CURRICULUM VITAE et STUDIORUM, **Antonella SALVINI, UNIFI**

PERSONAL INFORMATION

Family name: SALVINI First name: Antonella
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- **EDUCATION**

1991 **PhD degree in Chemical Sciences**, Curriculum Organic Chemistry at the University of Florence, Italy. Title of the Research doctorate thesis "Organic substrate activation from ruthenium carbonyl carboxylates containing phosphinic ligands".

1987 **Master's Degree** in Chemistry, Faculty of Mathematical, Physical and Natural Sciences, University of Florence, Italy (110 cum laude /110). Thesis title: "Reactivity and catalytic activity of ruthenium carbonyl carboxylates".

- **CURRENT POSITION**

2002 – today Associate Professor of Industrial Chemistry (SSD CHIM/04), Department of Chemistry "Ugo Schiff" (ex Department of Organic Chemistry), University of Florence, Italy.

- **PREVIOUS POSITIONS**

1991 – 2002 Researcher of Industrial Chemistry SSD C04X (now CHIM/04), Faculty of Mathematical, Physical and Natural Sciences, Department of Organic Chemistry, University of Florence, Italy

- **FELLOWSHIPS AND AWARDS**

1987 Award of degree in Chemistry "Prof. Giovanni Speroni" between the graduated ones in Chemistry in Academic Year 1985/86 at the University of Florence.

- **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

1991 – present **5** Postdocs/ **5** PhD/ > **80** Master Students (40 II° level, 45 I° level, 81 Faculty/School of Mathematical, Physical and Natural Sciences, 4 Faculty of Agriculture), University of Florence / Italy.

- **TEACHING ACTIVITIES**

1991 – 1998 **Professor** of the *Laboratory of Organic Chemistry I*, Master Degree course in Chemistry, University of Florence, Italy.

1998 – 2003 **Professor** of the *Safety*, I level degree course, bachelor's degree, in Applied Chemistry, University of Florence, Italy.

2001 – 2005 **Professor** of the *Industrial Organic Chemistry (laboratory)*, Master Degree course in Chemical Sciences, University of Florence, Italy.

2002 – 2006 **Professor** of the *Chemistry, bonding and finishing of wood*, I level degree course, bachelor's degree, in Wood technology, University of Florence, Italy.

2005 – 2010 **Professor** of the *Industrial Chemistry III*, Master Degree course in Chemical Sciences, University of Florence, Italy.

1990 – present **Professor** of the *Materials Chemistry I*, I level degree course, bachelor's degree, in

Diagnostics and Materials for Conservation, University of Florence, Italy.

1990 – present **Professor** of the *Chemistry and technology of polymeric materials*, Master Degree course in Chemical Sciences, University of Florence, Italy.

1990 – present **Professor** of the *Chemistry and technology of polymeric materials*, Master Degree course in Sciences and materials for cultural Heritage conservation, University of Florence, Italy.

2015 – present **Professor** of the *Industrial syntheses of organic compounds*, Master Degree course in Chemical Sciences, University of Florence, Italy.

Other teaching activities: Teaching activity in Graduate schools, and Doctorate courses on Science of Cultural Heritage at the University of Florence.

- **RESEARCH ACTIVITY**

1983 – 2018 ***Scientific production***: **61** papers on Peer Review International high qualified Scientific Journals, **8** articles on international and national Scientific Journals or books series and chapters in books, **1** International Patent, **1** National Patent patents, **> 100** Abstracts to Congresses, Conferences, and Meetings.

Fields of Interest and Expertise

• Biomass valorization for fuel and chemicals production.
• Studies in the field of the homogenous and biphasic catalysis.
• NMR and FTIR spectroscopy.
• Synthesis and characterization of "core-shell" polymer-based nanoparticles.
• Synthesis and characterization of new polymers for their use as adhesives.
• Study of new polymers for preservation of wood and cellulose-based artifacts.
• Synthesis and characterization of new polymers for their use as stone protective agents.
• Study of the deterioration of several materials of the cultural heritage as wood or painting binding.

The ***scientific activity*** started in 1985 in the Laboratory of Industrial Chemistry at the Department of Organic Chemistry of the University of Florence. It was initially focalized on the studies in the field of the "homogenous catalysis" being interested in particular to the reactivity of complexes of metals of VIII the group (Ru, Co) and to their employment in the organic substrate activation in hydrogenation or hydroformylation reactions.
In the following years, several new ruthenium complexes with phosphorus or nitrogen containing ligands were synthesised and used as homogeneous catalysts. The behaviour and the catalytic activity of these complexes was analysed and the mechanism of the reaction was hypothesised.
Several catalytic reactions (hydrogenation, hydroformylation, isomerization, hydrodesulfurization) were studied using different ruthenium, rhodium or cobalt complexes. In situ HP FT-IR technique and additional gases were used to obtain some information on the intermediate species and on the reaction mechanism.
The behaviour and the catalytic activity of some mononuclear complexes containing different phosphinic ligands were studied for their use in homogenous and biphasic catalysis.
The synthesis of new materials, having specific characteristics for their use as protective agents for stone conservation or for their use on the wood and cellulose-based artifacts conservation, were studied. The spectroscopic techniques (FT-IR and solid, liquid NMR) have been used to study the deterioration of several materials of the cultural heritage as wood or painting binding.
Adhesives formulations were studied to observe their transformations in the bonding processes and to designe new adhesives. New polymers capable to bond wood's surfaces were synthesized and characterized.
Recently, the attention has been focused on biorefinery processes and in particular on biomass valorization for fuel and chemicals production. New transesterification processes of triglycerides for the BioDiesel production from exhausted oils have been investigated. New biopolymers have been synthesized and characterized starting from different kind of renewable resources for their use in the field of cultural heritage conservation. Synthesis and characterization of "core-shell" biopolymer-based nanoparticles have been also performed.

Partecipation in supported research projects

Collaboration with several Companies on research projects to the optimization of polymeric formulations, new materials and innovation processes.
♣ Projects funded by companies: Cray Valley S.r.l., Eli Lilly Italia S.p.A., RADICI GROUP S.p.A, ENI S.p A., COLOROBBIA ITALIA S.p.a., Vinavil S.p.A., Polynt S.p.A., Suolificio Hilton S.r.l., Verinlegno S.p.A.,

ITALCALCO S.r.l., Idea Decalcomania S.r.l., Maggi Engineering S.r.l., Goppion S.p.A., Valmet Plating S.r.l., Ciesse S.p.A., Artigiancarta S.r.l., Mineraria ligure S.r.l..

♣ Projects funded by Regione Toscana: project REICA "Rete di supporto all'Innovazione per la filiera della Camperistica" in collaboration with Trigano S.p.A., Espansi Tecnici s.r.l. and Tecnowall s.r.l.; Project "REGINA (REcupero dei Glicoli IN Autodemolizione)" in collaboration with "Progetto Ecosoluzioni srl".

♣ Project funded by Fondazione Ente Cassa di Risparmio di Firenze "Processi sostenibili di bioraffineria per la valorizzazione di scarti agro-alimentari e biomasse algali verso la produzione di biomateriali e biofuels."

- **ORGANISATION OF SCIENTIFIC MEETINGS**

2006 **Member** of the Local Organizing Committee of the "SCI2006, XXII Congresso Nazionale della Società Chimica Italiana", Firenze (Italy) 10-15 Giugno 2006.

2012 **Member** of the Scientific Committee and the Organizing Committee of the "XVIII Congresso Nazionale della Divisione di Chimica Industriale della Società Chimica Italiana", Firenze (Italy) 11-14 Giugno 2012.

2016 **Member** of the Organizing Committee of the "4° Workshop Nazionale GRUPPO INTERDIVISIONALE GREEN CHEMISTRY- CHIMICA SOSTENIBILE" Firenze (Italy) 10 Giugno 2016.

- **INSTITUTIONAL RESPONSIBILITIES**

2008-2015 **Member** of the Board of the Doctorate Course in "Science for Conservation of Cultural Heritage", of the University of Firenze

2009-2010 **Coordinator** of the PhD Course in "Science for Conservation of Cultural Heritage", of the University of Firenze

2010-2014 **President** of the University Degree Course in Diagnostics and Materials for Conservation (I Level Master Degree) and Sciences and materials for cultural Heritage conservation (II Level Master Degree) at the University of Florence.

2013-2017 **Member** of the Board of the Doctorate Course in Chemical Sciences, University of Florence, Italy.

From 2015 **President** of OpenLab Centre for scientific education and science communication and popularization of the University of Florence

2007-2012
and from 2016 **Member** of the board of Division of Industrial Chemistry of the Italian Chemical Society.

- **COMMISSIONS OF TRUST**

2013 – present Reviewer for *Carbohydrate Polymers, Journal of Applied Polymer Science;*

- **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

1989 – present **Associate Member** of the Società Chimica Italiana; Industrial chemistry and Chemistry of the environment and cultural heritage divisions; Green Chemistry-Sustainable Chemistry, Safety and Catalysis groups.

- **MAJOR COLLABORATIONS**

Prof. Piero Frediani (35 papers), Prof. Mario Bianchi (21 papers) and Prof. Franco Piacenti (20 papers) University of Florence, Italy, on catalytic activity of complexes of metals of VIII the group (Ru, Co); Prof. Alberto Brandi (4 papers and 2 patents) and Prof. Donatella Giomi (7 papers and 2 patents), University of Florence, Italy, on biomass valorization for fuel and chemicals production; Prof. Marco Fioravanti (4 papers) University of Florence, Italy, on New Products for Wood Conservation; Dr Werner Oberhauser (3 papers), CNR-ICCOM, Italy, on catalysis and High-pressure (HP) NMR investigations; Mara Camaiti (3 papers), CNR-IGG (Institute of Geosciences and Earth Resources), Italy, on Fluorinated Oligoamide for stone conservation.

- **BIBLIOMETRIC INDICES:**

	Scopus	ISI Web Science
Results found	61	61
Sum of the Times Cited	696	621
Average Citations per Item	11.41	10,18
h-index	17	16

- **LIST OF SOME OF THE MOST RELEVANT PUBLICATIONS:**

"Cellulose as a renewable resource for the synthesis of wood consolidants" G. Cipriani, A. Salvini, P. Baglioni, E. Bucciarelli, *J. Appl. Polym. Sci.* **118** 2939 (2010). DOI 10.1002/app.32634 (2010).

"Synthesis of mofified poly(vinyl acetate) adhesives" A. Salvini, L. M. Saija, M. Lugli, G. Cipriani, C. Giannelli, *J. of Adhes. Sc. And Tech.,* **24** 1629 (2010).

"Sustainable formation of fatty acid alkyl esters by transesterification of triglycerides with chlorotrimethylsilane" A. Salvini, D. Giomi, G. Cipriani, G. Bartolozzi, R. Alfini, A. Brandi, *RSC Adv.*, **2**, 4864-4868 (2012), DOI: 10.1039/C2RA20558K.

"Synthesis of Hydroxylated Oligoamides for Their Use in Wood Conservation" G. Cipriani, A. Salvini, M. Fioravanti, G. Di Giulio, M. Malavolti, *J. Appl. Polym. Sci*. (2013), 127(1), 420-431, **2012**, DOI: 10.1002/app. 37678.

"Water Soluble Trehalose-Derived Oligoamides" R. Oliva, F. Albanese, G. Cipriani, F. Ridi, D. Giomi, M. Malavolti, L. Bernini, A. Salvini, *Journal of Polymer Research* (2014) 21:496 DOI 10.1007/s10965-014-0496-2.

"TiO2-Oligoaldaramide nanocomposites as efficient core-shell systems for wood preservation" R. Oliva, A. Salvini, G. Di Giulio, L. Capozzoli, M. Fioravanti, C. Giordano, B. Perito, *J. Appl. Polym. Sci*. **2015**, DOI: 10.1002/APP.42047.

"Transesterification of castor oil with trimethylchlorosilane: simultaneous formation of fatty acid alkyl esters and α-monochlorohydrin" M. Malavolti, A. Brandi, A. Salvini, D. Giomi, *RSC Adv.*, 2015, 5, 77341-77347.

"One-pot oligoamides syntheses from L-lysine and L-tartaric acid, R. Oliva, M.A. Ortenzi, A. Salvini, A. Papacchini, D. Giomi, *RSC Adv*., 2017, 7, 12054-12062.

Oligoamide grafted with perfluoropolyether blocks: A potential protective coating for stone materials, Y. Cao, A. Salvini, M. Camaiti, 2017, *Progress in Organic Coatings*, 111, 164-174.

"An Environmental Friendly Fluorinated Oligoamide for Producing Nonwetting Coatings with High Performance on Porous Surfaces", M. Camaiti, L. Brizi, V. Bortolotti, A. Papacchini, A. Salvini, P. Fantazzini, *ACS APPLIED MATERIALS & INTERFACES*, 2017, 9, 37279-37288

"Conservation of Paleontological Finds: the Restoration Materials of the "Problematica Verrucana"", L. Colli, A. Salvini, E. Pecchioni, S. Cencetti, *SUBSTANTIA*, 2017, 1, 63-73.

"Facile design of "sticky" near superamphiphobic surfaces on highly porous substrate", Y. Cao, A. Salvini, M. Camaiti, *Materials and Design*, 2018,

"Modified α,α′-trehalose and d-glucose: Green monomers for the synthesis of vinyl copolymers", A. Papacchini, M. R. Telaretti Leggieri, L. Zucchini, M. A. Ortenzi, F. Ridi, D. Giomi, A. Salvini, *Royal Society Open Science*, 2018.

Firenze 1-10-2018 *Prof. Antonella Salvini*