:30: **Breakfast**

09.00-09.30: **Opening Ceremony**

09.45-10.45: **Fundamentals I: Types of lasers and laser optics**
Lecturer: **Richard Haglund**, Vanderbilt University, USA

Fundamentals II: Material response to laser energy deposition (non-thermal processes)
11.15-12.15: **processes)**
Lecturer: **Wolfgang Kautek**, University of Vienna, Austria

12.20: **Lunch**

13.50-14.40: **Atomic/molecular level simulations of laser-matter interactions**
Lecturer: **Leonid Zhigilei**, University of Virginia, USA

15.00-16.10: **Oral presentations by students I** (13 presentations, 5 min. each)

16.30-17.20: **Classroom 1**

17.30-18.50: **Poster Session I**

19.00: **Dinner**

Tuesday, July 10

07:30: **Breakfast**

Fundamentals III: Material response to laser energy deposition (thermal and hyperthermal processes)

Lecturer: **Juergen Reif**, BTU Cottbus, Germany

Fundamentals IV: Plasma plume dynamics

Lecturer: **Chantal Boulmer-Leborgne**, University of Orleans, France

12.00: **Lunch**

Ultrafast laser micro and nano processing of glasses

Lecturer: **Koji Sugioka**, RIKEN, Japan

14.50-16.00: **Oral presentations by students II** (13 presentations, 5 min. each)

16.20-17.10: **Classroom 2**

17.20-18.40: **Poster Session II**

19.00: **Dinner**

Wednesday, July 11

07:30: **Breakfast**

Continuum models of fs laser ablation

Lecturer: **Nadezhda Bulgakova**, Institute of Thermophysics SB RAS, Russia

Laser nanostructuring of soft matter

Lecturer: **Marta Castillejo**, Instituto de Química Física Rocasolano, CSIC, Spain

Mechanisms of plasma-mediated laser interactions with biological tissue, and their use in laser surgery of cells and tissues

Lecturer: **Alfred Vogel**, Institute of Biomedical Optics, University of Lübeck, Germany

12.15: **Lunch**

Afternoon: **Free**

19.00: **Dinner**

Thursday, July 12

07:30: **Breakfast**

09.00-11.00: **Oral presentations by students III** (20 presentations, 5 min. each)

11.10-12.00: **Laser interactions for the synthesis and diagnostics of carbon nanomaterials**
Lecturer: **David Geohegan**, Oak Ridge National Laboratory, USA

12.15: **Lunch**

Multifunctional oxides obtained by PLD: application to ferroelectrics, ferromagnetics, multiferroic and photovoltaics
14.30-15.20: Lecturer: **Maria Dinescu**, National Institute for Lasers, Plasma and Radiation Physics, Romania

MALDI and MAPLE: theory and experiment
15.40-16.30: Lecturer: **Anna Paola Caricato**, University of Salento, Italy

16.50-18.40: **Poster Session III**

19.30: **Dinner**

Friday, July 13

07:30: **Breakfast**

09.00-09.50: **Industrial applications of laser-materials processing**
Lecturer: **Peter Schaaf**, TU Ilmenau, Germany

Organic and/or inorganic nanostructured layers for applications in biocide, drug delivery, biomimetic or biosensing coatings
10.10-11.00: Lecturer: **Ion Mihailescu**, National Institute for Lasers, Plasma, and Radiation Physics, Romania

Laser versus ion induced sputtering
11.20-12.10: Lecturer: **Antonio Miotello**, University of Trento, Italy

12.15: **Lunch**

Isolated attosecond pulses for atomic and molecular physics
14.00-14.50: Lecturer: **Mauro Nisoli**, Politecnico di Milano, Italy

Guided tour at an Exhibition in Venice
15.20: *vaporetto to Venice leaves at 15.20*
to come back to S. Servolo for dinner take vaporetto either at 18.45 or at 19.15

19.00: **Dinner**

Saturday, July 14

07:30: **Breakfast**

09.10-09.50: **Nucleation and growth of nanoparticles**
Lecturer: **Paolo Ossi**, Politecnico di Milano, Italy

10.10-11.10: **Round Table on "PLD: overview of the current state, future directions and challenges"**
Discussion leader: **Maria Dinescu**, National Institute for Lasers, Plasma and Radiation Physics, Romania

11.20-12.30: **R. Kelly Award Ceremony and Closing Remarks**

12.30: **Lunch**



Milan, November 20, 2012

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Final balance

Income (Euros)

Student fees : 27500
Industrial sponsorships : 2000
IUVESTA sponsorship : 6000
LLE sponsorship : 3000
Total : 38500

Expenses (Euros)


Lecturer lodging : 7900
Student lodging : 12850
Meals : 5500
Didactic facilities (VIU) : 5000
Student awards + Lecturers' gifts : 850
Tickets for the Guided tour at the Exhibition "Eulogium of the Doubt": 380
Beverages (social evening at S. Servolo bar) : 550
Stationery : 300
Proceedings books : 2900 (*)
Entertainment expenses : 250
Total : 36480

(*) this amount was set aside to provide each student with a copy of the School Proceedings, once published (2013). The book cost is an estimate by the Publisher (Springer).

Grand Total (Euros)

38500- 36480 = 1160

This difference is a basis for the forthcoming School, planned for 2014, again in S. Servolo Island.


Prof. Paolo M. Ossi
School Co-Director

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