



UNIVERSITY OF GENOVA

*Doctorate School of Sciences and Technologies
of Chemistry and Materials*

XXI CYCLE YEARBOOK

The Doctorate School in Sciences and Technologies of Chemistry and Materials was born in the spring of 2005, when the Ministry of Education and Research has urged all the universities to better rationalise and organize the doctorate courses. Although the guidelines given by the Ministry were not very precise, in my personal opinion the Doctorate Schools should be dedicated to the organization and supervision of different doctorate courses in areas affine from the scientific point of view. They should establish general rules common to all students and organize the coursework as a whole (whereas in the past the course work has been organized and regulated independently by each doctorate course).

For this reason, this newborn School, instead of trying to gather together teachers belonging to the same Faculty, preferred to assemble scientists who can share similar scientific interests, irrespective to the Faculty or Department they belong to. The School spans all the subjects related to chemistry (including medicinal chemistry, food and cosmetic chemistry, environmental chemistry, industrial and polymer chemistry, but excluding biochemistry) plus material science (with contributions from chemists, physics and engineers). Accordingly, the school has activated three discrete doctorate courses:

- Chemical Sciences and Technologies
- Pharmaceutical, Food and Cosmetic Science
- Material Science and Technology

The School begun its activity on January 1, 2006 and thus the XXI cycle was the first one to be organized by it. Also thanks to the patience and passion of these first students, the School was able to grow up in experience and organization during these three years.

Now, on March 20, 2009, the first 14 students of the School have finished their program, acquiring the degree of "Research Doctor". During an official ceremony, I had the honour and the pleasure to deliver to all these students a final certificate, reporting all their activities during the doctorate. Following the suggestion given by several members of the Board of Professors, I have now put together all these certificates, adding some general information about the School.

I hope that this "yearbook" could remain for the new Doctors as a memory of these three years dedicated to the advancement of science, and, I am sure of that, also to the improvement of their own scientific skills and human merits.

To all of them I would like to present my best wishes for a successful and gratifying career!



Luca Banfi
Director of the School

MANAGEMENT COUNCILS OF THE SCHOOL

The school is governed by a **Board of Professors**, formed by 12 members, who elect a Director. For the XXI cycle the board of professors was formed by:

- Luca Banfi (director), DCCI, Organic Chemistry.
- Luisa Mosti, DISCIFAR, Medicinal Chemistry
- Gabriella Borzone, DCCI, Inorganic Chemistry
- Francesco Bondavalli, DISCIFAR, Medicinal Chemistry
- Guido Busca, DICHEP, Industrial and Technological Chemistry
- Stefano Delfino, DCCI, Inorganic Chemistry
- Silvia Lanteri, DICTFA, Analytical Chemistry
- Emilia Mariani, DISCIFAR, Pharmaceutical Technologies
- Lorenzo Mattera, DIFI, Physics of Matter
- Franco Merlo, DCCI, Physical Chemistry
- Saverio Russo, DCCI, Industrial Chemistry
- Antonio Turturro, DCCI, Industrial Chemistry

Each doctorate course has a coordinator and a specific **Board of Professor**. For the XXI cycle the boards of professors were formed by:

Chemical Sciences and Technologies

- Luca Banfi (coordinator), DCCI, Organic Chemistry.
- Stefano Delfino, DCCI, Inorganic Chemistry
- Emanuele Magi, DCCI, Analytical Chemistry
- Enrico Marsano, DCCI, Industrial Chemistry
- Franco Merlo, DCCI, Physical Chemistry
- Maria Rosa Pinasco, DCCI, Metallurgy
- Saverio Russo, DCCI, Industrial Chemistry
- Sergio Thea, DCCI, Organic Chemistry

Medicinal, Food, and Cosmetic Sciences

- Luisa Mosti (coordinator), DISCIFAR, Medicinal Chemistry
- Alessandro Balbi, DISCIFAR, Medicinal Chemistry
- Annamaria Bassi, DIMES, General Pathology
- Vincenzo Bertini, DICTFA, Organic Chemistry
- Raffaella Boggia, DICTFA, Food Chemistry
- Vito Boido, DISCIFAR, Medicinal Chemistry
- Francesco Bondavalli, DISCIFAR, Medicinal Chemistry
- Cristina Emanuel, l'Oreal
- Paolo Giunchedi, University of Sassari, Pharmaceutical Technologies
- Silvia Lanteri, DICTFA, Analytical Chemistry
- Emilia Mariani, DISCIFAR, Pharmaceutical Technologies
- Mauro Mazzei, DISCIFAR, Medicinal Chemistry
- Vincenzo Minganti, DICTFA, Inorganic Chemistry
- Brunella Parodi, DICTFA, Pharmaceutical Technologies
- Angelo Ranise, DISCIFAR, Medicinal Chemistry
- Giorgio Roma, DISCIFAR, Pharmaceutical Technologies
- Carla Villa, DISCIFAR, Pharmaceutical Technologies

Material Science and Technology

- Gabriella Borzone (coordinator), DCCI, Inorganic Chemistry.
- Guido Busca, DIChEP, Industrial and Technological Chemistry
- Giacomo Cerisola, DIChEP, Chemistry Foundations of Technologies
- Maurizio Ferretti, DCCI, Physical Chemistry
- Alessandra Gliozzi, DIFI, Applied Physics
- Rinaldo Marazza, DCCI, Inorganic Chemistry
- Lorenzo Mattera, DIFI, Physics of Matter
- Paolo Nanni, DIChEP, Chemistry Foundations of Technologies
- Marina Putti, DIFI, Experimental Physics
- Antonio Turturro, DCCI, Industrial Chemistry

The **Scientific Committee**, formed by experts outside the university of Genova, has the function of evaluating the activity of the school and to propose recommendations for its improvement. It must issue a report at the start of each cycle, containing possible suggestions, and an evaluation report at the end of each cycle. For the XXI cycle it was formed by:

- Jean-Pierre Bros, universit  Aix-Marseille 1 (France)
- Anita Caccialupi, Ansaldo Energia, Genova
- Fabio Comin, Technical Beamline Support, Grenoble (France)
- Giuseppe Giardina, NiKem Research, Bollate (MI)
- Stephen Hanessian, Universit  de Montr al (Canada), and University of California, Irvine (USA).
- Andr  Loupy, CNRS, Paris (France)
- Alberto Modelli, ST Microelectronics, Agrate Brianza (MI)
- Massimo Morbidelli, ETH, Zurich (Switzerland)
- Stefano Rossini, ENI Technologies, S. Donato Milanese (MI)
- Domenico Sanfilippo, Snamprogetti, S. Donato Milanese (MI)
- Bernard Testa, Universit  Lausanne (Switzerland)
- Antonio Triolo, Menarini Ricerche (Firenze)

RESEARCH ACTIVITY

The total number of credits achieved in 3 years is 180. The research activity is the most important part of the doctorate course. Therefore the School has decided that this activity must correspond to a minimum of 150 credits and a maximum of 160 credits.

The research and course activities of the School are held in the followings Departments: Dep. of Chemistry and Industrial Chemistry (DCCI), Dep. of Pharmaceutical Sciences (DISCIFAR), Dep. of Chemistry and Pharmaceutical and Food Technologies (DICTFA), Department of Chemical and Process Engineering "G.B. Bonino" (DICheP), Department of Physics (DIFI).

At the end of each year, the students presented a written report and an oral presentation on their activity, which were evaluated by the Board of Professor of the specific doctorate.

COURSEWARE

The remaining 20 to 30 credits are divided into these categories:

- Type A credits: short courses (4-6 hours) given by experts external to the university of Genova. Each course will have a value of 1 credit.
- Type B credits: courses given by the faculty of the School. 1 credit will correspond to 7 hours of lessons. The courses will be either of 2 or 3 credits.
- Type C credits: attendance to seminars held at the Departments involved (or in special cases also elsewhere). 1 credit corresponds to 8 seminars.

- Type D credits: participation to national or international schools for Ph.D. students. Typically a week school will count as 2 credits.
- Type E credits: the student will prepare (also through a bibliographic search) and present a seminar on a particular subject (different from its own research work). A seminar of this kind will correspond to 2 credits.
- Type F credits: only in particular cases, when the student must fill an important gap in disciplines necessary for his/her research work, the student can be invited by the Board of Professors to attend courses activated inside one of the "master" laureas related to the subjects of the school.

Each student has chosen the distribution of these credits according the specific rules independently established by each doctorate course.

During the three-year period spanned by the XXI cycle, the School has activated **21 type A Courses** and **31 type B courses specific for the doctorate (for a total of 69 credits)**, plus other 6 courses in common with the master degrees. The School has informed about more than 75 seminars given at the University of Genova and related to the subjects of the School. The courses, schools, workshops and seminars followed by each student are listed in the following certificates.

STUDENTS OF XXI CYCLE

Students who completed in due time the Doctorate Programme

- Alessio Bassano (STM)
- Giovanna Canu (STM)
- Elena Cichero (SFAC)
- Michele Giampieri (SFAC)
- Paulina Lecińska (STC)
- Camilla Liscio (STC)
- Massimo Maccagno (STC)
- Gabriella Pellati (STM)
- Rico Ricotti (STM)
- Alessia Romussi (SFAC)
- Angela Sias (SFAC)
- Rossana Stefani (SFAC)
- Beatrice Trucchi (SFAC)
- Panjab Waghmare (STC)

Students who postponed the final exam to 2010

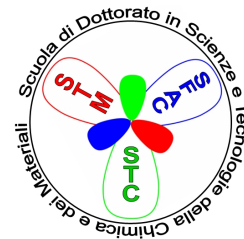
- Riccardo Pasero (STC)

Students who resigned during the Doctorate

- Laura Carditello (STC)
- Davide Cavanna (STM)
- Silvia De Stefano (STM)
- Fabio Olivo (STC)



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
ALESSIO BASSANO



Doctorate Course:

Science and Technology of Materials

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisors:

Prof. Paolo Nanni

Dr. Massimo Viviani

Thesis Title:

*Micro- and Nano-structured Electroceramic Materials
Obtained by Chemical and Solid-state Methods*

Defense Date:

March 18, 2009

On March 18, 2009, at the Department of Chemistry and Industrial Chemistry, Alessio Bassano has orally presented his doctorate research work in front of the Commission, formed by

- Prof. Marco Virginio Boniardi, Polytechnic of Milano
- Prof. Liliana Mitoşeriu, "Al. I. Cuza" University, Romania
- Prof. Gabriella Borzone, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF ALESSIO BASSANO,
CONFERRING HIM THE TITLE OF**

**RESEARCH DOCTOR IN
SCIENCE AND TECHNOLOGY OF MATERIALS**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Gabriella Borzone)

ACTIVITY REPORT

Research Activity

The research activity was mainly carried out at the Department of Chemical and Process Engineering "A. Bonino" (University of Genova) and at the C.N.R. (Istituto per l'Energetica e le Interfasi, IENI). However Alessio Bassano **has also spent a research period of 3 months abroad**, at the Ecole Nationale Supérieure des Mines de Paris, Evry (Paris) under the supervision of Dr. Alain Torel, from 11/02 to 09/05/2008.

Scientific Publications

Original publications on ISI Journals:

- 1) Bassano, A.; Buscaglia, V.; Viviani, M.; Bassoli, M.; Buscaglia, M. T.; Sennour, M.; Thorel, A.; Nanni, P., Synthesis of Y-doped BaCeO₃ nanopowders by a modified solid-state process and conductivity of dense fine-grained ceramics, *Solid State Ionics*, **2009**, *180*, 168-174. IMPACT FACTOR (2007): 2.012

Communications at Conferences

Oral communications:

- 1) Bassano, A.; Viviani, M.; Nanni, P. "Applicazione dello zirconato di bario come elettrolita nelle p-SOFC (celle a combustibile ad ossidi solidi)", *1° Forum Nazionale dei Giovani Ricercatori di Scienza e Ingegneria dei Materiali*, Parma, 15-16/6/2006.
- 2) Bassano, A.; Buscaglia, V.; Buscaglia, M.T.; Viviani, M.; Nanni, P. "Core-shell structures by surface coating of oxide nanoparticles with different materials", *Syntheses and Methodologies in Inorganic Chemistry - SAMIC 2007*, Bressanone, 2-6/12/2007.
- 3) Bassano, A.; Viviani, M.; Buscaglia, V.; Buscaglia, M.T.; Nanni, P. "Preparation of Fine BaCeO₃ and BaCe_{0.9}Y_{0.1}O_{3-δ} Powders", *NanoMetro Training & Workshop*, Leysin (Switzerland), 29-31/1/2008.
- 4) Bassano, A.; Viviani, M.; Nanni, P. "Preparazione e caratterizzazione di polveri fini di BaCe_{0.9}Y_{0.1}O_{3-δ}", *2° Forum Nazionale dei Giovani Ricercatori di Scienza e Ingegneria dei Materiali*, Genova, 3-5/6/2008.
- 5) Bassano, A.; Buscaglia, M.T.; Buscaglia, V.; Viviani, M.; Nanni, P. "Core-shell structures by surface coating of oxide nanoparticles with different materials", *11th European Interregional Conference on Ceramics - CIEC 11*, Chexbres (Switzerland), 3-5/9/2008.
- 6) Bassano, A.; Viviani, M.; Buscaglia, V.; Buscaglia, M.T.; Nanni, P.; Marazza, R., "Preparation of Fine BaCeO₃ and BaCe_{0.9}Y_{0.1}O_{3-δ} Powders", *Syntheses and Methodologies in Inorganic Chemistry*, *SAMIC 2008*, Bressanone, 30/11-4/12/2008.

Posters:

- 7) Bassano, A.; Carpanese, M.P.; Viviani, M.; Barbucci, A.; Nanni, P. "Y-doped barium zirconate: preparation, microstructural and functional characterization", *10th European Interregional Conference on Ceramics - CIEC 10*, Swansea (UK), 3-5/9/2006.
- 8) Presto, S.; Barbucci, A.; Bassano, A.; Carpanese, M.P.; Marazza, R.; Nanni, P.; Viviani, M. "Electrochemical Behaviour of a Single Anode-Supported Cell: Considerations on the Limiting Step of the Cathodic Process", *VI Convegno Nazionale sulla Scienza e Tecnologia dei Materiali*, Perugia 12-15/6/2007.
- 9) Bassano, A.; Barbucci, A.; Buscaglia, V.; Carpanese, M.P.; Marazza, R.; Nanni, P.; Presto, S.; Viviani, M. "Synthesis of Ni/YSZ Nano-Powders for SOFC Anodes", *VI Convegno Nazionale sulla Scienza e Tecnologia dei Materiali*, Perugia, 12-15/6/2007.
- 10) Bassano, A.; Barbucci, A.; Buscaglia, M.T. Buscaglia, V.; Carpanese, M.P.; Marazza, R. Nanni, P. Presto, S. Viviani, M. "Size and morphology of Ni(OH)₂ powders prepared by wet synthesis", *Syntheses and Methodologies in Inorganic Chemistry - SAMIC 2007*, Bressanone, 2-6/12/2007.
- 11) Bassano, A.; Buscaglia, V.; Buscaglia, M.T.; Viviani, M.; Nanni, P.; Marazza, R. "Core-shell structures by surface coating of barium titanate with different materials", *Fabrication, Properties & Applications of Electroceramic Nanostructures - Workshop*, Genova, 26-28/6/2008.

Congresses Attended

- 1) *1° Forum Nazionale dei Giovani Ricercatori di Scienza e Ingegneria dei Materiali*, Parma, 15-16/06/2006.
- 2) *10th European Inter-regional Conference on Ceramics CIEC 10*, University of Wales, Swansea (UK), 3-5/09/2006.
- 3) *VI Convegno Nazionale sulla Scienza e Tecnologia dei Materiali*, Perugia, 12-15/06/2007.
- 4) *4th Real-SOFC Workshop on Understanding SOFCs: What can we learn from "advanced methods" and "accelerated testing"?*, Chateau de la Baume, Seyssins-Grenoble (France), 10-11/07/2007.
- 5) *Synthesis And Methodologies in Inorganic Chemistry - SAMIC 2007*, Università di Padova, Bressanone (Bolzano), 2-6/12/2007.
- 6) *2° Forum Nazionale dei Giovani Ricercatori di Scienza e Ingegneria dei Materiali*, Università di Genova, 3-5/6/2008.
- 7) *Fabrication, Properties & Applications of Electroceramic Nanostructures - Workshop*, IENI-CNR, Genova, 26-28/06/2008.
- 8) *11th European Inter-regional Conference on Ceramics - CIEC 11*, Chexbres (Switzerland), 3-5/09/2008.
- 9) *Synthesis And Methodologies in Inorganic Chemistry - SAMIC 2008*, Università di Padova, Bressanone (Bolzano), 30 -11/4-12/2008.

Courseware

During his doctorate, Alessio Bassano has acquired 21.25 credits of Courseware.

Courses attended and passed (12 credits)

Courses Given by Teachers of the University of Genova:

- 1) Ceramic materials: catalysts, adsorbents and materials for electronics (3 credits)(2006)
- 2) Electrochemistry for environment and energy (3 credits)(2006)
- 3) Fundamentals of soft matter (3 credits)(2006)

Courses Given by invited experts:

- 1) Crystallographic studies by neutron diffraction (F. Sacchetti) (1 credit)(2006)
- 2) Synchrotron radiation applications to material science (R. Felici) (1 credit)(2006)
- 3) Self-assembly and hierarchical microstructures: The principles of Nature for the design of materials (J. P. Rigueiro) (1 credit)(2008)

National and International Schools or Workshops (5.25 credits)

- 1) *Advanced course on "Nanoparticles: synthesis and characterisation"*, Polytechnic of Torino, 6-9/3/2006.(2 credits).
- 2) *Workshop "Incontro con gli archeomateriali: imparare a riconoscere il sapere, l'uomo e il lavoro che stanno dietro a un reperto"*, Dept. of Chemistry and Industrial Chemistry, Genova, 2/3/2007 (0.25 credits).
- 3) Basic course on Labview held by Luca Cambiaso (Sitem) (48 or), september 2007, Genova (2 credits)
- 4) *NanoMetro Training & Workshop*, EPFL Politecnico di Losanna, Leysin (Switzerland), 29-31/01/2008 (1 credit).

Seminars Given (2 credits)

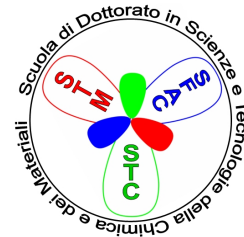
The student presented 3 seminars as final test for the 3 attended courses given by internal teachers (see above)

Seminars Attended (2 credits)

- 1) 4/5/2006, IENI-CNR, Genova, "Wetting and Interfaces between Pb and Cu surfaces", Dr. Dominique Chatain, Director de Recherche CNRS CRMCN, Marseille, France.
- 2) 19/2/2007, IENI-CNR, Genova, "Chemistry Nanotechnology: From Molecules to Applications", Prof.Sanjay Mathur, Chemistry Department, University of Wurzburg(Germany)-INM.
- 3) 4/06/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Nanoparticelle e salute: aspetti chimici e morfologici alla base della potenziale pericolosità di materiali particellari sempre più piccoli, Prof. Bice Fubini, Università di Torino.
- 4) 28/9/2007, IENI-CNR, Genova, "Infiltrated Metal Ceramic Composites (MCCs') based on Boron Carbide; from Thermodynamics, through Wetting studies to Fabrication", Dr. Michael Aizenshtein, Dept. of Materials Engineering, Ben-Gurion Univ., Beer-Sheva, Israel
- 5) 8/9/2007, IENI-CNR, Genova, "The effect of Ti addition on the wetting behavior of the CaF₂/In and CaF₂/Cu systems. Thermodynamic analysis, ab-initio considerations and experimental results", Dr. Shmuel Barzilai, Dept. of Materials Engineering, Ben-Gurion Univ., Beer-Sheva, Israel
- 6) 5/10/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "From Hamiltonian to microstructure-first principles calculations of a phase diagram and microstructure" Prof. Tetsuo Mohri, Division of Materials Science and Engineering, Graduate School of Engineering, Hokkaido University, Sapporo, JAPAN
- 7) 3/7/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Potent XIAP Antagonists by a Fragment-Based MCR Approach", Ilaria Monfardini, DOBIG, Genova.
- 8) 17/7/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "In situ nanomanipulation and functional characterization on complex superconducting/magnetic oxides", dr. Regina Ciancio, Laboratorio SUPERMAT-INFM-CNR, Salerno.
- 10) 26/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Interferenti Endocrini: nuovo pericolo per la salute umana o falso allarmismo?", C. Liscio.
- 11) 26/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Carbon Nanotube: A leading material", P. Waghmare.
- 12) 26/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Crescita di Cristalli Singoli", R. Pasero.
- 13) 30/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Proprietà magnetiche inusuali in composti intermetallici", Prof. Julián G. Sereni, Low Temperature Division, CAB-CONICET, S.C. di Bariloche, Argentina.
- 14) 22/10/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Materials Research Activity at the Technological Centre of the Brazilian Navy", Dr.ssa Selma Luiza Silva, Centro Tecnológico da Marinha em Sao Paulo (Brasil).
- 15) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Sistemi gelificanti in situ per applicazioni biomediche", R. Stefani.
- 16) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Green Chemistry e sviluppo sostenibile", B. Trucchi.



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PH.D. CERTIFICATE
OF
GIOVANNA CANU



Doctorate Course:

Science and Technology of Materials

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisor:

Prof. Daniele Marré

Thesis Title:

*Gold Nanoparticles as Hybrid Organic/Inorganic Materials:
Assembling and Transport Properties*

Defense Date:

March 18, 2009

On March 18, 2009, at the Department of Chemistry and Industrial Chemistry, Giovanna Canu has orally presented her doctorate research work in front of the Commission, formed by

- Prof. Marco Virginio Boniardi, Polytechnic of Milano
- Prof. Liliana Mitoşeriu, "Al. I. Cuza" University, Romania
- Prof. Gabriella Borzone, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

HAS APPROVED THE THESIS OF GIOVANNA CANU,
CONFERRING HER THE TITLE OF

**RESEARCH DOCTOR IN
SCIENCE AND TECHNOLOGY OF MATERIALS**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Gabriella Borzone)

ACTIVITY REPORT

Research Activity

The research activity was totally carried out at the Department of Physics (University of Genova).

Scientific Publications

Original publications on ISI Journals:

- 1) Pallecchi, I.; Pellegrino, L.; Caviglia, A.; Bellingeri, E.; Canu, G.; Gazzadi, G. C.; Siri, A. S.; Marrè, D., Current-driven hysteresis effects in manganite spintronics devices - art. no. 014434, *Physical Review B*, **2006**, 7401, 4434-4434. IMPACT FACTOR (2006): 3.107.
- 2) Pallecchi, I.; Bellingeri, E.; Canu, G.; Caviglia, A.; Siri, A. S.; Marrè, D., Planar spin valves fabricated on manganite epitaxial thin films - art. no. 114508, *Journal of Applied Physics*, **2006**, 99, 14508-14508. IMPACT FACTOR (2006): 2.316.
- 3) Canu, G.; Dipasquale, M.; Bernini, C.; Bonanno, P.; Di Zitti, E.; Marrè, D.; Pellegrino, L.; Ricci, D.; Sasseti, M.; Siri, A. S., Controlling the formation of gold nanoparticle domains onto inorganic substrates, *Physica E*, **2008**, 40, 1709-1711. IMPACT FACTOR (2007): 0.834.
- 4) Pellegrino, L.; Pallecchi, I.; Bellingeri, E.; Canu, G.; Siri, A.S.; Marrè, D.; Yanagisawa, Y.; Ischikawa, M.; Matsumoto, T.; Tanaka, H.; Kawai, T., AFM nanopatterning of transition metal oxide thin films, *Journal of Nanoscience and Nanotechnology*, in press. IMPACT FACTOR (2007): 1.987.

Communications at Conferences

Posters:

- 1) Canu, G.; Dipasquale, M.; Bernini, C.; Bonanno, P.; Di Zitti, E.; Marrè, D.; Pellegrino, L.; Ricci, D.; Sasseti, M.; Siri, A.S. "Self-assembling of gold nanoparticles for quantum transport properties studies", *EP2DS 17 - MSS 13: International Conference on Electronic Properties of Two-dimensional Systems and Modulated Semiconductor Structures*, Genova, 15-20/7/2007.
- 2) Canu, G.; Dipasquale, M.; Bellingeri, E.; Bernini, C.; Di Zitti, E.; Marrè, D.; Pallecchi, I.; Pellegrino, L.; Sasseti, M.; Siri, A.S., "Charge induction on perovskite oxides for gold nanoparticles positioning", *THIOX Meeting 2008*, 9-11/4/2008, Convento dell'Annunziata – Sestri Levante (Genova).

Congresses Attended

- 1) *SATT13. 13° Congresso Nazionale di Superconduttività*, Convento dell' Annunziata, Sestri Levante (GENOVA), 29-31/3/2006.
- 2) *V Convegno Nazionale Materiali Molecolari Avanzati per Fotonica ed Elettronica*, Tortolì (Nuoro), 22-24/6/2006.
- 3) *WOE13 - XIII International Workshop on Oxide Electronics*, Ischia (Napoli), 8-11/10/2006.
- 4) *EP2DS 17 - MSS 13: International Conference on Electronic Properties of Two-dimensional Systems and Modulated Semiconductor Structures*, Magazzini del Cotone - Genova, 15-20/7/2007.
- 5) *Final Meeting THIOX "Thin Films For Novel Oxide Devices"*, Sestri Levante (Genova) 9-11/04/2008.

Courseware

During her doctorate, Giovanna Canu has acquired 24.5 credits of Courseware.

Courses attended and passed (14 credits)

Courses Given by Teachers of the University of Genova:

- 1) Ceramic materials: catalysts, adsorbents and materials for electronics (3 credits)(2006)
- 2) Amorphous metallic materials and composite materials (3 credits)(2006)
- 3) Vibrational spectroscopy (2 credits)(2006)
- 4) Fundamentals of modern polymer processing (2 credits)(2007)

Courses Given by invited experts:

- 1) Crystallographic studies by neutron diffraction (F. Sacchetti) (1 credit)(2006)
- 2) Synchrotron radiation applications to material science (R. Felici) (1 credit)(2006)
- 3) Solid State Magnetic Resonance Techniques (R. De Renzi) (1 credit)(2008)
- 4) Self-assembly and hierarchical microstructures: The principles of Nature for the design of materials (J. P. Rigueiro) (1 credit)(2008)

National and International Schools or Workshops (6.5 credits)

- 1) *II scuola sui Materiali Molecolari Avanzati per Fotonica ed Elettronica*, Tortolì (Nuoro), 18-21/6/2006 (2 credits).
- 2) *9th IP (Physics and Chemistry of Multifunctional Materials School)*, Genova 25/06-09/07/2006 (2 credits).
- 3) *Workshop: Attività di ricerca nel campo dei materiali presso la Facoltà di Ingegneria dell'Università di Genova*, Genova, 15/2/2007 (0.5 credits)
- 4) *Utrecht Summer School in Nanomaterials 2007: Science and Applications*, Utrecht (Netherlands), 13-24/8/2007 (2 credits)

Seminars Given (2 credits)

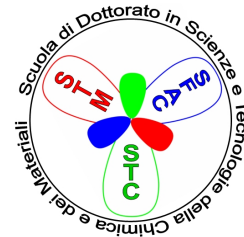
The student presented 4 seminars as final test for the 4 attended courses given by internal teachers (see above)

Seminars Attended (2 credits)

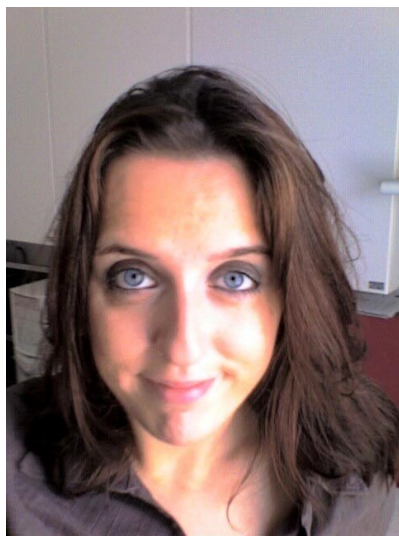
- 1) 15/2/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Le materie plastiche per la salute dell'uomo", Prof. Luigi Nicolais, Università di Napoli Federico II.
- 2) 15/2/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Le materie plastiche nel design e in architettura", Prof. Cecilia Cecchini, Università di Roma "La Sapienza".
- 3) 15/2/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Le materie plastiche per i beni culturali", Prof. Enrico Pedemonte, Università di Genova.
- 4) 23/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Stato dell'arte e prospettive della Chimica nelle Scienze Forensi", cap. Adolfo Gregori (Carabinieri, RIS di Parma).
- 5) 6/4/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "X-ray scattering of nanostructured soft matter films", Prof. Wim H. de Jeu, FOM-Institute for Atomic and molecular Physics (AMOLF) Amsterdam.
- 6) 25/5/2006, Dept. of Physics, Genova, "ZnO Materials and Devices: Past, Present and Future", Prof. D.C. Look, semiconductor research Center, and Materials Directorate, Air Force Research Laboratory, OH.
- 7) 28/7/2006, Dept. of Physics, Genova, "High Resolution STM Imaging and Spectroscopy of Supramolecules", Prof. H. Tanaka, "Institute of Scientific and Industrial Research", Osaka University (Japan)
- 8) 13/10/2006, Dept. of Physics, Genova, "Oxide Nano-Spintronics", Prof. Tanaka, Institute of Scientific and Industrial Research, Osaka University (Japan).
- 9) 3/11/2006, Faculty of Engineering, Genova, "Carbon nanotubes for nanoelectronics and nanobiotechnology", Prof. Siegmur Roth, Max Planck Institute for Solid State Research, Stuttgart (Germany)
- 10) 4/7/2007, Dept. of Physics, Genova, "Eterostrutture per l'elettronica di spin: attività presso il centro LNESS di Como", Dr. R. Bertacco, Politecnico di Milano
- 11) 25/9/2007, Dept. of Physics, Genova, "Nanoscale hopping conduction through cytochrome c and Mn12-complex", Prof. T. Matsumoto, Institute ISIR-Sanken, Osaka, Japan
- 12) 5/12/2007, Dept. of Physics, Genova, "Photon-induced reversible properties of smart hybrid materials", Dr. Athanassiou, National Nanotechnology Laboratory, Lecce
- 13) 16/04/2008, Dept. of Physics, Genova, "Sorgenti di radiazione e principi di radioprotezione", Prof. Prati, University of Genova.
- 14) 24/11/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Alkaline earth metals and europium intercalation into graphite in the presence of lithium", Dr. Nicolas Emery, Laboratoire de Chimie du Solide Minéral, Université /Henri Poincaré/ Nancy I, France.
- 15) 2/12/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "La paleo-climatologia come risposta alle nostre domande sul clima futuro: analisi delle carote di ghiaccio in Antartide", Prof. Roberto Udisti, Università di Firenze.
- 16) 22/12/2008, Dept. of Physics, Genova, "Probing Co-doped ZnO DMS properties by transport and XMCD measurements", Dr. E. Bellingeri, CNR-INFN-LAMIA
- 17) 22/12/2008, Dept. of Physics, Genova, "Fabrication and Characterization Of All-Oxide Microelectromechanical Systems", Dr. M. Biasotti, CNR-INFN-LAMIA - Università di Genova.



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
ELENA CICHERO



Doctorate Course:

Pharmaceutical, Food and Cosmetic Sciences

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisor:

Prof. Paola Fossa

Thesis Title:

*Development of New Ligands Active on Cannabinoid Receptors:
Rational Drug Design of CB₁ and CB₂ Receptor Antagonists*

Defense Date:

March 13, 2009

On March 13, 2009, at the Department of Pharmaceutical Sciences, Elena Cichero has orally presented her doctorate research work in front of the Commission, formed by

- Prof. Elisabetta Orlandini, University of Pisa
- Prof. Franco Pattarino, University of Piemonte Orientale "A. Avogadro"
- Prof. Silvia Lanteri, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF ELENA CICHERO,
CONFERRING HER THE TITLE OF**

**RESEARCH DOCTOR IN
PHARMACEUTICAL, FOOD AND COSMETIC SCIENCES**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Luisa Mosti)

ACTIVITY REPORT

Research Activity

The research activity was mainly carried out at the Department of Pharmaceutical Sciences (University of Genova). However, Elena Cichero **has also spent a research period of 4 months** working, under the supervision of Prof. Stefano Moro, at the Section of Molecular Modelling of the Department of Pharmaceutical Sciences of Padova University from 01/01/2008 to 01/05/2008.

Scientific Publications

Original publications on ISI Journals:

- 1) Cichero, E.; Menozzi, G.; Spallarossa, A.; Mosti, L.; Fossa, P., Exploring the binding features of rimonabant analogues and acyclic CB1 antagonists: docking studies and QSAR analysis, *Journal of Molecular Modeling*, **2008**, 14, 1131-1145. IMPACT FACTOR (2007): 2.301.
- 2) Menozzi, G.; Fossa, P.; Cichero, E.; Spallarossa, A.; Ranise, A.; Mosti, L., Rational design, synthesis and biological evaluation of new 1,5-diarylpyrazole derivatives as CB1 receptor antagonists, structurally related to rimonabant, *European Journal of Medicinal Chemistry*, **2008**, 43, 2627-2638. IMPACT FACTOR (2007): 1.669.
- 3) Cichero, E.; Cesarini, S.; Fossa, P.; Spallarossa, A.; Mosti, L., Computational studies of the binding mode and 3D-QSAR analyses of symmetric formimidoester disulfides: a new class of non-nucleoside HIV-1 reverse transcriptase inhibitors, *Journal of Molecular Modeling*, **2009**, 15, 357-367. IMPACT FACTOR (2007): 2.301.
- 4) Cichero, E.; Cesarini, S.; Fossa, P.; Spallarossa, A.; Mosti, L., Thiocarbamates as non-nucleoside HIV-1 reverse transcriptase inhibitors: docking-based CoMFA and CoMSIA analyses, *European Journal of Medicinal Chemistry*, **2009**, 44, in press. Available on-line (doi:10.1016/j.ejmech.2008.10.014). IMPACT FACTOR (2007): 1.669.
- 5) Cichero, E.; Cesarini, S.; Spallarossa, A.; Mosti, L.; Fossa, P., Acylthiocarbamates as non-nucleoside HIV-1 reverse transcriptase inhibitors: docking studies and ligand-based CoMFA and CoMSIA analyses, *Journal of Molecular Modeling*, **2009**, 15, in press (available online. DOI: 10.1007/s00894-008-0441-6). IMPACT FACTOR (2007): 2.301.
- 6) Cichero, E.; Casolino, C.; Menozzi, G.; Mosti, L.; Fossa, P., Exploring the QSAR of pyrazolo[3,4-b]pyridine, pyrazolo[3,4-b]pyridone and pyrazolo[3,4-b]pyrimidine derivatives as antagonists for A1 adenosine receptor, *QSAR and Comb. Sci.*, **2009**, in press (available online. DOI: 10.1002/qsar.200860048). IMPACT FACTOR (2007): 2.117.

Communications at Conferences

Posters:

- 1) Cichero, E. "Docking studies and QSAR analysis on CB1 antagonists: a computational approach towards the identification of new ligands", *ESMEC*, Urbino 6-11/07/2008.
- 2) Cichero, E.; Spallarossa, A.; Menozzi, G.; Mosti, L.; Fossa, P. "Exploring the binding features of rimonabant analogues and acyclic CB1 antagonists: docking studies and 3D-QSAR analysis", *XIX National Meeting on Medicinal Chemistry (NNMC)*, Verona 14-18/9/2008.
- 3) Cichero, E.; Cesarini, S.; Fossa, P.; Spallarossa, A.; Mosti, L. "Thiocarbamates as non-nucleoside HIV-1 reverse transcriptase inhibitors: docking-based CoMFA and CoMSIA analyses", *XIX National Meeting on Medicinal Chemistry (NNMC)*, Verona 14-18/9/2008.
- 4) Cichero, E.; Cesarini, S.; Spallarossa, A.; Fossa, P.; Mosti, L. "Tiocarbammati e disolfuri inibitori non nucleosidici della trascrittasi inversa dell' HIV-1: studi di Docking e 3D-QSAR", *Sigma Aldrich Young Chemist Symposium (SAYCS)*, Pesaro, 20-22/10/2008.

Congresses Attended

- 1) 7° *Sigma-Aldrich Young Chemists Symposium (7° SAYCS)*, Riccione, 22-24/10/2007.
- 2) *XIX National Meeting on Medicinal Chemistry (NNMC)*, Verona, 14-18/9/2008.
- 3) 8° *Sigma Aldrich Young Chemists Symposium*, Pesaro, 20-22/10/2008.

Courseware

During her doctorate, Elena Cichero has acquired 28 credits of Courseware.

Courses attended and passed (15 credits)

Courses Given by Teachers of the University of Genova:

- 1) Bibliographic and patent search in medicinal chemistry by using on-line databases (3 credits)(2006)
- 2) Asymmetric synthesis (2 credits)(2006)
- 3) Experimental design (3 credits)(2006)
- 4) Bioinformatics (3 credits)(2007)

Courses Given by invited experts:

- 1) Introduction to molecular decriptors (R. Todeschini) (1 credit)(2006)
- 2) Forensic chemistry (A. Gregori) (1 credit)(2006)

- 3) Intellectual property in the fields of Chemical, Medicinal, and Food Science. Patent retrieval in databases and European and International Patents (R. Ferreccio-R. Osella) (1 credit)(2007)
- 4) Search for potential drugs: examples in the oncological realm (T. Bandiera) (1 credit)(2007)

National and International Schools or Workshops (9 credits)

- 1) *European School of Medicinal Chemistry (ESMEC)*, Urbino, 2-7/7/2006 (2 credits)
- 2) *Scuola di Chimica Computazionale*, Siena 25-29/9/2006 (2 credits)
- 3) *European School of Medicinal Chemistry (ESMEC)*, Urbino, 1-6/7/2007. (2 credits)
- 4) *Corso di perfezionamento sulla proprietà intellettuale*, Pavia, 20-21/9/2007. (1 credit)
- 5) *European School of Medicinal Chemistry (ESMEC)*, Urbino, 6-11/7/2008 (2 credits)

Seminars Given (2 credits)

- 1) 7-11-2008, Dept. of Pharmaceutical Sciences, Genova, "L'approccio computazionale nella Chimica Farmaceutica: cenni teorici ed applicazioni pratiche".

Seminars Attended (2 credits)

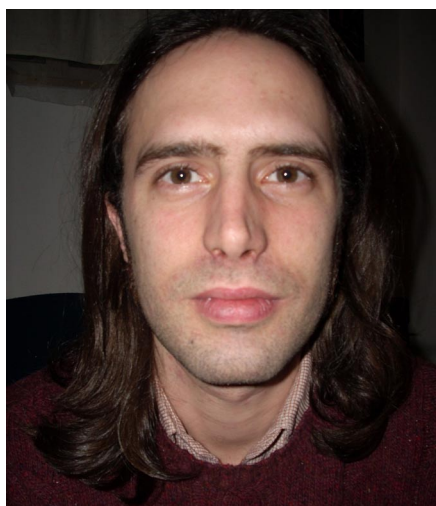
- 1) 23/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Stato dell'arte e prospettive della Chimica nelle Scienze Forensi", cap. Adolfo Gregori (Carabinieri, RIS di Parma).
- 2) 29/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Patologie conformazionali proteiche: il ruolo dell'ambiente", Prof. Enrico Rizzarelli, Università di Catania.
- 3) 4/4/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Chimica e Alimentazione: leggende e miti sfatati dalla Scienza", Prof. Carlo Cannella, Istituto di Scienza dell'Alimentazione, Università "La Sapienza", Roma.
- 4) 7/4/2006, Dept. of Pharmaceutical Sciences, Genova, "E' possibile prevedere in silico il metabolismo dei farmaci?", Prof. Bernard Testa, Lausanne University.
- 5) 17/4/2007, Dept. of Pharmaceutical Sciences, Genova, "Il sistema endocannabinoide nel controllo del dolore e dell'ansia", Prof. Daniele Piomelli, Louise Turner Arnold Chair in the Neurosciences, Professor of Pharmacology and Biological Chemistry and Director of the Center for Drug Discovery-University of California, Irvine CA.
- 6) 27/4/2007, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Farmacovigilanza: esperienza in un ospedale pediatrico", dr. C. Bianchi.
- 7) 10/5/2007, Dept. of Pharmaceutical Sciences, Genova, "Il processo analitico di laboratorio automatizzato: dalla gestione informatica alla firma digitale.", Dr. Roberto Massacane.
- 8) 11/5/2007, Dept. of Pharmaceutical Sciences, Genova, "Etnofarmacologia, empirismo o scienza?", Prof. A. Guerci.
- 9) 21/5/2007, Dept. of Experimental Medicine, "Genetic and Pharmacological Dissection of the Roles of the Endocannabinoid System in the Brain", Giovanni Marsicano, Research Centre INSERM, Francois Magendie Université, Bordeaux.
- 10) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Click Chemistry", Anna Mumot.
- 11) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Le Cicloaddizioni di Diels-Alder e 1,3-dipolari", Ennio Zunino.
- 12) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Derivati cumarinici con potenziale attività antivirale verso il virus dell'epatite C", M. Giampieri.
- 13) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Configurazione assoluta: sguardo sui metodi chimico-fisici per la sua determinazione, contributo dell'HPLC chirale, un caso di studio di alcol secondario e suoi derivati", A. Romussi.
- 14) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Sistemi gelificanti in situ per applicazioni biomediche", R. Stefani.
- 15) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Green Chemistry e sviluppo sostenibile", B. Trucchi.
- 16) 24/11/2008, Dept. of Pharmaceutical Sciences, Genova, "The Challenge of Neural Lipidomics", Prof. Daniele Piomelli, Louise Turner Arnold Chair in the Neurosciences, Professor of Pharmacology and Biological Chemistry and Director of the Center for Drug Discovery-University of California, Irvine CA.



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
MICHELE GIAMPIERI



Doctorate Course:

Pharmaceutical, Food and Cosmetic Sciences

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisor:

Prof. Mauro Mazzei

Thesis Title:

Drugs for Cystic Fibrosis Therapy

Defense Date:

March 13, 2009

On March 13, 2009, at the Department of Pharmaceutical Sciences, Michele Giampieri has orally presented his doctorate research work in front of the Commission, formed by

- Prof. Elisabetta Orlandini, University of Pisa
- Prof. Franco Pattarino, University of Piemonte Orientale "A. Avogadro"
- Prof. Silvia Lanteri, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF MICHELE GIAMPIERI,
CONFERRING HIM THE TITLE OF**

**RESEARCH DOCTOR IN
PHARMACEUTICAL, FOOD AND COSMETIC SCIENCES**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Luisa Mosti)

ACTIVITY REPORT

Research Activity

The research activity was mainly carried out at the Department of Pharmaceutical Sciences (University of Genova). However, Michele Giampieri **has also spent a research period of 3 months abroad** working at the Laboratoire de Stéréochimie Dynamique et Chiralité, UMR 6180 Chirotechnologies: Catalyse et Biocatalyse, Université Paul Cézanne, Aix-Marseille III from 01/03/2008 to 31/05/2008.

Scientific Publications

Original publications on ISI Journals:

- 1) Pedemonte, N.; Boido, D.; Moran, O.; Giampieri, M.; Mazzei, M.; Ravazzolo, R.; Galiotta, L. J. V., Structure-activity relationship of 1,4-dihydropyridines as potentiators of the cystic fibrosis transmembrane conductance regulator chloride channel, *Molecular Pharmacology*, **2007**, 72, 197-207. IMPACT FACTOR (2006): 4.469.

Original publications on non-ISI Journals:

- 2) Giampieri M.; Mazzei M. T.; Grosso R.; Mazzei M., 1,4 Dihydropyridines act as Potentiators of the mutant CFTR protein, *Experimental Biology Reports*, **2007**, 1.

Communications at Conferences

Posters:

- 1) Giampieri M., "Drugs for cystic fibrosis", *ESMEC*, Urbino 6-11/07/2008.

Congresses Attended

- 1) 6° *Sigma Aldrich Young Chemists Symposium*, Riccione, 9-11/10/2006.
- 2) *XVIII Convegno Nazionale della Divisione di Chimica Farmaceutica della Società Chimica Italiana*, Chieti, 16-20/09/2007
- 3) 7° *Sigma-Aldrich Young Chemists Symposium (7° S.AYCS)*, Riccione, 22-24/10/2007.

Courseware

During his doctorate, Michele Giampieri has acquired 25 credits of Courseware.

Courses attended and passed (16 credits)

Courses Given by Teachers of the University of Genova:

- 1) Bibliographic and patent search in medicinal chemistry by using on-line databases (3 credits)(2006)
- 2) Bioinformatics (3 credits)(2007)
- 3) Diversity-oriented synthesis (2 credits)(2007)
- 4) Dendritic macromolecules: synthesis and reactivity (2 credits)(2007)

Courses Given by invited experts:

- 1) Environmental certifications (C. Pasini) (1 credit)(2006)
- 2) Forensic chemistry (A. Gregori) (1 credit)(2006)
- 3) Intellectual property in the fields of Chemical, Medicinal, and Food Science. Patent retrieval in databases and European and International Patents (R. Ferreccio-R. Osella) (1 credit)(2007)
- 4) Search for potential drugs: examples in the oncological realm (T. Bandiera) (1 credit)(2007)
- 5) Combinatorial chemistry applied to pharmacologically relevant molecules (E.Felder) (1 credit)(2007)
- 6) Control of food quality (C. Pizarro) (1 credit)(2008)

National and International Schools or Workshops (5 credits)

- 1) *European School of Medicinal Chemistry (ESMEC)*, Urbino, 2-7/7/2006 (2 credits).
- 2) *Processo di drug discovery: applicazioni delle microonde e tecniche combinate MW-US*, Pavia, 16/03/2007 (0.5 credits).
- 3) *Workshop "L'evoluzione della spettrometria di massa"* (organized by Thermo Fisher Scientific), Dept. of Chemistry and Industrial Chemistry, Genova, 24/5/2007 (0.5 credits).
- 4) *European School of Medicinal Chemistry (ESMEC)*, Urbino, 1-6/7/2007. (2 credits).

Seminars Given (2 credits)

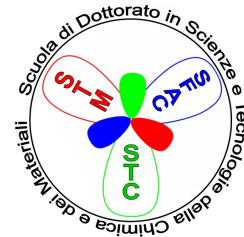
- 1) 7-11-2008, Dept. of Pharmaceutical Sciences, Genova, "Derivati cumarinici con potenziale attività antivirale verso il virus dell'epatite C".

Seminars Attended (2 credits)

- 1) 29/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Patologie conformazionali proteiche: il ruolo dell'ambiente", Prof. Enrico Rizzarelli, Università di Catania.
- 2) 4/4/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Chimica e Alimentazione: leggende e miti sfatati dalla Scienza", Prof. Carlo Cannella, Istituto di Scienza dell'Alimentazione, Università "La Sapienza" Roma.
- 3) 7/4/2006, Dept. of Pharmaceutical Sciences, Genova, "E' possibile prevedere in silico il metabolismo dei farmaci?", Prof. Bernard Testa, Lausanne University.
- 4) 25/9/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Non Linear Dynamics of Protein Folding", Prof. Bernard S Gerstman, Florida International University, Miami, Florida.
- 5) 24/11/2006, Dept. of Pharmaceutical Sciences, Genova, "Melatonina e suo ruolo fisio-patologico. Sviluppo di nuovi antagonisti selettivi dei recettori melatoninergici", Prof. G. Spadoni, Facoltà di Farmacia, Università di Urbino.
- 6) 30/01/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "NMR di omo- e co-polimeri in soluzione", Prof.ssa Annalaura Segre, del CNR di Montelibretti (Roma).
- 7) 20/02/07, Dept. of Chemistry and Industrial Chemistry, Genova, "La metallografia per i beni culturali: monete argentate ma non d'argento, il caso dei veri falsi", Dr. P. Piccardo.
- 8) 17/4/2007, Dept. of Pharmaceutical Sciences, Genova, "Il sistema endocannabinoide nel controllo del dolore e dell'ansia", Prof. Daniele Piomelli, Louise Turner Arnold Chair in the Neurosciences, Professor of Pharmacology and Biological Chemistry and Director of the Center for Drug Discovery-University of California, Irvine CA.
- 9) 10/5/2007, Dept. of Pharmaceutical Sciences, Genova, "Il processo analitico di laboratorio automatizzato: dalla gestione informatica alla firma digitale.", Dr. Roberto Massacane.
- 10) 11/5/2007, Dept. of Pharmaceutical Sciences, Genova, "Etnofarmacologia, empirismo o scienza?", Prof. A. Guerci.
- 11) 21/5/2007, Dept. of Experimental Medicine, "Genetic and Pharmacological Dissection of the Roles of the Endocannabinoid System in the Brain", Giovanni Marsicano, Research Centre INSERM, Francois Magendie Université, Bordeaux.
- 12) 4/06/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Nanoparticelle e salute: aspetti chimici e morfologici alla base della potenziale pericolosità di materiali particellari sempre più piccoli, Prof. Bice Fubini, Università di Torino.
- 13) 04/06/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Spettrometria di massa e proteomica: come distinguere Leucina e Isoleucina nel sequenziamento peptidico in trappola ionica", Dr. Andrea Armirotti, DIMES Università di Genova.
- 14) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Click Chemistry", Anna Mumot.
- 15) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Le Cicloaddizioni di Diels-Alder e 1,3-dipolari", Ennio Zunino.
- 16) 10/6/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Studio preclinico in vitro ed in vivo dell'attività antitumorale di nuove molecole a struttura 1,3-butadienica", Dr. Maurizio Viale, Istituto Nazionale per la Ricerca sul Cancro, Genova.
- 17) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "L'approccio computazionale nella Chimica Farmaceutica: cenni teorici ed applicazioni pratiche", E. Cichero.
- 18) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Configurazione assoluta: sguardo sui metodi chimico-fisici per la sua determinazione, contributo dell'HPLC chirale, un caso di studio di alcol secondario e suoi derivati", A. Romussi.
- 19) 24/11/2008, Dept. of Pharmaceutical Sciences, Genova, "The Challenge of Neural Lipidomics", Prof. Daniele Piomelli, Louise Turner Arnold Chair in the Neurosciences, Professor of Pharmacology and Biological Chemistry and Director of the Center for Drug Discovery-University of California, Irvine CA.



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*DOCTORATE SCHOOL IN
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CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
PAULINA LECIŃSKA



Doctorate Course:

Chemical Sciences and Technologies

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisor:

Prof. Luca Banfi

Thesis Title:

*Synthesis of New Conformationally Biased Peptidomimetics
as Potential Antitumor Compounds*

Defense Date:

March 20, 2009

On March 20, 2009, at the Department of Chemistry and Industrial Chemistry, Paulina Lecińska has orally presented her doctorate research work in front of the Commission, formed by

- Prof. Marino Petrini, University of Camerino
- Prof. Roger Fuoco, University of Pisa
- Prof. Antonio Turturro, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF PAULINA LECIŃSKA,
CONFERRING HER THE TITLE OF**

**RESEARCH DOCTOR IN
CHEMICAL SCIENCES, AND TECHNOLOGIES**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Luca Banfi)

ACTIVITY REPORT

Research Activity

The research activity was mainly carried out at the Department of Chemistry and Industrial Chemistry (University of Genova). However, Paulina Lecińska has also spent a research period of 7 months abroad, at the Departamento de Química, Facultad de Ciencias, Universidad de Burgos, under the supervision of Prof. T. Torroba, from 10/4/2008 to 15/11/2008.

Scientific Publications

Original publications on ISI Journals:

- 1) Banfi L., Basso A., Guanti G., Lecinska P., Riva R., Multicomponent synthesis of dihydrobenzoxazepinones by coupling Ugi and Mitsunobu reactions, *Org. Biomol. Chem.*, **2006**, *4*, 4236-4240. IMPACT FACTOR (2006): 2.874
- 2) Banfi L., Basso A., Guanti G., Lecinska P., Riva R., Rocca, V., Multicomponent Synthesis of Novel 2- and 3-Substituted Dihydrobenzo[1,4]oxazepinones and Tetrahydrobenzo[1,4]diazepin-5-ones and Their Conformational Analysis, *Heterocycles*, **2007**, *73*, 699-728. IMPACT FACTOR (2007): 1.066
- 3) Banfi, L.; Basso, A.; Guanti, G.; Lecinska, P.; Riva, R., Multicomponent synthesis of benzoxazinones via tandem Ugi/Mitsunobu reactions: an unexpected cine-substitution, *Molecular Diversity*, **2008**, *12*, 187-190. IMPACT FACTOR (2007): 2.708

Communications at Conferences

Oral communications:

- 1) Banfi, L.; Basso, A.; Guanti, G.; Lecinska, P.; Riva, R. "A new convergent synthesis of 6- membered dihydrobenzoxazinones in just 2 steps via tandem Ugi and cyclization reactions", *VII Convegno Italo-Spagnolo di Chimica Organica*, Oviedo 7-10/9/2008

Posters:

- 2) Lecinska, P.; Banfi, L.; Basso, A.; Guanti, G.; Riva, R. "Multicomponent Synthesis of Diverse Dihydrobenzoxazepinones through Tandem Ugi reaction-Mitsunobu cyclization", *Giornate Italo-Francesi di Chimica, III Ed.*, Torino, 22-24/5/2006.
- 3) Banfi, L.; Basso, A.; Lecinska, P.; Guanti, G.; Riva, R.; Rocca, V. "Multicomponent synthesis of various dihydrobenzoxazepinones through Ugi and Mitsunobu Reactions", *32° scuola di sintesi organica "A.Corbella"*, Gargnano (BS), 18-22/6/2007.

Congresses Attended

- 1) *Giornate Italo-Francesi di Chimica*, Torino, 22-24/5/2006.
- 2) *Meeting del Progetto PRIN "Metodologie e strategie sintetiche orientate alla creazione di diversità molecolare per la preparazione di molecole biologicamente attive"*, 14-15/10/2007, Certosa di Pontignano (Siena).
- 3) *VII Convegno Italo-Spagnolo di Chimica Organica*, Oviedo 7-10/9/2008.

Courseware

During her doctorate, Paulina Lecińska has acquired 25.5 credits of Courseware.

Courses attended and passed (19.5 credits)

Courses Given by Teachers of the University of Genova:

- 1) Bibliographic and patent search in medicinal chemistry by using on-line databases (3 credits)(2006)
- 2) Main plants used in Phytocosmetics and their constituents (2 credits)(2006)
- 3) Asymmetric synthesis (2 credits)(2006)
- 4) Diversity-oriented synthesis (2 credits)(2007)
- 5) Bioorganic Chemistry (2 credits)(2007)
- 6) Microwave technology applied to chemical processes (3 credits) (2007).

Courses Given by invited experts:

- 1) Role of medicinal chemistry in the preclinical drug discovery process (P. Pevarello)(half course) (0.5 credit)(2006)
- 2) Forensic Chemistry (A. Gregori) (1 credit)(2006)
- 3) Environmental certifications (C. Pasini) (1 credit)(2006)
- 4) Search for potential drugs: examples in the oncological realm (T. Bandiera) (1 credit)(2007)
- 5) Upscale of active principles production: from laboratory to industrial technology transfer (P. Gatti) (1 credit)(2007)
- 6) Combinatorial chemistry applied to pharmacologically relevant molecules (E.Felder) (1 credit)(2007)

National and International Schools or Workshops (2 credits)

- 1) *32° Scuola di sintesi organica "A.Corbella"*, Gargnano (BS), 18-22/6/2007. (2 credits)

Seminars Given (2 credits)

- 1) 1/12/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Sensori Chimici".

Seminars Attended (2 credits)

- 1) 7/2/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Nanostructured hybrid organic-inorganic polymers from the introduction of metal-oxo clusters", Prof. Jean François Gerard, Laboratoire des Matériaux Macromoléculaires, Ingénierie des Matériaux Polymères, INSA Lyon.
- 2) 7/2/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Novel nanocomposites based on an epoxy matrix and fumed silica", Dr. Jocelyn Galy, Laboratoire des Matériaux Macromoléculaires, Ingénierie des Matériaux Polymères, INSA Lyon.
- 3) 23/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Stato dell'arte e prospettive della Chimica nelle Scienze Forensi", cap. Adolfo Gregori (Carabinieri, RIS di Parma).
- 4) 25/9/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Non Linear Dynamics of Protein Folding", Prof. Bernard S Gerstman, Florida International University, Miami, Florida.
- 5) 10/11/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Giornata scientifica in ricordo di Carlo Dell'Erba". 10.45 "Venti anni con il maestro" (Prof. G. Petrillo)
- 6) 10/11/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Giornata scientifica in ricordo di Carlo Dell'Erba". 11.30 "Una vita con gli eterocicli" (Prof. D. Spinelli, Università di Bologna)
- 7) 10/11/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Giornata scientifica in ricordo di Carlo Dell'Erba". 14.30 " Reagenti seleniorganici enatiopuri in sintesi asimetrica" (Prof. M. Tiecco, Università di Perugia).
- 8) 10/11/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Giornata scientifica in ricordo di Carlo Dell'Erba". 15.15 "Box e Pybox, leganti versatili nella sintesi di composti eterocicli azotati" (Prof. G. Desimoni, Università di Pavia)
- 9) 10/11/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Giornata scientifica in ricordo di Carlo Dell'Erba". 16.00 "Azidi Eteroaromatiche: versatili intermedi nella sintesi di composti eterocicli azotati", (Prof. P Spagnolo, Università di Bologna).
- 10) 21/11/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Riconoscimento di DNA mediante acidi peptidonucleici (PNA). Applicazioni in campo biomedico ed alimentare", prof. Rosangela Marchelli, Dipartimento di Chimica Organica ed Industriale, Università di Parma.
- 11) 24/11/2006, Dept. of Pharmaceutical Sciences, Genova, "Melatonina e suo ruolo fisio-patologico. Sviluppo di nuovi antagonisti selettivi dei recettori melatoninergici", Prof. G. Spadoni, Facoltà di Farmacia, Università di Urbino.
- 12) 17/4/2007, Dept. of Pharmaceutical Sciences, Genova, "Il sistema endocannabinoide nel controllo del dolore e dell'ansia", Prof. Daniele Piomelli, Louise Turner Arnold Chair in the Neurosciences, Professor of Pharmacology and Biological Chemistry and Director of the Center for Drug Discovery-University of California, Irvine CA.
- 13) 4/5/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Energie rinnovabili: materiali e tecnologie per celle a combustibile a carbonati fusi", Dr. Paolo Capobianco, Ansaldo Fuel Cells.
- 14) 21/5/2007, Dept. of Experimental Medicine, Genova, "Genetic and Pharmacological Dissection of the Roles of the Endocannabinoid System in the Brain", Giovanni Marsicano, Research Centre INSERM, Francois Magendie Université, Bordeaux.
- 15) 22/5/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Rapid prototyping: la trasformazione diventa innovativa", Ing. Lanfranco Galter, Technimold srl.
- 16) 4/06/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Nanoparticelle e salute: aspetti chimici e morfologici alla base della potenziale pericolosità di materiali particellari sempre più piccoli, Prof. Bice Fubini, Università di Torino.
- 17) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Click Chemistry", Dr. Anna Mumot.
- 18) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Le Cicloaddizioni di Diels-Alder e 1,3-dipolari", Dr. Ennio Zunino.
- 19) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Ultra sensitive Raman measurements in living cells using gold and silver nanoparticles", Dr. Anna Giusti.
- 20) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Proprietà di bagnabilità delle superfici solide in sistemi tensioattivi", Dr. Eva Santini.
- 21) 1/4/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Cinquant'anni giocando ad aprire e chiudere eterocicli", Prof. Domenico Spinelli, Università di Bologna.
- 22) 1/12/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Reazioni Tandem IEDHDA (Inverse Electron Demand Hetero-Diels-Alder) e cicloaddizioni 1,3-dipolari di nitroalcheni", M. Maccagno



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
CAMILLA LISCIO



Doctorate Course:
Chemical Sciences and Technologies
Start of the Doctorate Program:
January 1, 2006
End of the Doctorate Program:
December 31, 2008

Advisor:
Prof. Emanuele Magi

Thesis Title:
*Separation techniques coupled to mass spectrometry for the study
of samples of environmental and biological interest*

Defense Date:
March 20, 2009

On March 20, 2009, at the Department of Chemistry and Industrial Chemistry, Camilla Liscio has orally presented her doctorate research work in front of the Commission, formed by

- Prof. Marino Petrini, University of Camerino
- Prof. Roger Fuoco, University of Pisa
- Prof. Antonio Turturro, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF CAMILLA LISCIO,
CONFERRING HER THE TITLE OF**

**RESEARCH DOCTOR IN
CHEMICAL SCIENCES, AND TECHNOLOGIES**

The commission has evaluated the thesis and the overall activity of Dr. Camilla Liscio as
EXCELLENT

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Luca Banfi)

ACTIVITY REPORT

Research Activity

The research activity was mainly carried out at the Department of Chemistry and Industrial Chemistry (University of Genova). However, Camilla Liscio **has also spent a research period of 3 months abroad**, at EAWAG (Swiss Federal Institute of Aquatic Science and Technology) in Dübendorf (Switzerland), under the supervision of Dr. Marc Suter, from 1/4/2007 to 30/6/2007.

Scientific Publications

Original publications on ISI Journals:

- 1) Magi, E.; Liscio, C.; Pistarino, E.; Santamaria, B.; Carro, M.; Tiso, M.; Scaloni, A.; Renzone, G.; Cosulich, M., Interdisciplinary study for the evaluation of biochemical alterations on mussel *Mytilus galloprovincialis* exposed to a tributyltin-polluted area, *Analytical and Bioanalytical Chemistry*, **2008**, 391, 867-873. IMPACT FACTOR (2007): 2.867
- 2) Magi, E.; Liscio, C.; Di Carro, M., Multivariate optimization approach for the analysis of butyltin compounds in mussel tissues by gas chromatography-mass spectrometry, *Journal of Chromatography A*, **2008**, 1210, 99-107. IMPACT FACTOR (2007): 3.641
- 3) Liscio, C.; Di Carro, M.; Magi, E., Comparison of two analytical methods for the determination of organotin compounds in marine organisms, *Comptes Rendus Chimie*, **2009**, in press. DOI: <http://dx.doi.org/10.1016/j.crci.2008.07.006>. IMPACT FACTOR (2007): 1.305

Communications at Conferences

Oral communications:

- 1) Liscio, C.; Magi, E.; Di Carro, M.; Frache, R.; Suter, M.J.F. "Utilizzo di campionatori passivi e molluschi bivalvi per la determinazione di interferenti endocrini in effluenti urbani", 7° *Sigma Aldrich Young Chemists Symposium*, Riccione, 22-24/12/2007, 7O13.
- 2) Liscio, C. "Optimization of an analytical method for the determination of organotin compounds in mussels", 4èmes *Journées franco-italiennes de chimie*, Université Nice Sophia Antipolis, Nice, 17-18/4/2008.
- 3) Liscio, C.; Magi, E.; Di Carro, M.; Scapolla, C., "Ottimizzazione di un metodo LC-MS-MS per la determinazione di interferenti endocrini in matrici ambientali", 8° *Sigma Aldrich Young Chemists Symposium*, Pesaro, 20-22/10/2008.

Posters:

- 4) Magi, E.; Di Carro, M.; Liscio, C. "Studio di composti organostannici in organismi marini mediante GC-MS", XXII *Congresso nazionale della società chimica italiana*, Firenze, 12-14/9/2006 Atti del convegno ANA-P-55.
- 5) Liscio, C.; Magi, E.; Di Carro, M.; Scapolla, C. "Improvement of a lc-ms-ms method for the analysis of endocrine-disrupting compounds in wastewaters", *Congresso Franco-Italiano di Spettrometria di Massa "Massa 2008"*, Siena, 30/6/2008- 4/07/2008. Atti del Convegno P-33.
- 6) Magi, E.; Liscio, C., Di Carro, M.; Scapolla, C., "Study of endocrine disrupting compounds in urban effluents by hplc-ms and *in vitro* bioassay", *Workshop "Il triplo quadrupolo: trent'anni di successi! Attualità, strumentazione, applicazioni, prospettive"*, Istituto Mario Negri, Milano, 18-12-2008.

Congresses Attended

- 1) XXII *Convegno nazionale della SCI*, Firenze, 12-14 settembre 2006.
- 2) *Convegno Nazionale della Divisione di Chimica Analitica della SCI*, Viterbo, 16-19 settembre 2007.
- 3) 7° *SAYCS (Sigma Aldrich Young Chemists Symposium)*, Riccione, 22-24 ottobre.
- 4) 4èmes *Journées franco-italiennes de chimie*, Université Nice Sophia Antipolis, Nice, 17-18/4/2008.
- 5) *Congresso Franco-Italiano di Spettrometria di Massa "Massa 2008"*, Siena, 30/6-4/7/2008.
- 6) 8° *SAYCS (Sigma Aldrich Young Chemists Symposium)*, Pesaro, 20-22/10/2008.

Courseware

During her doctorate, Camilla Liscio has acquired 28.5 credits of Courseware.

Courses attended and passed (18 credits)

Courses Given by Teachers of the University of Genova:

- 1) Experimental design (3 credits)(2006)
- 2) Main plants used in Phytocosmetics and their constituents (2 credits)(2006)
- 3) Pharmaceutical biotechnologies (3 credits)(2006)
- 4) In vitro tests for evaluation of toxicity and biological action of chemical compounds (2 credits)(2007)
- 5) Instrumental techniques for trace elements determination in pharmaceuticals, food products and environmental samples (2 credits)(2008)

Courses Given by invited experts:

- 1) Role of medicinal chemistry in the preclinical drug discovery process (P. Pevarello) (1 credit)(2006)

- 2) Forensic Chemistry (A. Gregori) (1 credit)(2006)
- 3) Environmental certifications (C. Pasini) (1 credit)(2006)
- 4) Carbon nanotechnologies: Fullerenes and nanotubes (M. Prato) (1 credit)(2007)
- 5) Martensitic Transformations (P. Rogl) (1 credit)(2008)
- 6) Control of food quality (C. Pizarro) (1 credit)(2008)

National and International Schools or Workshops (6.5 credits)

- 1) *Scuola Nazionale di metodologie analitiche in spettrometria di massa*, Parma 22-26/05/2006 (2 credits)
- 2) *Scuola di Spettrometria di Massa per Dottorandi*, Certosa di Pontignano (Siena), 18-23/03/2007 (2 credits)
- 3) *Scuola di Chemiometria*, Genova, 27-30/5/2008 (2 credits)
- 4) *Workshop "Il triplo quadrupolo: trent'anni di successi! Attualità, strumentazione, applicazioni, prospettive"*, Istituto Mario Negri, Milano, 18-12-2008 (0.5 credits)

Seminars Given (2 credits)

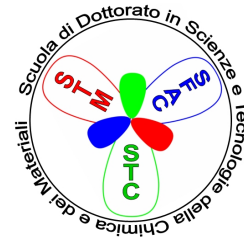
- 1) 26/09/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Interferenti Endocrini: nuovo pericolo per la salute umana o falso allarmismo?"

Seminars Attended (2 credits)

- 1) 15/2/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Le materie plastiche per la salute dell'uomo", Prof. Luigi Nicolais, Università di Napoli Federico II.
- 2) 15/2/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Le materie plastiche nel design e in architettura", Prof. Cecilia Cecchini, Università di Roma "La Sapienza".
- 3) 22/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "New sample introduction system for ICP-OES and ICP-MS", Prof. José Luis Todoli, University of Alicante (Spain).
- 4) 23/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Stato dell'arte e prospettive della Chimica nelle Scienze Forensi", cap. Adolfo Gregori (Carabinieri, RIS di Parma).
- 5) 29/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Patologie conformazionali proteiche: il ruolo dell'ambiente", Prof. Enrico Rizzarelli, Università di Catania.
- 6) 4/4/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Chimica e Alimentazione: leggende e miti sfatati dalla Scienza", Prof. Carlo Cannella, Istituto di Scienza dell'Alimentazione, Università "La Sapienza", Roma.
- 7) 20/6/2006, Centro Convegni Amga (Genova), "Interferenti endocrini (Endocrine Disruptors): farmaci e prodotti ad uso personale nelle acque destinate al consumo umano".
- 8) 21/6/2006, Università di Pavia, Dipartimento di Biochimica, Workshop: "Tecniche, problematiche e prospettive nel moderno laboratorio di proteomica".
- 9) 25/05/07, EAWAG, Dübendorf (Switzerland), "Ecological and biogeochemical consequences of ocean acidification", Jean-Pierre Gattuso, CNRS-UPMC, France
- 10) 08/06/07, EAWAG, Dübendorf (Switzerland), "Detection assay of metal induced oxidative stress in *C.reindhardtii*", Illona Szivak, EAWAG, Switzerland
- 11) 22/06/07, EAWAG, Dübendorf (Switzerland), "The new WHO guidelines for the safe use of wastewater excreta and greywater –from strict norms to a comprehensive risk assessment/management framework", Robert Boss, WHO, Switzerland
- 12) 18/7/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Fibre naturali di seta di ragno", Dr. Paola Corsini.
- 13) 18/7/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Tecnologia a membrana per la depurazione delle acque", Dr. Bartosz Tylkowski.
- 14) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Introduzione alla spettroscopia NIR", Prof. E. Tamburini, Università di Ferrara
- 15) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "La spettroscopia NIR nell'industria farmaceutica", Dr. S. Lonardi, consultant, Verona.
- 16) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Controllo NIR, dal ricevimento merci al prodotto finito", Dr. G. Campolongo, Büchi Italia
- 17) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Spettroscopia NIR e chemiometria", P. Oliveri.
- 18) 26/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Carbon Nanotube: A leading material", P. Waghmare.
- 19) 26/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Crescita di Cristalli Singoli", R. Pasero.
- 20) 2/12/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "La paleo-climatologia come risposta alle nostre domande sul clima futuro: analisi delle carote di ghiaccio in Antartide", Prof. Roberto Udisti, Università di Firenze.



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
MASSIMO MACCAGNO



Doctorate Course:
Chemical Sciences and Technologies
Start of the Doctorate Program:
January 1, 2006

End of the Doctorate Program:
December 31, 2008

Advisor:
Prof. Giovanni Petrillo

Thesis Title:
*Nitro- and Dinitro-butadiene Building Blocks Starting from
Nitrothiophenes: new Utilization Perspectives in Organic Synthesis*

Defense Date:
March 20, 2009

On March 20, 2009, at the Department of Chemistry and Industrial Chemistry, Massimo Maccagno has orally presented his doctorate research work in front of the Commission, formed by

- Prof. Marino Petrini, University of Camerino
- Prof. Roger Fuoco, University of Pisa
- Prof. Antonio Turturro, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF MASSIMO MACCAGNO,
CONFERRING HIM THE TITLE OF**

**RESEARCH DOCTOR IN
CHEMICAL SCIENCES, AND TECHNOLOGIES**

The commission has evaluated the thesis and the overall activity of Dr. Massimo Maccagno as
EXCELLENT

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Luca Banfi)

ACTIVITY REPORT

Research Activity

The research activity was totally carried out at the Department of Chemistry and Industrial Chemistry (University of Genova).

Scientific Publications

Original publications on ISI Journals:

- 1) Bianchi, L.; Dell'Erba, C.; Maccagno, M.; Morganti, S.; Petrillo, G.; Rizzato, E.; Sancassan, F.; Severi, E.; Spinelli, D.; Tavani, C.: Nitrobutadienes from β -nitrothiophenes: valuable building-blocks in the overall ring-opening / ring-closure protocol to homo- or hetero-cycles, *Arkivoc* **2006**, 7, 169-185. IMPACT FACTOR (2007): 1.253
- 2) Petrillo, G.; Fenoglio, C.; Ognio, E.; Aiello, C.; Spinelli, D.; Mariggio, M. A.; Maccagno, M.; Morganti, S.; Cordazzo, C.; Viale, M., Naphthyl nitrobutadienes as pharmacologically active molecules: evaluation of the *in vivo* antitumour activity, *Investigational New Drugs*, **2007**, 25, 535-544. IMPACT FACTOR (2007): 2.806.
- 3) Bianchi, L.; Maccagno, M.; Petrillo, G.; Sancassan, F.; Tavani, C.; Morganti, S.; Rizzato, E.; Spinelli, D., Oxidative nucleophilic substitution of hydrogen versus ring-opening in the reaction of 4-R-2-nitrothiophenes with amines. The crucial effect of 4-alkyl groups, *Journal of Organic Chemistry*, **2007**, 72, 5771-5777. IMPACT FACTOR (2007): 3.959.
- 4) Bianchi, L.; Giorgi, G.; Maccagno, M.; Petrillo, G.; Rizzato, E.; Spinelli, D.; Stenta, M.; Tavani, C., An unprecedented "Reverse" 1,2-migration of a nitro group within an alpha-aryl-beta-nitroethenyl moiety driven by steric and stereoelectronic effects, *Letters in Organic Chemistry*, **2007**, 4, 268-272. IMPACT FACTOR (2007): 0.981
- 5) Aiello, C.; Bianchi, L.; Cassano, A.; Cordazzo, C.; Fenoglio, C.; Maccagno, M.; Mariggio, M. A.; Ognio, E.; Petrillo, G.; Prevosto, C.; Rizzato, E.; Spinelli, D.; Vaccarone, R.; Viale, M., Synthesis, *in vitro* activity and *in vivo* toxicity of the new 2,3-dinitrobutadiene derivative (1E,3E)-1,4-bis(2-naphthyl)-2,3-dinitro-1,3-butadiene, *Pharmacological Research*, **2007**, 56, 318-328. IMPACT FACTOR (2007): 1.895
- 6) Bianchi, L.; Giorgi, G.; Maccagno, M.; Petrillo, G.; Sancassan, F.; Severi, E.; Tavani, C., Butadienic Building-Blocks from 2-Nitrothiophene as Precursors of Nitrogen Heterocycles: An Intriguing Dichotomic Behaviour, *The Journal of Organic Chemistry*, **2007**, 72, 9067-9073. IMPACT FACTOR (2007): 3.959.
- 7) Aiello, C.; Bianchi, L.; Cordazzo, C.; Fenoglio, C.; Maccagno, M.; Mariggio, M. A.; Morganti, S.; Petrillo, G.; Prevosto, C.; Rizzato, E.; Spinelli, D.; Viale, M., Design, Synthesis and *in vitro* evaluation of new Naphthyl nitrobutadienes with Potential Antiproliferative Activity: towards a Structure/Activity Relationship, *Bioorganic and Medicinal Chemistry*, **2008**, 16, 240-247. IMPACT FACTOR (2007): 2.662
- 8) Viale, M.; Petrillo, G.; Maccagno, M.; Castagnola, P.; Aiello, C.; Cordazzo, C.; Mariggio, M. A.; Jadhav, S. A.; Bianchi, L.; Leto, G.; Rizzato, E.; Poggi, A.; Spinelli, D., Sensitivity of different resistant tumour cell lines to the two novel compounds (2Z,4E)-2-methylsulfanyl-5-(1-naphthyl)-4-nitro-2,4-pentadienoate and (1E,3E)-1,4-bis(2-naphthyl)-2,3-dinitro-1,3-butadiene, *European Journal of Pharmacology*, **2008**, 588, 47-51. IMPACT FACTOR (2007): 2.376.
- 9) Bianchi, L.; Galatini, A.; Maccagno, M.; Petrillo, G.; Rizzato, E.; Sancassan, F.; Severi, E.; Spinelli, D.; Stenta, M.; Tavani, C.: A New Route to Thiopyran S,S-Dioxide Derivatives *via* an Overall Ring-Enlargement Protocol from 3-Nitrothiophene, *Tetrahedron*, **2009**, 65, 336-343. IMPACT FACTOR (2007): 2.869

Original publications on non-ISI Journals:

- 10) Bianchi, L.; Maccagno, M.; Petrillo, G.; Sancassan, F.; Spinelli, D.; Tavani, C., 2,3-Dinitro-1,3-butadienes as Versatile Building-blocks from the Ring-opening of 3,4-Dinitrothiophene, *Targets in Heterocyclic Systems: Chemistry and Properties*, **2006**, 10, 1-23.
- 11) Bianchi, L.; Maccagno, M.; Petrillo, G.; Rizzato, E.; Sancassan, E.; Severi, E.; Spinelli, D.; Tavani, C.; Viale, M., Versatile nitrobutadienic building blocks from the ring-opening of 2- and 3-nitrothiophenes, *Targets in Heterocyclic Systems: Chemistry and Properties*, **2007**, 11, 1-20.

Communications at Conferences

Posters:

- 1) Bianchi, L.; Dell'Erba, C.; Maccagno, M.; Morganti, S.; Petrillo, G.; Rizzato, E.; Sancassan, F.; Severi, E.; Stenta, M.; Giorgi, G.; Spinelli, D.; Tavani, C., Dinitrobutadienic Building-Blocks from the Ring-Opening of 3,4-Dinitrothiophene: New Perspectives, *Giornate Italo Francesi di Chimica, III ed.*, Torino, 22-24/5/2006 (PO-61).
- 2) Bianchi, L.; Maccagno, M.; Petrillo, G.; Sancassan, F.; Severi, E.; Tavani, C., Nitrobutadieni derivanti dall'apertura d'anello del 2-nitrotiofene: effetti elettronici nella loro applicazione come precursori di composti omo- ed eterociclici, *Meeting PRIN 2004-2005, IV ed.*, Riccione, 11-12/10/2006 (PF5).
- 3) Bianchi, L.; Maccagno, M.; Petrillo, G.; Sancassan, F.; Rocca, S.; Severi, E.; Tavani, C., Homo and Hetero-cycles via the Ring-Opening / Ring-Closure Protocol from 2-Nitrothiophene, *Corso Estivo "A. Corbella", XXXII ed.*, Gargnano, 18-22/6/2007 (P18).
- 4) Bianchi, L.; Giorgi, G.; Maccagno, M.; Jadhav S. A.; Petrillo, G.; Spinelli, D.; Stenta, M.; Tavani, C., Building-blocks from 3,4-dinitrothiophene: recent advancements, *RSC-SCI Joint Meeting on Heterocyclic Chemistry, XI ed.*, Lerici, 8-11/6/2008 (P18).

- 5) Bianchi, L.; Giorgi, G.; Maccagno, M.; Petrillo, G.; Tavani, C.; Spinelli D.; Stenta M., Building-block derivanti dal 3,4-dinitrotiofene: progressi recenti, *Corso Estivo "A. Corbella"*, XXXIII ed., Gargnano, 23-27 Giugno 2008 (P13).

Congresses Attended

- 1) *Giornate Italo-Francesi di Chimica, III Ed.*, Torino, 22-24/5/2006.
- 2) *Congresso della Società Chimica Italiana, XXI ed.*, Firenze, 14-15/9/2006.
- 3) *Meeting PRIN 2004-2005 (IV ed.)*, Riccione, 11-12/10/2006
- 4) *Joint Meeting on Heterocyclic Chemistry*, Lerici (SP), 8-11/5/2008.
- 5) *Giornate di Chimica Organica Fisica e Meccanicistica (COFEM)*, Sestri Levante (GE), 24-26/9/2008 (as member of the organizing committee).

Courseware

During his doctorate, Massimo Maccagno has acquired 31 credits of Courseware.

Courses attended and passed (21 credits)

Courses Given by Teachers of the University of Genova:

- 1) Bibliographic and patent search in medicinal chemistry by using on-line databases (3 credits)(2006)
- 2) Pharmaceutical biotechnologies (3 credits)(2006)
- 3) Asymmetric synthesis (2 credits)(2006)
- 4) Diversity-oriented synthesis (2 credits)(2007)
- 5) Bioorganic Chemistry (2 credits)(2007)
- 6) Mathematical Methods for Chemistry (2 credits) (2007).

Courses Given by invited experts:

- 1) Introduction to molecular descriptors (R. Todeschini) (1 credit)(2006)
- 2) Forensic Chemistry (A. Gregori) (1 credit)(2006)
- 3) Intellectual property in the fields of Chemical, Medicinal, and Food Science. Patent retrieval in databases and European and International Patents (R. Ferreccio-R. Osella) (1 credit)(2007)
- 4) Search for potential drugs: examples in the oncological realm (T. Bandiera) (1 credit)(2007)
- 5) Upscale of active principles production: from laboratory to industrial technology transfer (P. Gatti) (1 credit)(2007)
- 6) Combinatorial chemistry applied to pharmacologically relevant molecules (E.Felder) (1 credit)(2007)
- 7) Biotechnological drugs (B. Gatto) (1 credit)(2008)

National and International Schools or Workshops (6 credits)

- 1) *Winter School on Physical Organic Chemistry*, Bressanone, dal 11-18/1/2007. (2 credits)
- 2) *32° Scuola di sintesi organica "A. Corbella"*, Gargnano (BS), 18-22/6/2007. (2 credits)
- 3) *33° Scuola Estiva di Sintesi Organica "A. Corbella"*, Gargnano (BS), 23-27/6/2008. (2 credits)

Seminars Given (2 credits)

- 1) 1/12/2008, Dept. of Chemistry and Industrial Chemistry, Genova,, "Reazioni Tandem IEDHDA (Inverse Electron Demand Hetero-Diels-Alder) e cicloaddizioni 1,3-dipolari su nitroalcheni".

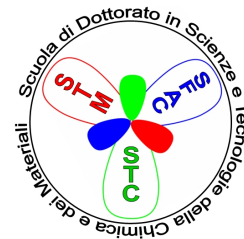
Seminars Attended (2 credits)

- 1) 15/2/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Le materie plastiche nel design e in architettura", Prof. Cecilia Cecchini, Università di Roma "La Sapienza".
- 2) 4/4/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Chimica e Alimentazione: leggende e miti sfatati dalla Scienza", Prof. Carlo Cannella, Direttore dell'Istituto di Scienza dell'Alimentazione, Università "La Sapienza" Roma.
- 3) 10/11/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Giornata scientifica in ricordo di Carlo Dell'Erba". Reagenti seleniorganici enatiopuri in sintesi asimetrica" (Prof. M. Tiecco, Università di Perugia).
- 4) 10/11/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Giornata scientifica in ricordo di Carlo Dell'Erba". Box e Pybox, leganti versatili nella sintesi di composti eterocicli azotati" (Prof. G. Desimoni, Università di Pavia).
- 5) 10/11/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Giornata scientifica in ricordo di Carlo Dell'Erba". "Azidi Eteroaromatiche: versatili intermedi nella sintesi di composti eterocicli azotati", (Prof. P Spagnolo, Università di Bologna)
- 6) 21/11/2006, Dept. of Chemistry and Industrial Chemistry, Genova, (aula Magna): "Riconoscimento di DNA mediante acidi peptidonucleici (PNA). Applicazioni in campo biomedico ed alimentare", prof. Rosangela Marchelli, Dipartimento di Chimica Organica ed Industriale, Università di Parma e Preside della Facoltà di Agraria.
- 7) 24/11/2006, Department of Pharmaceutical Sciences, Genova, "Melatonina e suo ruolo fisio-patologico. Sviluppo di nuovi antagonisti selettivi dei recettori melatoninergici", Prof. G. Spadoni, Facoltà di Farmacia, Università di Urbino.

- 8) 4/06/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Nanoparticelle e salute: aspetti chimici e morfologici alla base della potenziale pericolosità di materiali particellari sempre più piccoli, Prof. Bice Fubini, Università di Torino.
- 9) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Click Chemistry", Dr. Anna Mumot.
- 10) 1/4/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Cinquant'anni giocando ad aprire e chiudere eterocicli", Prof. Domenico Spinelli, Università di Bologna.
- 11) 6/5/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Metallazione regio/ e stereoselettiva di eterocicli: utilità sintetica", Prof. Saverio Florio, Università di Bari.
- 12) 10/6/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Studio preclinico in vitro ed in vivo dell'attività antitumorale di nuove molecole a struttura 1,3-butadienica", Dr. Maurizio Viale, Istituto Nazionale per la Ricerca sul Cancro di Genova.
- 13) 27-10-2008, Dept. of Chemistry and Industrial Chemistry, Genova,, "Lo Spazio Chimico e la sua Descrizione Matematica", Prof. Roberto Todeschini, Università Bicocca di Milano
- 14) 27-10-2008, Dept. of Chemistry and Industrial Chemistry, Genova,, "Navigare lo Spazio Chimico per la Biologia e la Medicina". Dr. Antonio Macchiarulo, Università di Perugia.
- 15) 3-11-2008, Dept. of Chemistry and Industrial Chemistry, Genova, "La Sintesi Orientata alla Diversità di Collezioni di Molecole", Dr. Chiara Ghiron.
- 16) 3-11-2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Sfruttare la Chemiodiversità delle Sostanze Naturali", Prof. Giovanni Appendino
- 17) 1-12-2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Sensori Chimici", P. Lecinska.



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
GABRIELLA PELLATI



Doctorate Course:

Science and Technology of Materials

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisor:

Prof. Maria Rosa Pinasco

Ing. Gian Filippo Bocchini

Thesis Title:

*Chemical and Physical Parameters Related to
Materials Response to Sinter-hardening*

Defense Date:

March 18, 2009

On March 18, 2009, at the Department of Chemistry and Industrial Chemistry, Gabriella Pellati has orally presented her doctorate research work in front of the Commission, formed by

- Prof. Marco Virginio Boniardi, Polytechnic of Milano
- Prof. Liliana Mitoşeriu, "Al. I. Cuza" University, Romania
- Prof. Gabriella Borzone, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF GABRIELLA PELLATI,
CONFERRING HER THE TITLE OF**

**RESEARCH DOCTOR IN
SCIENCE AND TECHNOLOGY OF MATERIALS**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Gabriella Borzone)

ACTIVITY REPORT

Research Activity

The research activity was totally carried out at the Department of Chemistry and Industrial Chemistry (University of Genova).

Scientific Publications

Original publications on ISI Journals:

- 1) Firrao, D.; Matteis, P.; Scavino, G.; Ubertalli, G.; Ienco, M. G.; Pellati, G.; Piccardo, P.; Pinasco, M. R.; Stagno, E.; Costanza, G.; Montanari, R.; Tata, M. E.; Brandimarte, G.; Petralia, S., Metal objects mapping after small charge explosions. A study on AISI 304Cu steel with two different grain sizes, *Journal of Forensic Sciences*, **2006**, *51*, 520-531. IMPACT FACTOR (2006): 0.846
- 2) Firrao, D.; Matteis, P.; Scavino, G.; Ubertalli, G.; Ienco, M. G.; Pellati, G.; Piccardo, P.; Pinasco, M. R.; Stagno, E.; Montanari, R.; Tata, M. E.; Brandimarte, G.; Petralia, S., Mechanical twins in 304 stainless steel after small-charge explosions, *Materials Science and Engineering A-Structural Materials Properties Microstructure and Processing*, **2006**, *424*, 23-32. IMPACT FACTOR (2006): 1.490
- 3) Pinasco, M. R.; Ienco, M. G.; Piccardo, P.; Pellati, G.; Stagno, E., Metallographic approach to the investigation of metallic archaeological objects, *Annali Di Chimica*, **2007**, *97*, 553-574. IMPACT FACTOR (2007): 0.700
- 4) Firrao, D.; Matteis, P.; Pozzi, C.; Ienco, M.G.; Pellati, G.; Pinasco, M.R.; Montanari, R.; Tata, M.E., Microstructural modifications in α -brass targets after small charge explosions, *Calphad*, in press. DOI: <http://dx.doi.org/10.1016/j.calphad.2008.09.016>. IMPACT FACTOR (2007): 1.352.

Original publications on non-ISI Journals:

- 1) Pinasco, M.R.; Piccardo, P.; Pellati, G.; Angelini, E.; Rosalbino, F.; Bocchini, G.F., Acciaio sinterizzato trattato a vapore: caratteristiche e proprietà degli strati ossidati, *La Metallurgia Italiana*, **2006**, vol.XCVIII (1).
- 2) Bocchini, G. F.; Ienco, M. G.; Pellati, G.; Pinasco, M. R.; Baggioli, A.; Gerosa, R.; Rivolta, B., Confronto tra caratteristiche di acciai da polveri nominalmente equivalenti sinterizzate a temperatura di 1125°C, *La Metallurgia Italiana*, **2007**, vol.4, Aprile.
- 3) Rivolta, B.; Caironi, G.; Pinasco, M.R.; Pellati, G., The dilatometric analysis for investigating the age hardening behaviour in a commercial precious metal dental alloy, *Journal of ASTM International*, in press.
- 4) Bocchini, G.F.; Ienco, M.G.; Pinasco, M.R.; Pellati, G.; Rivolta, B.; Baggioli, A.; Gerosa, R. Valutazione del grado di diffusione del nichel in sinterizzazione mediante metodi statistici, *La Metallurgia Italiana*, in press

Book chapters:

- 1) Chiarbonello, M.; Firrao, D.; Matteis, P.; Mortarino, G.M.M.; Russo Spena, P.; Scavino, G.; Ubertalli, G.; Ienco, M. G.; Pellati, G.; Pinasco, M.R.; Stagno, E.; Gerosa, R.; Rivolta, B.; Silvestri, A.; Silva, G.; Tavasci, A.; Tata, E.; Missori, S.; Montanari, R.; Ghidini, A., Comparison between traditional and innovative steels for large plastic moulds, *Characterization of Minerals, Metals and Materials - TMS 2007* - editors Gokhale, A.M.; Li, J.; Okabe, T.H.
- 2) Firrao, D.; Matteis, P.; Pozzi, C.; Scavino, G.; Ubertalli, G.; Ienco, M.G.; Pellati, G.; Piccardo, P.; Pinasco, M.R.; Costanza, G.; Montanari, R.; Tata, M.E.; Brandimarte, G.; Petralia, S., Microstructural Modifications after Small Charge Explosions in Aluminum and Copper Targets, In: *Supplemental Proceedings, The Minerals, Metals & Materials Society (TMS) (USA), TMS Annual Meeting & Exhibition, 2008*, vol. 1 (ISBN: 978-0-87339-716-2), pp. 327-332.

Communications at Conferences

Oral communications:

- 1) Pinasco, M.R.; Pellati, G.; Saccone, A.; Macciò, D.; Borzone, G.; Parodi, N.; Ricci, E.; Bottino, C.; Passerone, A. "Caratteristiche metallurgiche di leghe base Ag a resistenza al tarnishing migliorata", *31° Convegno nazionale AIM*, Milano, 22-24/11/2006.
- 2) Pellati, G. "Influenza dei parametri chimici e fisici sulla risposta dei materiali ferrosi alla sinterizzazione e al processo di sinterotempra: correlazione con le proprietà d'impiego", *2° Forum Nazionale dei Giovani Ricercatori di Scienza e Ingegneria dei Materiali*, Genova, 3-5/6/2008.
- 3) Bocchini, G.F.; Ienco, M.G.; Pinasco, M.R.; Pellati, G.; Rivolta, B.; Gerosa, R.; Baggioli, A., "Caratterizzazione microstrutturale di acciai sinterizzati da polveri "diffusion bonded" nominalmente uguali", *32° Convegno Nazionale AIM*, Ferrara, 24-26/9/2008.

Congresses Attended

- 1) *31° Convegno Nazionale AIM*, Milano, 22-24/11/2006.
- 2) *2° Forum Nazionale dei Giovani Ricercatori di Scienza e Ingegneria dei Materiali*, Genova, 3-5/6/2008.
- 3) *32° Convegno Nazionale AIM*, Ferrara, 24-26/9/2008

Courseware

During her doctorate, Gabriella Pellati has acquired 27.25 credits of Courseware.

Courses attended and passed (13 credits)

Courses Given by Teachers of the University of Genova:

- 1) Ceramic materials: catalysts, adsorbents and materials for electronics (3 credits)(2006)
- 2) Fundamentals of scanning and transmission electronic microscopy (3 credits)(2006)

Courses Given by invited experts:

- 1) Symmetry in solids (P. Rogl) (1 credit)(2006)
- 2) Carbon nanotubes: applications in material science and drug delivery (M. Prato) (1 credit)(2007)
- 3) Martensitic transformations (P. Rogl) (1 credit)(2008)

Courses Followed Elsewhere:

- 1) Stainless Steels (4 credits)(coordinated by prof. G. Di Caprio and held in Milano in January, February, June, 2006)

National and International Schools or Workshops (10.25 credits)

- 1) *Workshop on "Sinterotempra"*, organized by Associazione Italiana di Metallurgia, Milano, 31-01-2006 (0.5 credits).
- 2) *Workshop on "Tecnica EBSD"* organized by ASSING S.p.A., Milano, 21-22/3/2006 (1 credit).
- 3) *9th European Intensive Program Physics and Chemistry of Multifunctional Materials IP2006*, Dept. of Chemistry and Industrial Chemistry, Genova, 25/6-9/7/2006 (2 credits).
- 4) *Workshop "Incontro con gli archeomateriali: imparare a riconoscere il sapere, l'uomo e il lavoro che stanno dietro a un reperto"*, Dept. of Chemistry and Industrial Chemistry, Genova, 2/3/2007 (0.25 credits).
- 5) *Course "Deformazione plastica dell'acciaio: Laminazione a caldo e a freddo dei prodotti piani"*, organized by AIM, Milano, 14-15-16-22-23/03/2007 (2 credits).
- 6) *Course "Tribologia"*, organized by AIM, Milano, 29-30/5 and 5-7/6/2007 (2 credits).
- 7) *Workshop "Metallografia e anomalie di fabbricazione e di esercizio"*, Milano, 31/1/2008 (0.5 credits).
- 8) *Workshop "Innovazioni nei sistemi di tempra per ottimizzare le caratteristiche meccaniche"*, Piacenza, 8/4/2008 (0.5 credits).
- 9) *Workshop "Metalli non ferrosi sinterizzati: applicazioni industriali e prospettive"*, Piacenza, 15/4/2008 (0.5 credits).
- 10) *Basic course "L'analisi chimica dei materiali metallici"*, organized by AIM, Milano, 12-13/11/2008 (1 credit)

Seminars Given (2 credits)

The student presented 3 seminars as final test for the 3 attended courses given by internal teachers (see above)

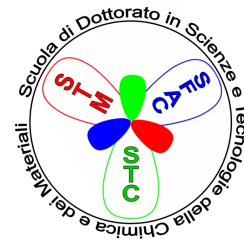
Seminars Attended (2 credits)

- 1) 23/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Stato dell'arte e prospettive della Chimica nelle Scienze Forensi", cap. Adolfo Gregori (Carabinieri, RIS di Parma).
- 2) 4/4/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Chimica e Alimentazione: leggende e miti sfatati dalla Scienza", Prof. Carlo Cannella, Istituto di Scienza dell'Alimentazione, Università "La Sapienza", Roma.
- 3) 15/9/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Intermetallic compounds: new development in electron counting", Prof. Yuri Grin, Max Plank Institute, Dresda
- 4) 30/01/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "NMR di omo- e co-polimeri in soluzione", Prof. Annalaura Segre, CNR Montelibretti (Roma).
- 5) 20/2/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Metallografia per i Beni Culturali: monete argentate ma non d'argento, il caso dei veri falsi", Prof. Paolo Piccardo, DCCI, Genova.
- 6) 4/5/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Energie rinnovabili: materiali e tecnologie per celle a combustibile a carbonati fusi", Dr. Paolo Capobianco, Ansaldo Fuel Cells.
- 7) 16/5/2007, Dept. of Engineering of Constructions, Environment and Territory, Genova, "Ossidi Ceramici per l'Ambiente e le Costruzioni", prof. Dario Beruto, Università di Genova.
- 8) 22/5/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Rapid prototyping: la trasformazione diventa innovativa", Ing. Lanfranco Galter, Technimold srl.
- 9) 5/10/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "From Hamiltonian to microstructure-first principles calculations of a phase diagram and microstructure" Prof. Tetsuo Mohri, Division of Materials Science and Engineering, Graduate School of Engineering, Hokkaido University, Sapporo, JAPAN
- 10) 1/4/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Cinquant'anni giocando ad aprire e chiudere eterocicli", Prof. Domenico Spinelli, Università di Bologna.
- 11) 2/4/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "High pressure high temperature technique as a tool for the synthesis of ceramic materials with transition metals in mixed valence state", Dr. Alberto Ubaldini, Advanced Nano Materials Laboratory, National Institute for Materials Science (NIMS), Tsukuba (Japan).
- 12) 22/4/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "La grande macchina dei suoni: le tecnologie e i materiali degli organi a canne", Prof. Umberto Anselmi Tamburini, Dipartimento di Chimica Fisica, Università di Pavia
- 13) 6/5/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Turbine a gas Ansaldo e cicli combinati", Ing. Marco Provenzano and Raffaele Traverso, Ansaldo Energia.
- 14) 28/5/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Palette per turbine a gas: requisiti funzionali e tecnologie produttive", Emanuela Cordano, Ansaldo Ricerche.

- 15) 10/6/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Studio preclinico in vitro ed in vivo dell'attività antitumorale di nuove molecole a struttura 1,3-butadienica", Dr. Maurizio Viale, Istituto Nazionale per la Ricerca sul Cancro, Genova.
- 16) 30/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Proprietà magnetiche inusuali in composti intermetallici", Prof. Julián G. Sereni, Low Temperature Division, CAB-CONICET, S.C., Bariloche, Argentina.



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
RICO RICOTTI



Doctorate Course:

Science and Technology of Materials

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisors:

Prof. Giacomo Cerisola

Prof. Antonio Turturro

Thesis Title:

*Organic coatings for Naval and Nautical Field: Development of
Protective Systems with High Performances
and Low Environmental Impact*

Defense Date:

March 18, 2009

On March 18, 2009, at the Department of Chemistry and Industrial Chemistry, Rico Ricotti has orally presented his doctorate research work in front of the Commission, formed by

- Prof. Marco Virginio Boniardi, Polytechnic of Milano
- Prof. Liliana Mitoşeriu, "Al. I. Cuza" University, Romania
- Prof. Gabriella Borzone, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF RICO RICOTTI,
CONFERRING HIM THE TITLE OF**

**RESEARCH DOCTOR IN
SCIENCE AND TECHNOLOGY OF MATERIALS**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Gabriella Borzone)

ACTIVITY REPORT

Research Activity

The research activity was totally carried out at the Department of Chemical and Process Engineering "G.B. Bonino" (University of Genova).

Scientific Publications

Original publications on ISI Journals:

- 1) Panizza, M.; Barbucci, A.; Ricotti, R.; Cerisola, G., Electrochemical degradation of methylene blue, *Separation and Purification Technology*, **2007**, 54, 382-387. IMPACT FACTOR (2006): 2.497.
- 2) Sires, I.; Delucchi, M.; Panizza, M.; Ricotti, R.; Cerisola, G., Electrochemical study of self-assembled cysteine monolayers on polycrystalline gold electrodes and functionalization with microperoxidase MP-11, *Journal of applied electrochemistry*, **2009**, in press, DOI 10.1007/s10800-008-9762-5. IMPACT FACTOR (2007): 1.417
- 3) Delucchi, M.; Barbucci, A.; Ricotti, R.; Cerisola, G., Quantitative evaluation of oxide impurities in bright annealed stainless steels for deep drawing, *Journal of applied electrochemistry*, **2009**, in press, DOI 10.1007/s10800-008-9763-4. IMPACT FACTOR (2007): 1.417
- 4) Ricotti, R.; Delucchi, M.; Cerisola, G., A comparison of results from portable and laboratory floor, *International Journal of Industrial Ergonomics*, **2009**, 39, 353-357. IMPACT FACTOR (2007): 0.628

Original publications on non-ISI Journals:

- 1) Delucchi, M.; Castellano, M.; Ricotti, R.; Turturro, A.; Cerisola, G., Resinous coating for ship decks, *Via Mare and Pitture e Vernici*, **2007**, pp. 25-30 and 7-11.
- 2) Ricotti, R.; Delucchi, M.; Cerisola, G., Caratterizzazione fisico-meccanica di stucchi per applicazioni nautiche, *Via Mare*, **2007**, 6, 21-24. and *Pitture e Vernici*, **2008**, 1, 7-11.
- 3) Ricotti, R.; Delucchi, M.; Cerisola, G. Rivestire un calcestruzzo che si fessura, *Pitture e Vernici*, **2008**, 12, 9-13.
- 4) Delucchi, M.; Ricotti, R.; Cerisola, G. "Knowing the time: intercoat adhesion between polyurethane marine coatings and the recoating windows", *European Coating Journal*, **2008**, 3, 44-47.
- 5) Delucchi, M.; Ricotti, R.; Cerisola, G. The importance of adhesion control in crack-bridging measurements, *Journal of Protective Coating and Linings*, **2008**, 29, 51-55.
- 6) Ricotti, R.; Legrottaglie, M.; Cerisola, G. Increasing barrier properties of organic coatings using specific fillers, *European Coating Journal*, **2009**, 3/9, 116-120.

Book chapters:

- 1) Ricotti, R.; Silvagno, V., "Imbarcazioni in Alluminio: protezione e finitura", *Alluminio & il Mare*, Cap 6, pp. 80-87, Ed Edimet S.p.A.

Communications at Conferences

Oral communications:

- 1) Ricotti, R.; Silvagno, V.; "Corrosione e anticorrosione: testing di laboratorio", *SEATEC*, 7/2/2008, Carrara.
- 2) Ricotti, R.; Delucchi, M.; Turri, S.; Cerisola, G. "Caratterizzazione chimico-fisica di poliuretani ionomerici fluorurati", *GEI-ERA 2008*, Genova 15-20/6/2008.

Posters:

- 3) Panizza, M.; Sires, I.; Ricotti, R.; Delucchi, M.; Cerisola, G. "Effetto di differenti self-assembled monolayers per elettrodi funzionalizzati MP-11", *GEI-ERA 2008*, Genova 15-20/6/2008.

Congresses Attended

- 1) *Nanotecnologie nei prodotti vernicianti per l'ambiente: tutto vero? inside Eurocoat 2007*, Genova, 6/11/2007.
- 2) *GEI-ERA 2008*, Genova, 15-20/6/2008.

Courseware

During his doctorate, Rico Ricotti has acquired 24.25 credits of Courseware.

Courses attended and passed (13 credits)

Courses Given by Teachers of the University of Genova:

- 1) Membranes and membrane processes (2 credits)(2006)
- 2) Electrochemistry for environment and energy (3 credits)(2006)
- 3) Vibrational spectroscopy (3 credits)(2006)
- 4) Fundamentals of modern polymer processing (2 credits)(2007)

Courses Given by invited experts:

- 1) Environmental certifications (C. Pasini) (1 credit)(2006)
- 2) Introduction to molecular descriptors (R. Todeschini) (1 credit)(2006)
- 3) Martensitic transformations (P. Rogl) (1 credit)(2008)

National and International Schools or Workshops (7.25 credits)

- 1) XXVII Convegno-Scuola AIM su Leghe e formulati polimerici: miscelazione fisica e reattiva, Gargnano (BS), 2-5/5/2006 (2 credits).
- 2) 4th European Summer School on Electrochemical Engineering, Palic, Serbia, 17-22/9/2006 (2 credits).
- 3) *Workshop "Incontro con gli archeomateriali: imparare a riconoscere il sapere, l'uomo e il lavoro che stanno dietro a un reperto"*, Dept. of Chemistry and Industrial Chemistry, Genova, 2/3/2007 (0.25 credits).
- 4) XXVIII Convegno Scuola "Mario Farina" su "Materiali Polimerici Ibridi e Nanostrutturati", Gargnano (Brescia), 30-4/4-5-2007 (2 credits).
- 5) *La nuova frontiera dei colori micelizzati, metallizzati e perlescenti*, organized by Byk. 8/4/2008, Parma (0.5 credits).
- 6) *La corrosione e la protezione dei materiali in ambiente marino*, Seatec, 7/2/2008, Carrara (0.5 credits).

Seminars Given (2 credits)

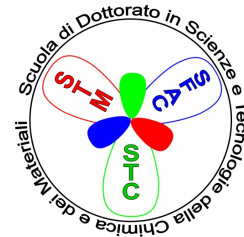
The student presented 4 seminars as final test for the 4 attended courses given by internal teachers (see above)

Seminars Attended (2 credits)

- 1) 7/2/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Nanostructured hybrid organic-inorganic polymers from the introduction of metal-oxo clusters", Prof. Jean François Gerard, Laboratoire des Matériaux Macromoléculaires, Ingénierie des Matériaux Polymères, INSA Lyon.
- 2) 7/2/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Novel nanocomposites based on an epoxy matrix and fumed silica", Dr. Jocelyn Galy, Laboratoire des Matériaux Macromoléculaires, Ingénierie des Matériaux Polymères, INSA Lyon.
- 3) 23/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Stato dell'arte e prospettive della Chimica nelle Scienze Forensi", cap. Adolfo Gregori (Carabinieri, RIS di Parma).
- 4) 16/01/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Prospettive nel ritardo alla fiamma dei materiali polimerici", Prof. Giovanni Camino, del Politecnico di Torino.
- 5) 16/5/2007, Dept. of Engineering of Constructions, Environment and Territory, Genova, "Ossidi Ceramici per l'Ambiente e le Costruzioni", prof. Dario Beruto, Università di Genova.
- 6) 22/5/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Rapid prototyping: la trasformazione diventa innovativa", Ing. Lanfranco Galter, Technimold srl.
- 7) 4/06/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Nanoparticelle e salute: aspetti chimici e morfologici alla base della potenziale pericolosità di materiali particellari sempre più piccoli", Prof. Bice Fubini, Università di Torino.
- 8) 27/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Ultra sensitive Raman measurements in living cells using gold and silver nanoparticles", Anna Giusti.
- 9) 27/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Proprietà di bagnabilità delle superfici solide in sistemi tensioattivi", Eva Santini.
- 10) 23/11/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Simulazione molecolare multiscala: progettazione di materiali polimerici nanostrutturati", Prof. Maurizio Fermeglia, Università di Trieste, .
- 11) 11/12/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Composti intermetallici per applicazioni speciali", Dr. Claudio Boffito and Dr. Alessio Corazza di SAES Getters S.p.A., Lainate (Milano).
- 12) 6/5/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Metallazione regio- e stereoselettiva di eterocicli: utilità sintetica", Prof. Saverio Florio, Università di Bari.
- 13) 10/6/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Studio preclinico in vitro ed in vivo dell'attività antitumorale di nuove molecole a struttura 1,3-butadienica", Prof. Maurizio Viale, Servizio di Terapia Immunologica, Istituto Nazionale per la Ricerca sul Cancro, Genova.
- 14) 26/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Interferenti Endocrini: nuovo pericolo per la salute umana o falso allarmismo?", C. Liscio.
- 15) 26/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Carbon Nanotube: A leading material", P. Waghmare.
- 16) 26/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Crescita di Cristalli Singoli", R. Pasero.



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
ALESSIA ROMUSSI



Doctorate Course:

Pharmaceutical, Food and Cosmetic Sciences

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisor:

Prof. Olga Bruno

Thesis Title:

*Synthesis of new PDE4 selective inhibitors as
potential drugs for neurodegenerative diseases*

Defense Date:

March 13, 2009

On March 13, 2009, at the Department of Pharmaceutical Sciences, Alessia Romussi has orally presented her doctorate research work in front of the Commission, formed by

- Prof. Elisabetta Orlandini, University of Pisa
- Prof. Franco Pattarino, University of Piemonte Orientale "A. Avogadro"
- Prof. Silvia Lanteri, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF ALESSIA ROMUSSI,
CONFERRING HER THE TITLE OF**

**RESEARCH DOCTOR IN
PHARMACEUTICAL, FOOD AND COSMETIC SCIENCES**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Luisa Mosti)

ACTIVITY REPORT

Research Activity

The research activity was mainly carried out at the Department of Pharmaceutical Sciences (University of Genova). However, Alessia Romussi **has also spent a research period of 3 months abroad**, at the Laboratoire de Stéréochimie Dynamique et Chiralité, UMR 6180 Chirotechnologies: Catalyse et Biocatalyse, Université Paul Cézanne, Aix-Marseille III, from October 1 to December 22 2006.

Scientific Publications

Original publications on ISI Journals:

- 1) Bisio, A.; Pagano, B.; Romussi, A.; Bruno, O.; De Tommasi, N.; Romussi, G.; Mattia, C. A., Relative Stereochemistry of a Diterpene from *Salvia cinnabarina*, *Molecules*, **2007**, 12, 2279-2287. IMPACT FACTOR (2006): 0.841.

Communications at Conferences

Oral communications:

- 1) Romussi, A.; Bruno, O.; Brullo, C.; Bondavalli, F.; Ranise, A.; Schenone, S.; Vanthuyne, N.; Roussel, C. "Sintesi ed enantioseparazione di inibitori selettivi di PDE4", 7° *Sigma-Aldrich Young Chemists Symposium (7° SAYCS)*, Riccione, 22-24/10/2007.
- 2) Romussi, A.; Bruno, O.; Brullo, C.; Bondavalli, F.; Schenone, S.; Vanthuyne, N.; Roussel, C. "Synthesis and enantiomer separation of new PDE4 inhibitors as potential drugs in Alzheimer disease", 4° *Journées Franco - Italiennes de Chimie*, Nice, 14-18/4/2008.

Posters:

- 3) Romussi, A., "Synthesis and enantiomer separation of new PDE4 inhibitors as potential drugs in Alzheimer's disease", *European School of Medicinal Chemistry (ESMEC)*, Urbino, 6-11/7/2008.

Congresses Attended

- 1) 7° *Sigma-Aldrich Young Chemists Symposium (7° SAYCS)*, Riccione, 22-24/10/2007.
- 2) 4° *Journées franco-italiennes de chimie*, Université Nice Sophia Antipolis, Nice, 14-18/4/2008.

Courseware

During her doctorate, Alessia Romussi has acquired 26.5 credits of Courseware.

Courses attended and passed (16 credits)

Courses Given by Teachers of the University of Genova:

- 1) Bibliographic and patent search in medicinal chemistry by using on-line databases (3 credits)(2006)
- 2) Asymmetric synthesis (2 credits)(2006)
- 3) Chiral chromatography (3 credits)(2006), followed at the Université Paul Cézanne, Aix-Marseille III.
- 4) Diversity-oriented synthesis (2 credits)(2007)
- 5) Bioinformatics (3 credits)(2007)

Courses Given by invited experts:

- 1) Intellectual property in the fields of Chemical, Medicinal, and Food Science. Patent retrieval in databases and European and International Patents (R. Ferreccio-R. Osella) (1 credit)(2007)
- 2) Search for potential drugs: examples in the oncological realm (T. Bandiera) (1 credit)(2007)
- 3) Combinatorial chemistry applied to pharmacologically relevant molecules (E.Felder) (1 credit)(2007)

National and International Schools or Workshops (6.5 credits)

- 1) *European School of Medicinal Chemistry (ESMEC)*, Urbino, 2-7/7/2006 (2 credits)
- 2) *European School of Medicinal Chemistry (ESMEC)*, Urbino, 1-6/7/2007. (2 credits)
- 3) *European School of Medicinal Chemistry (ESMEC)*, Urbino, 6-11/7/2008 (2 credits)
- 4) *BIO&PHARMA DAY*, Milano, 1/10/2008 (0.5 credits).

Seminars Given (2 credits)

- 1) 7-11-2008, Dept. of Pharmaceutical Sciences, Genova, "Configurazione assoluta: sguardo sui metodi chimico-fisici per la sua determinazione, contributo dell'HPLC chirale, un caso di studio di alcol secondario e suoi derivati".

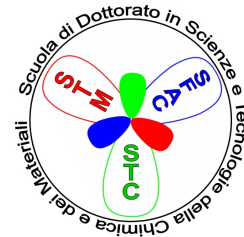
Seminars Attended (2 credits)

- 1) 29/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Patologie conformazionali proteiche: il ruolo dell'ambiente", Prof. Enrico Rizzarelli, Università di Catania.

- 2) 4/4/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Chimica e Alimentazione: leggende e miti sfatati dalla Scienza", Prof. Carlo Cannella, Direttore dell'Istituto di Scienza dell'Alimentazione, Università "La Sapienza" Roma.
- 3) 7/4/2006, Dept. of Pharmaceutical Sciences, Genova, "E' possibile prevedere in silico il metabolismo dei farmaci?", Prof. Bernard Testa, university of Lausanne.
- 4) 25/9/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Non Linear Dynamics of Protein Folding", Prof. Bernard S Gerstman, Florida International University, Miami, Florida.
- 5) 16/01/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Prospettive nel ritardo alla fiamma dei materiali polimerici", Prof. Giovanni Camino, del Politecnico di Torino.
- 6) 20/02/07, Dept. of Chemistry and Industrial Chemistry, Genova, "La metallografia per i Beni Culturali: monete argentate ma non d'argento, il caso dei veri falsi", Dr. Paolo Piccardo.
- 7) 17/4/2007, Dept. of Pharmaceutical Sciences, Genova, "Il sistema endocannabinoide nel controllo del dolore e dell'ansia", Prof. Daniele Piomelli, Louise Turner Arnold Chair in the Neurosciences, Professor of Pharmacology and Biological Chemistry and Director of the Center for Drug Discovery-University of California, Irvine CA.
- 8) 27/4/2007, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Farmacovigilanza: esperienza in un ospedale pediatrico", dott.ssa C. Bianchi.
- 9) 10-5-2007, Dept. of Pharmaceutical Sciences, Genova, "L'evoluzione del processo analitico nel laboratorio di analisi cliniche", Dr. Roberto Massacane.
- 10) 21/5/2007, Dept. of Experimental Medicine, Genova, "Genetic and Pharmacological Dissection of the Roles of the Endocannabinoid System in the Brain", Giovanni Marsicano, Research Centre INSERM, Francois Magendie Université, Bordeaux.
- 11) 14/06/2007, Dept. of Chemistry and Pharmaceutical and Food Technologies, "Recenti acquisizioni nello studio chimico biologico di metaboliti secondari di origine vegetale", Prof. Nunziatina De Tommasi, Dipartimento di Scienze Farmaceutiche, Università di Salerno.
- 12) 26/09/07, Dept. of Chemistry and Industrial Chemistry, Genova, "Click Chemistry", D.ssa Anna Mumot.
- 13) 26/09/07, Dept. of Chemistry and Industrial Chemistry, Genova, "Le Cicloaddizioni di Diels-Alder e 1,3-dipolari", Dr. Ennio Zunino.
- 14) 3/12/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "The Tool Box for Medicinal Chemists: Past Present Future", Dr. Agnes Bombrun (Head of the Chemistry Department of Merck Serono - Switzerland)
- 15) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Introduzione alla spettroscopia NIR", Prof. E. Tamburini, Università di Ferrara
- 16) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "La spettroscopia NIR nell'industria farmaceutica", Dr. S. Lonardi, consultant, Verona.
- 17) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Controllo NIR, dal ricevimento merci al prodotto finito", Dr. G. Campolongo, Büchi Italia
- 18) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Spettroscopia NIR e chemiometria, P. Oliveri.
- 19) 13/3/2008, Dept. of Pharmaceutical Sciences, Genova, "Presentazione SciFinder Scholar", Dr. Heidran Waldhoff.
- 20) 11/4/2008, Polo Alberti, Genova, "Targeting the chaperone Hsp90 for the treatment (but not only) of cancer", Prof. Stefano Moro, Università di Padova.
- 21) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "L'approccio computazionale nella Chimica Farmaceutica: cenni teorici ed applicazioni pratiche", E. Cichero.
- 22) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Derivati cumarinici con potenziale attività antivirale verso il virus dell'epatite C", M. Giampieri.
- 23) 24/11/2008, Dept. of Pharmaceutical Sciences, Genova, "The Challenge of Neural Lipidomics", Prof. Daniele Piomelli, Louise Turner Arnold Chair in the Neurosciences, Professor of Pharmacology and Biological Chemistry and Director of the Center for Drug Discovery-University of California, Irvine CA.



UNIVERSITÀ DEGLI STUDI DI GENOVA
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PH.D. CERTIFICATE
OF
ANGELA SIAS



Doctorate Course:

Pharmaceutical, Food and Cosmetic Sciences

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisor:

Prof. Giuseppe Paglietti

Prof. Michele Palomba

Thesis Title:

*Synthesis of Triazololo[4,5-g]quinolines and
Pyrido[3,2-g]quinoxalines as Intercalating Agents
Potentially Endowed with Anticancer and Antimicrobial
Activities*

Defense Date:

March 13, 2009

On March 13, 2009, at the Department of Pharmaceutical Sciences, Angela Sias has orally presented her doctorate research work in front of the Commission, formed by

- Prof. Elisabetta Orlandini, University of Pisa
- Prof. Franco Pattarino, University of Piemonte Orientale "A. Avogadro"
- Prof. Silvia Lanteri, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF ANGELA SIAS,
CONFERRING HER THE TITLE OF**

**RESEARCH DOCTOR IN
PHARMACEUTICAL, FOOD AND COSMETIC SCIENCES**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Luisa Mosti)

ACTIVITY REPORT

Research Activity

The research activity was totally carried out at the Department of Medicinal and Toxicological Chemistry (University of Sassari).

Scientific Publications

Original publications on ISI Journals:

- 1) Carta, A.; Sias, A.; Piras, S.; Paglietti, G., Reactions of alkylation of biologically interesting triazolo[4,5-g]quinolines and triazolo[4,5-g]quinoline-1-oxides with electrophilic reagents, *Heterocycles*, **2008**, 75, 2493-2505. IMPACT FACTOR (2007): 1.066

Original publications on non-ISI Journals:

- 1) Pricl, S.; Ferrone, M.; Posocco, P.; Fermeglia, M.; Sanna, G.; Collu, G.; La Colla, P.; Loddo, R.; Sias, A.; Piras, S.; Carta, A., Chasing the Evaders. Design, Synthesis, Activity and Molecular Modeling of a New Small Molecule with Activity Against Drug-Resistant HIV-1 mutants, *Global Antiviral Journal*, **2006**, 2(suppl. 2), 63.

Communications at Conferences

Posters:

- 1) Carta, A.; Giua, C.; Piras, S.; Sias, A.; Loriga, G.; Paglietti, G. "Sintesi di nuove 6,7-diamminochinoline quali intermedi per la preparazione di molecole ad attività biologica", *SardiniaChem2006*, Cagliari, 5/6/2006. Atti: P09.
- 2) Carta, A.; Palomba, M.; Piras, S.; Sias, A.; Mollicotti, P.; Cannas, S.; Zanetti, S. "Triazolochinoloni. Una nuova classe di agenti antitubercolari attivi su ceppi MDR di M. tuberculosis", *XVIII Convegno Nazionale della Divisione di Chimica Farmaceutica della Società Chimica Italiana*, Chieti, 16-20/9/2007. Atti: P30.
- 3) Corona, P.; Sias, A.; Piras, S.; Palomba, M.; Carta, A., "4,7-fenantrolina, una nuova classe di inibitori della polimerasi di RNA-virus", *SardiniaChem 2008*, Sassari, 30/5/2008.

Congresses Attended

- 1) *SardiniaChem 2006*, Cagliari, 5/6/2006.
- 2) 6° S.A.Y.C.S: *Sigma Aldrich Young Chemists Symposium*, Riccione, 9-11/10/2006,
- 3) *XVIII Convegno Nazionale della Divisione di Chimica Farmaceutica della Società Chimica Italiana*, Chieti, 16-20/9/2007.
- 4) *SardiniaChem 2008*, Sassari, 30/5/2008.

Courseware

During her doctorate, Angela Sias has acquired 20 credits of Courseware.

Courses attended and passed (14 credits)

Courses Given by Teachers of the University of Genova or of the University of Sassari

- 1) Bibliographic and patent search in medicinal chemistry by using on-line databases (3 credits)(Genova, 2006)
- 2) Advanced Medicinal Chemistry *Chimica Farmaceutica Avanzata* (2 credits)(Sassari, 2006)
- 3) Pharmaceutical Technologies and Regulatory Activities (2 credits)(Sassari, 2006)
- 4) Organic chemistry in biological systems (2 credits)(Sassari, 2007)
- 5) Stage on NMR spectroscopy (held at the CNR Research Centre at Porto Conte) (2 credits)(Sassari, 2007)

Courses Given by invited experts:

- 1) Forensic chemistry (A. Gregori) (1 credit)(2006)
- 2) Anti-infective market: is there still room? (D. Jabes, Sassari) (1 credit)(2007)
- 3) Synthesis and Scaffold Decoration of Heterocycles Using High-Speed Microwave Chemistry. (O. Kappe, Sassari) (1 credit)(2008)

National and International Schools or Workshops (4 credits)

- 1) *European School of Medicinal Chemistry (ESMEC)*, Urbino, 2-7/7/2006 (2 credits)
- 2) *European School of Medicinal Chemistry (ESMEC)*, Urbino, 1-6/7/2007. (2 credits)

Seminars Given (2 credits)

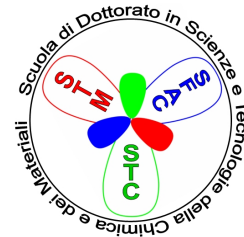
- 1) 19-11-2008, Sassari, "Sintesi ed attività biologica di triazolo[4,5-g]chinoline, imidazo[4,5-g]chinoline e pirido[3,2-g]chinossaline".

Seminars Attended (2 credits)

- 1) 24/5/2006, Sassari, "Development and Evaluation of Implantable Formulations of Antibiotic Incorporated Biodegradable Microspheres for Treatment of Osteomyelitis in Orthopaedical Applications", Prof. Sema Calis, Hacettepe University, ANKARA
- 2) 26/10/2006, Sassari, "From fever tree in Peru' to chiral catalyst in chemistry: 375 year-old history of the antimalarial drug quinine", Prof. Joseph Gal, Colorado University (USA).
- 3) 27/10/2006, Sassari, "Il DNA antico: problemi e prospettive", Prof. Assumpció Malgosa, Universidad Autonoma de Barcelona.
- 4) 24/11/2006, Sassari, "Complessi del rutenio per il controllo della malignità dei tumori", Prof. Gianni Sava, Università di Trieste and Fondazione Callerio.
- 5) 14/2/2007, Sassari, "Protein structure and function in the time-domain of vibrational spectroscopies", Dr. Augusto Marcelli, Laboratori Nazionali di Frascati, INFN.
- 6) 22/2/2007, Sassari, "Fattori predittivi di evoluzione dell'AIDS. Il trasferimento dei dati della ricerca di base alla biochimica clinica ", Prof. Giuseppe Piedimonte, Dipartimento di Biomorfologia e Biotecnologie, Università di Messina.
- 7) 16/3/2007, Sassari, "Role of S-Adenosyl-L-Methionine In Liver Health and Injury", Prof. José M. Mato, Metabolomics Unit Technological Park of Bizkaia (Spain).
- 8) 20/4/2007, Sassari, "Cristallochimica e proprietà delle zeoliti: dall'assorbimento selettivo alla catalisi eterogenea", Prof. Alberto Alberti, Università di Ferrara and Dr. Ilaria Braschi, Università di Bologna.
- 9) 27/4/2007, "Novel Nanostructured Hydride Composites: Hydrogen Storage Materials for Zero-Emission Car", Prof. Rüdiger Bormann, Hamburg University of Technology and Institute for Materials Research of GKSS Research Centre, Geestacht (Germany).
- 10) 21/5/2007, Sassari, "Le piante come Biofattorie di prodotti Farmaceutici", Prof. Marcello Nicoletti, Università "La Sapienza", Roma.
- 11) 24/5/2007, Sassari, "How Should a good brain drug look like?", Dr. Jan Kehler, Medicinal Chemistry Research H. Lundbeck, Valby-Copenhagen.
- 12) 11/6/2007, Sassari, "Malattia di Alzheimer: meccanismi patogenetici ed approccio terapeutico", Prof. Giancarlo Pepeu, Università di Firenze.
- 13) 8/10/2007, Sassari, "Asymmetric Catalysis: Synthesis of Chiral Tertiary Alcohols", Prof. Miguel Yus, University of Alicante, Spagna.
- 14) 18/10/2007, Sassari, "Alla ricerca di elementi stereogenici non-convenzionali per il disegno di leganti chirali per la catalisi omogenea stereoselettiva: le tris-arilfosfine e i fosfinossidi residui a simmetria C₃", Prof. Francesco Sannicolò, Università di Milano.
- 15) 24/1/2008, Sassari, "Genome evolution in pathogenic bacteria: the paradigm of Helicobacters and Mycobacteria", Dr Niyaz Ahmed, Center of DNA Fingerprinting Diagnostics, Hyderabad (India).
- 16) 29/1/2008, Porto Conte Ricerche (Tramariglio), "Studio dell'interazione di composti naturali con cellule tumorali e modelli di membrane cellulari che mimano i sistemi "rafts" con particolare attenzione alla molecola di colesterolo", Dr. Cristiano Giordani.
- 17) 9/5/2008, Porto Conte Ricerche (Tramariglio) "Monitoraggio biochimico-metabolico in vivo ad alta risoluzione spaziale e temporale: microdialisi, microsensori, biosensori e biotelemetria", Prof. Pier Andrea Serra, Università degli Studi di Sassari.
- 18) 12/5/2008, Porto Conte Ricerche (Tramariglio), "Struttura e attività di un inibitore di Bowman-Birk estratto da semi di lenticchia (*Lens culinaris*)", Prof. Enzo M. Ragg, Facoltà di Agraria, Università di Milano.
- 19) 12/5/2008, Porto Conte Ricerche (Tramariglio), "Illumina: tecnologie per SNP genotyping nello studio delle malattie complesse", Dr. Mita Mancini, Illumina Italia.
- 20) 14/5/2008, I.C.B., Sassari, "Novel natural products and their anti-oxidant, anti-inflammatory and anti-hypertensive activities", Prof. Parmar, Delhi University and University of Southern Denmark.
- 21) 15/5/2008, Porto Conte Ricerche (Tramariglio), "Technology Transfer of Biosimilars", Dr. Sergio Tisminetzky, International Centre for Genetic Engineering and Biotechnology (ICGEB, Trieste).
- 22) 28/5/2008, Porto Conte ricerche (Tramariglio), "New Delivery Challenges: Nanocarriers for the Delivery of siRNA and Vaccines". Prof. Oya Alpar, The School of Pharmacy, University of London.
- 23) 23/9/2008, Sassari, "Microwave-Assisted Organic Synthesis - A Tutorial", Prof. Oliver Kappe, Christian Doppler Laboratory for Microwave Chemistry (CDLMC), Graz University.
- 24) 20/10/2008, Sassari, "I Funghi Superiori: un laboratorio naturale di chimica e farmacologia", Prof. Paola Vita Finzi, Università degli Studi di Pavia.



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
ROSSANA STEFANI



Doctorate Course:

Pharmaceutical, Food and Cosmetic Sciences

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisor:

Prof. Sergio Cafaggi

Thesis Title:

Studies on nanoparticulate systems, based on natural polymers, for dosage forms designed for controlled delivery of Cisplatin

Defense Date:

March 13, 2009

On March 13, 2009, at the Department of Pharmaceutical Sciences, Rossana Stefani has orally presented her doctorate research work in front of the Commission, formed by

- Prof. Elisabetta Orlandini, University of Pisa
- Prof. Franco Pattarino, University of Piemonte Orientale "A. Avogadro"
- Prof. Silvia Lanteri, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF ROSSANA STEFANI
CONFERRING HER THE TITLE OF**

**RESEARCH DOCTOR IN
PHARMACEUTICAL, FOOD AND COSMETIC SCIENCES**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Luisa Mosti)

ACTIVITY REPORT

Research Activity

The research activity was mainly carried out at the Dept. of Chemistry and Pharmaceutical and Food Technologies (University of Genova). However, Rossana Stefani has also spent a research period of 3 months abroad working, under the supervision of prof. Dolores Torres and Dr. Francisco M. Goycoolea, at the Department of Pharmacy and Pharmaceutical Technology of the University of Santiago de Compostela (Spain), from 14/10/2007 to 30/1/2008.

Scientific Publications

Original publications on ISI Journals:

- 1) Cafaggi, S.; Russo, E.; Stefani, R.; Leardi, R.; Caviglioli, G.; Parodi, B.; Bignardi, G.; De Toter, D.; Aiello, C.; Viale, M., Preparation and evaluation of nanoparticles made of chitosan or N-trimethyl chitosan and a cisplatin-alginate complex, *Journal of Controlled Release*, **2007**, 121, 110-123. IMPACT FACTOR (2007): 4.76.
- 2) Cafaggi, S.; Russo, E.; Caviglioli, G.; Parodi, B.; Stefani, R.; Sillo, G.; Leardi, R.; Bignardi, G., Poloxamer 407 as a solubilising agent for tolfenamic acid and as a base for a gel formulation, *Eur J Pharm Sci*, **2008**, in press, doi: 10.1016/j.ejps.2008.05.010. IMPACT FACTOR (2007): 3.127.

Communications at Conferences

Posters:

- 1) Cafaggi, S.; Caviglioli, G.; Parodi, B.; Russo, E.; Stefani, R.; Bignardi, G. "Nanoparticles Formed by Interaction of Poly-L-Lysine or Chitosan with Polycarboxylic Polymers Complexed with Cisplatin", *5th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology*, Geneve (Switzerland), 27-30/3/2006.
- 2) Cafaggi, S.; Russo, E.; Stefani, R.; Caviglioli, G.; Parodi, B.; Viale, M.; Bignardi, G. "Preparation And Evaluation Of N-Trimethyl Chitosan/Alginate Nanoparticles Containing Cisplatin Complexed With Alginate", *XX Simposio ADRITELF*, Catania 4-7/10/2006.
- 3) Russo, E.; Stefani, R.; Cafaggi, S.; Caviglioli, G.; Parodi, B.; Bignardi, G.; Viale, M.; Cordazzo, C. "A new carrier for cisplatin: nanoparticles deriving from the interaction between n-trimethyl glycol chitosan and poly-l-glutamate", *1th Conference on "Innovation in drug delivery: from biomaterials to devices"*, Napoli, 30/9-3/10/2007.
- 4) Russo, E.; Stefani, R.; Parodi, B.; Caviglioli, G.; Aiello, C.; Viale, M.; Cafaggi, S.; Bignardi, G., "Cisplatin delivery: a study on a cisplatin / hyaluronate complex and nanoparticles formed by its interaction with n-trimethyl chitosan", *6th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology*, Barcelona, 7-10/4/2008

Congresses Attended

- 1) *5th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology*, Geneve (Switzerland), 27-30/3/2006.
- 2) *1th Conference on "Innovation in drug delivery: from biomaterials to devices"*, Napoli, 30/9-3/10/2007.
- 3) *6th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology*, Barcelona, 7-10/4/2008.

Courseware

During her doctorate, Rossana Stefani has acquired 25.5 credits of Courseware.

Courses attended and passed (16 credits)

Courses Given by Teachers of the University of Genova:

- 1) Innovative pharmaceutical dosage forms: preparation and control methods (2 credits)(2006)
- 2) Instrumental techniques for trace elements determination in pharmaceuticals, food products and environmental samples (2 credits)(2006)
- 3) Experimental design (3 credits)(2006)
- 4) Fundamentals of scanning and transmission electronic microscopy (3 credits)(2007)
- 5) NMR spectroscopy in the characterization of synthetic polymers (2 credits)(2007)

Courses Given by invited experts:

- 1) Environmental certifications (C. Pasini) (1 credit)(2006)
- 2) Forensic chemistry (A. Gregori) (1 credit)(2006)
- 3) Intellectual property in the fields of Chemical, Medicinal, and Food Science. Patent retrieval in databases and European and International Patents (R. Ferreccio-R. Osella) (1 credit)(2007)
- 4) Self-assembly and hierarchical microstructures: The principles of Nature for the design of materials (J.P. Rigueiro) (1 credit)(2008)

National and International Schools or Workshops (6.5 credits)

- 1) *6^o School for Ph.D. students for advanced formation in Pharmaceutical Technologies*, Arcavacata di Rende (Cosenza), 9-15/9/2006 (2 credits).

- 2) *School of Experimental Design*, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, 21-28/9/2006 (2 credits).
- 3) *Workshop on "Innovazione e sviluppi delle forme farmaceutiche orali a rilascio modificato"*, Università del Piemonte Orientale, Novara, 10/11/2006 (0.5 credits).
- 4) *7° School for Ph.D. students for advanced formation in Pharmaceutical Technologies*, Arcavacata di Rende (Cosenza), 8-14/9/2007 (2 credits).

Seminars Given (2 credits)

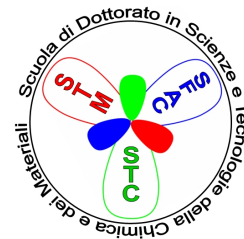
- 1) 7-11-2008, Dept. of Pharmaceutical Sciences, Genova, "Sistemi gelificanti in situ per applicazioni biomediche".

Seminars Attended (1 credit)

- 1) 2/11/2006, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Multivariate in, Multivariate out. What, why and how?", Tormod Naes, Matforsk, Oslo.
- 2) 27-4-2007, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Farmacovigilanza: esperienza in un ospedale pediatrico", dr. C. Bianchi.
- 3) 15-2-2008, oDept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "La spettroscopia NIR nell'industria farmaceutica", Dr. S. Lonardi, consultant, Verona.
- 4) 15-2-2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Controllo NIR, dal ricevimento merci al prodotto finito", Dr. G. Campolongo, Büchi Italia
- 5) 15-2-2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, Spettroscopia NIR e chemiometria, P. Oliveri.
- 6) 7-11-2008, Dept. of Pharmaceutical Sciences, Genova, "Green Chemistry e sviluppo sostenibile", B. Trucchi.



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
BEATRICE TRUCCHI



Doctorate Course:

Pharmaceutical, Food and Cosmetic Sciences

Start of the Doctorate Program:

January 1, 2006

End of the Doctorate Program:

December 31, 2008

Advisors:

Prof. Emilia Mariani

Dr. Carla Villa

Thesis Title:

Green Cosmetic Chemistry: ecosustainable products and processes and study of natural botanic derivatives

Defense Date:

March 13, 2009

On March 13, 2009, at the Department of Pharmaceutical Sciences, Beatrice Trucchi has orally presented her doctorate research work in front of the Commission, formed by

- Prof. Elisabetta Orlandini, University of Pisa
- Prof. Franco Pattarino, University of Piemonte Orientale "A. Avogadro"
- Prof. Silvia Lanteri, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF BEATRICE TRUCCHI,
CONFERRING HER THE TITLE OF**

**RESEARCH DOCTOR IN
PHARMACEUTICAL, FOOD AND COSMETIC SCIENCES**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Luisa Mosti)

ACTIVITY REPORT

Research Activity

The research activity was mainly carried out at the Department of Pharmaceutical Sciences (University of Genova). However, Beatrice Trucchi has also spent a research period of 6 months abroad working, under the supervision of Prof. Royce Mohan, at Department of Ophthalmology and Visual Sciences, University of Kentucky-Lexington, USA, from 02/01/2007 to 02/07/2007.

Scientific Publications

Original publications on non-ISI Journals:

- 1) Villa, C.; Trucchi, B.; Gambaro, R.; Baldassari, S., Green procedure for the preparation of scented alcohols from carbonyl compounds, *International Journal of Cosmetic Science*, **2008**, *30*, 139-144.
- 2) Villa, C.; Trucchi, B.; Bertoli, A.; Pistelli, L.; Parodi, A.; Bassi, A.M.; Ruffoni, B., *Salvia somalensis* essential oil as a potential cosmetic ingredient: solvent-free microwave extraction, hydrodistillation, GC-MS analysis, odour evaluation and *in vitro* cytotoxicity assays, *International Journal of Cosmetic Science*, **2009**, *31*, 55-61.

Communications at Conferences

Posters:

- 1) Mariani, E.; Villa, C.; Baldassari, S.; Trucchi, B.; Caponetti, E.; Chillura Martino, D.; Saladino, M. S., "Tensioattivi gemini: nuovi prodotti e nuove procedure per una chimica sostenibile", *33° Congresso Nazionale SICC, Società Italiana di Chimica e Scienze Cosmetologiche, Comunicazione e Comunicazioni*, Milano, 8/11/2007.
- 2) Trucchi, B.; Mariani, E.; Villa, C., "Green Chemistry procedures for the synthesis of Gemini Surfactants", *Summer School on Green Chemistry*, Venezia, 17/10/2008.

Congresses Attended

- 1) *32° Congresso Nazionale SICC, Società Italiana di Chimica e Scienze Cosmetologiche*, Milano, 16/11/2006.
- 2) *33° Congresso Nazionale SICC, Società Italiana di Chimica e Scienze Cosmetologiche, Comunicazione e Comunicazioni*, Milano, 8/11/2007.
- 3) *A.It.U.N. -Italian University Network- annual meeting 2008, Towards the development of drug delivery systems*, Perugia, 7-8/3/2008.

Courseware

During her doctorate, Beatrice Trucchi has acquired 29.5 credits of Courseware.

Courses attended and passed (16 credits)

Courses Given by Teachers of the University of Genova:

- 1) Bibliographic and patent search in medicinal chemistry by using on-line databases (3 credits)(2006)
- 2) Main plants used in Phytocosmetics and their constituents (2 credits)(2006)
- 3) Instrumental techniques for trace elements determination in pharmaceuticals, food products and environmental samples (2 credits)(2006)
- 4) Experimental design (3 credits)(2008)
- 5) Innovative pharmaceutical dosage forms: preparation and control methods (2 credits)(2008)

Courses Given by invited experts:

- 1) Role of medicinal chemistry in the preclinical drug discovery process (P. Pevarello) (1 credit)(2006)
- 2) Environmental certifications (C. Pasini) (1 credit)(2006)
- 3) Search for potential drugs: examples in the oncological realm (T. Bandiera) (1 credit)(2007)
- 4) Combinatorial chemistry applied to pharmacologically relevant molecules (E.Felder) (1 credit)(2007)

National and International Schools or Workshops (9.5 credits)

- 1) *Prodotti cosmetici Obiettivo sicurezza*, Milano, 26/1/2006 (0.5 credits).
- 2) *Scuola GIMAMP, Gruppo Italiano Microonde Applicate ai Materiali ed ai Processi*, Palermo, 23-24/5/2006 (1 credit).
- 3) *Etnocosmesi e Relazioni internazionali: i nuovi mercati*, Ferrara, 16/6/2006 (0.5 credits).
- 4) *Scuola di Experimental Design*, Genova, 18-21/9/2006 (2 credits).
- 5) *Tecnologia ed Applicazioni nello Sviluppo di Prodotti di Origine Vegetale*, Arcavacata di Rende (Cosenza), 8-14/9/2007 (2 credits)
- 6) *Role of medicinal chemistry in the preclinical drug discovery process*, Dept. of Pharmaceutical Sciences, Genova, 2/11/2007 (0.5 credits).
- 7) *Itinerari cosmetici: The fragrance experience*, Milano, 7/04/2008 (0.5 credits)
- 8) *BIO&PHARMA DAY*, Milano, 1/10/2008 (0.5 credits).
- 9) *Summer School on Green Chemistry 10th Edition*, Venezia, 12-18/10/2008 (2 credits)

Seminars Given (2 credits)

- 1) 7-11-2008, Dept. of Pharmaceutical Sciences, Genova, "Green Chemistry e sviluppo sostenibile".

Seminars Attended (2 credits)

- 1) 23/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Stato dell'arte e prospettive della Chimica nelle Scienze Forensi", cap. Adolfo Gregori (Carabinieri, RIS di Parma).
- 2) 4/4/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Chimica e Alimentazione: leggende e miti sfatati dalla Scienza", Prof. Carlo Cannella, Istituto di Scienza dell'Alimentazione, Università "La Sapienza" Roma.
- 3) 27/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Proprietà di bagnabilità delle superfici solide in sistemi tensioattivi", Eva Santini.
- 4) 5/10/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "From Hamiltonian to microstructure-first principles calculations of a phase diagram and microstructure" Prof. Tetsuo Mohri, Division of Materials Science and Engineering, Graduate School of Engineering, Hokkaido University, Sapporo, JAPAN
- 5) 3/12/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "The Tool Box for Medicinal Chemists: Past Present Future", Dr. Agnes Bombrun (Head of the Chemistry Department of Merck Serono - Switzerland)
- 6) 12/2/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Supramolecular chirality and photomodulation of properties of amorphous and liquid crystal polymers obtained by ATRP", Dr. Loris Giorgini, Università di Bologna.
- 7) 13/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Introduction to the Three-Way Principal Component Analysis", Prof. Rasmus Bro.
- 8) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Introduzione alla spettroscopia NIR", Prof. E. Tamburini, Università di Ferrara
- 9) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "La spettroscopia NIR nell'industria farmaceutica", Dr. S. Lonardi, consultant, Verona.
- 10) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, "Controllo NIR, dal ricevimento merci al prodotto finito", Dr. G. Campolongo, Büchi Italia
- 11) 15/2/2008, Dept. of Chemistry and Pharmaceutical and Food Technologies, Genova, Spettroscopia NIR e chemiometria, P. Oliveri.
- 12) 13/3/2008, Dept. of Pharmaceutical Sciences, Genova, "Presentazione SciFinder Scholar", Dr. Heidrun Waldhoff.
- 13) 1/4/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Cinquant'anni giocando ad aprire e chiudere eterocicli", Prof. Domenico Spinelli, Università di Bologna.
- 14) 2/4/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "High pressure high temperature technique as a tool for the synthesis of ceramic materials with transition metals in mixed valence state", Dr. Alberto Ubaldini, Advanced Nano Materials Laboratory, National Institute for Materials Science (NIMS), Tsukuba (Japan).
- 15) 11/4/2008, Polo Alberti, Genova "Targeting the chaperone Hsp90 for the treatment (but not only) of cancer", Prof. Stefano Moro, Dipartimento di Scienze Farmaceutiche, Università di Padova.
- 16) 6/5/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Metallazione regio- e stereoselettiva di eterocicli: utilità sintetica", Prof. Saverio Florio, Università di Bari.
- 17) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "L'approccio computazionale nella Chimica Farmaceutica: cenni teorici ed applicazioni pratiche", E. Cichero.
- 18) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Derivati cumarinici con potenziale attività antivirale verso il virus dell'epatite C", M. Giampieri.
- 19) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Configurazione assoluta: sguardo sui metodi chimico-fisici per la sua determinazione, contributo dell'HPLC chirale, un caso di studio di alcol secondario e suoi derivati", A. Romussi.
- 20) 7/11/2008, Dept. of Pharmaceutical Sciences, Genova, "Sistemi gelificanti in situ per applicazioni biomediche", R. Stefani.
- 21) 24/11/2008, Dept. of Pharmaceutical Sciences, Genova, "The challenge of neural lipidomics", Prof. Daniele Piomelli, Louise Turner Arnold Chair in the Neurosciences, Professor of Pharmacology and Biological Chemistry and Director of the Center for Drug Discovery-University of California, Irvine CA.



UNIVERSITÀ DEGLI STUDI DI GENOVA
*DOCTORATE SCHOOL IN
SCIENCES AND TECHNOLOGIES OF
CHEMISTRY AND MATERIALS*



PH.D. CERTIFICATE
OF
PANJAB WAGHMARE



Doctorate Course:
Chemical Sciences and Technologies
Start of the Doctorate Program:
January 1, 2006
End of the Doctorate Program:
December 31, 2008

Advisors:
Prof. Saverio Russo
Dr. Orietta Monticelli

Thesis Title:
Synthesis and Characterization of Nanostructured Polymer Films

Defense Date:
March 20, 2009

On March 20, 2009, at the Department of Chemistry and Industrial Chemistry, Panjab Waghmare has orally presented his doctorate research work in front of the Commission, formed by

- Prof. Marino Petrini, University of Camerino
- Prof. Roger Fuoco, University of Pisa
- Prof. Antonio Turturro, University of Genova

The written Dissertation had been previously sent to the Commission members. After careful examination of the Dissertation, of the student's oral presentation, of the overall activity of the student during the three years of doctorate studies, the Commission

**HAS APPROVED THE THESIS OF PANJAB WAGHMARE,
CONFERRING HIM THE TITLE OF**

**RESEARCH DOCTOR IN
CHEMICAL SCIENCES, AND TECHNOLOGIES**

Genova, March 20, 2009

The Director of the Doctorate School
(Prof. Luca Banfi)

The Coordinator of the Doctorate Course
(Prof. Luca Banfi)

ACTIVITY REPORT

Research Activity

The research activity was totally carried out at the Department of Chemistry and Industrial Chemistry (University of Genova).

Scientific Publications

Original publications on ISI Journals:

- 1) Monticelli, O.; Waghmare, P.; Chincarni, A., On the preparation and application of novel PVDF-POSS systems, *Journal of Materials Science, online*, **2009**, *in press*. DOI: 10.1007/s10853-009-3281-6. Available online at <http://www.springerlink.com/content/c305706032120nx6/fulltext.pdf>. IMPACT FACTOR (2007): 1.081.

Communications at Conferences

Posters:

- 1) Waghmare, P. B., "Synthesis and characterization of hybrid membranes", *EUPOC 2008- Europolymer conference, Advanced polymeric materials for the energy resources exploitation: Synthesis, Properties and Applications*, Gargnano, 1-5/6/2008, P54, 125.
- 2) Monticelli, O.; Fina, A.; Waghmare, P.; Ullah, A.; Zunino, E.; Carniato, F.; Boccaleri, E.; Russo, S. "Nanocomposites Based on POSS and Me-POSS", *XVII Congresso Nazionale di Chimica Industriale. Energia, materiali e prodotti da tecnologie e processi eco-sostenibili*, Genova, Italy, 30/6-3/7/2008, POL-P0..
- 3) Waghmare, P.; Ullah, A. "Synthesis and Characterization of films based on Poly (styrene-co-maleic anhydride) (PSMA) and Amino POSS", *2° Forum Nazionale dei Giovani Ricercatori su Materiali Polimerici e Biomateriali*, INSTM, Genova, 4-5/7/2008.

Congresses Attended

- 1) *Second Young Polymer Scientists Conference e Sixth Short Course on Nanostructured Polymer Materials: from Chemistry to Applications*, Terni, 13-15/04/2008.
- 2) *Advanced Polymeric Materials for the Energy Resources Exploitation (EUPOC 2008)*, 1-5/06/2008, Gargnano (BS).
- 3) *XVII Congresso Nazionale di Chimica Industriale. Energia, materiali e prodotti da tecnologie e processi eco-sostenibili*, Genova, Italy, 3/7/2008.(only one day attendance) and *2° Forum Nazionale dei Giovani Ricercatori su Materiali Polimerici e Biomateriali*, 4-5/7/2008, GENOVA.

Courseware

During his doctorate, Panjab Waghmare has acquired 22.35 credits of Courseware.

Courses attended and passed (18 credits)

Courses Given by Teachers of the University of Genova:

- 1) Fundamentals of soft matter (3 credits)(2006)
- 2) Fundamentals of scanning and transmission electronic microscopy (3 credits)(2006)
- 3) NMR spectroscopy in the characterization of synthetic polymers (2 credits)(2007)
- 4) Dendritic macromolecules: synthesis and reactivity (2 credits)(2007)
- 5) Fundamentals of modern polymer processing (2 credits)(2007)
- 6) Introduction to Bionanotechnology (1 credit) (2007).

Courses Given by invited experts:

- 1) Crystallographic studies by neutron diffraction (F. Sacchetti) (1 credit)(2006)
- 2) Synchrotron radiation applications to material science (R. Felici) (1 credit)(2006)
- 3) Imaging, Assembling, And Modification Of Nanostructured Materials By High Resolution Scanning Probes (M. Szymanski) (1 credit)(2007)
- 4) Carbon nanotechnologies: Fullerenes and nanotubes (M. Prato) (1 credit)(2007)
- 5) Upscale of active principles production: from laboratory to industrial technology transfer (P. Gatti) (1 credit)(2007)

National and International Schools or Workshops (0.35 credits)

- 1) *Workshop "Incontro con gli archeomateriali: imparare a riconoscere il sapere, l'uomo e il lavoro che stanno dietro a un reperto"*, Dept. of Chemistry and Industrial Chemistry, Genova, 2/3/2007 (0.25 credits).
- 2) *Workshop "Process-Related Structures and Properties of Crystallizable Polymers"*, Dept. of Chemistry and Industrial Chemistry, Genova, 7/3/2007(0.1 credits).

Seminars Given (2 credits)

- 1) 26/09/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Carbon Nanotube: A leading material".

Seminars Attended (2 credits)

- 1) 23/3/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Stato dell'arte e prospettive della Chimica nelle Scienze Forensi", cap. Adolfo Gregori (Carabinieri, RIS di Parma).
- 2) 4/4/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Chimica e Alimentazione: leggende e miti sfatati dalla Scienza", Prof. Carlo Cannella, Istituto di Scienza dell'Alimentazione, Università "La Sapienza", Roma.
- 3) 6/4/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "X-ray scattering of nanostructured soft matter films", Prof. Wim H. de Jeu, FOM-Institute for Atomic and molecular Physics (AMOLF) Amsterdam.
- 4) 25/5/2006, Dept. of Chemistry and Industrial Chemistry, Genova, "Gas Diffusion in Polimethacrylates, Copolymethacrylates and Polymethacrylate-based Materials", Dr. Pilar Tiemblo, Instituto de Ciencia y Tecnología de Polímeros, Consejo Superior de Investigaciones Científicas, Madrid, Spain.
- 5) 30/01/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "NMR di omo- e co-polimeri in soluzione", Prof. Annalaura Segre, CNR, Montelibretti (Roma).
- 6) 14/3/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Cavitands at work: from molecular recognition to supramolecular polymers", Prof. Enrico Dalcanale, Università di Parma.
- 7) 11/4/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Phase Behaviour of polymer blends. From nanophase separation to predictions", Dr. Valeria Arrighi, Heriot-Watt University, Edinburgh (UK).
- 8) 14/5/2007, Dept. of Physics, Genova, "X-ray and neutron scattering: methods and examples", Dr. Olivier Plantivin, European Synchrotron Radiation Facility.
- 9) 22/5/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Rapid prototyping: la trasformazione diventa innovativa", Ing. Lanfranco Galter, Technimold srl.
- 10) 4/06/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Nanoparticelle e salute: aspetti chimici e morfologici alla base della potenziale pericolosità di materiali particellari sempre più piccoli", Prof. Bice Fubini, Università di Torino.
- 11) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Click Chemistry", D.ssa Anna Mumot.
- 12) 26/9/2007, Dept. of Chemistry and Industrial Chemistry, Genova, "Le Cicloaddizioni di Diels-Alder e 1,3-dipolari", Dr. Ennio Zunino.
- 13) 12/2/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Supramolecular chirality and photomodulation of properties of amorphous and liquid crystal polymers obtained by ATRP", Dr. Loris Giorgini, Università di Bologna.
- 14) 13/03/08, Dept. of Chemistry and Industrial Chemistry, Genova, "New materials for rapid prototyping.", Dr. Alfonso maffezzoli, Università di Lecce.
- 15) 1/4/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Cinquant'anni giocando ad aprire e chiudere eterocicli", Prof. Domenico Spinelli, Università di Bologna.
- 16) 2/4/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "High pressure high temperature technique as a tool for the synthesis of ceramic materials with transition metals in mixed valence state", Dr. Alberto Ubaldini, Advanced Nano Materials Laboratory, National Institute for Materials Science (NIMS), Tsukuba (Japan).
- 17) 26/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Interferenti Endocrini: nuovo pericolo per la salute umana o falso allarmismo?", C. Liscio.
- 18) 26/9/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Crescita di Cristalli Singoli", R. Pasero.
- 19) 1/12/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Reazioni Tandem IEDHDA (Inverse Electron Demand Hetero-Diels-Alder) e cicloaddizioni 1,3-dipolari di nitroalcheni", M. Maccagno.
- 20) 1/12/2008, Dept. of Chemistry and Industrial Chemistry, Genova, "Sensori Chimici", P. Lecinska.