

CURRICULUM VITAE

FORMATO EUROPEO/EUROPEAN FORMAT



INFORMAZIONI PERSONALI/ PERSONAL INFORMATION

Nome, Cognome/Name, Surname	Luca, Valentini
Indirizzo/Address	Working address: Strada di Pentima 4, 05100 Terni - Italy
Via, numero civico, c.a.p., città, nazione/ House number, street name, postcode, city, country	
Telefono/Telephone	Office: +39 0744 492924; Mobile: 3391206192; 3346153275
Fax	+39 0744492913
E-mail	luca.valentini@unipg.it
Sito web/Website	http://www.unipg.it/materials
Nazionalità/Nationality	Italy
Luogo e data di nascita/ Place and Date of birth	Città di Castello (Perugia – Italy) 18/06/1970

ESPERIENZA PROFESSIONALE /WORK EXPERIENCE

In ordine di data /Dates (from – to)

[Iniziare con le più recenti ed elencare separatamente ciascun incarico ricoperto/ Add separate entries for each relevant post occupied, starting with the most recent.]

Teaching activities at undergraduate - Teaching history

- 2009-2014 Assistant Professor of the courses of Materials Science and Technology (4 credits).
- 2009-2012 Assistant Professor of the courses of Materials Science and Technology (9 credits) and of Nanostructured Materials (6 credits).
- 2007 - 2009 Assistant Professor of the courses of Polymer Science and Technology and of Nanostructured Materials (6 credits).
- 2005-2006 Lectureship in Polymer Technology I and II at University of Perugia;
- 2004-2005 Lectureship in Polymer Technology at University of Perugia;

- 2004-2005 Lectureship for the European Master in Nanotechnologies of Polymer Materials at University of Perugia;
- 2003-2004 Lectureship in "Surface treatments" for the Academic Master At the University of Perugia;
- 2003-2004 Lectureship in Polymer Technology I and II at University of Perugia;
- 2002-2003 Lectureship in Polymer Technology I and II at University of Perugia;

Career at University of Perugia and roles in the organization Career advancement at University of Perugia (last 10 years)

- 2014 National scientific qualification to function as associate professor in Italian Universities for Materials Science and Technology sector.
- 2006-present Permanent Faculty as Confirmed Assistant Professor at the Civil and Environmental Engineering Department of the University of Perugia
- 2005-2006 Researcher of the National Consortium of Materials Science and Technology (INSTM).
- 2003 – 2005 Post-doctoral Fellow
- 2002 – 2003 Post-doctoral Fellow

Nome e indirizzo del datore di lavoro
/ Name and address of employer

University of Perugia, Piazza Università 1, 06123 Perugia - Italy

Tipo o settore di attività / Type of
business or sector

Education. Scientific area: Materials Science, Polymer Science and Technology

Funzione o posto occupato /
Occupation or position held

Assistant Professor

Principali mansioni e responsabilità /
Main activities and responsibilities

Research and development

ISTRUZIONE E FORMAZIONE / EDUCATION AND TRAINING

In ordine di data /Dates (from – to)

[Iniziare con le più recenti ed
elencare separatamente ciascun
corso frequentato con successo/ Add
separate entries for each relevant
course you have completed, starting
with the most recent.]

- 2002 – PhD in Materials Science Engineering at University of Naples (Italy) with the thesis *"Role of dopants elements in the formation of carbon based thin films by plasma enhanced chemical vapour deposition"*
- 1997 – M. Sc. in Physics

Nome e tipo d'istituto di istruzione o
formazione / Name and type of
organisation providing education and
training

M. Sc. In Physics at the University of Perugia, Faculty of Engineering
Ph. D. at the University of Naples "Federico II", Faculty of Engineering

International Standings.

He was involved in international scientific collaboration as following reported:

- CEA LLB Centre of Saclay (France) where he performed research activity in neutron reflectivity of thin films;
- CSEM of Neuchatel (Switzerland) where he performed research activity on the tribological properties of thin films;
- European Centre of Nuclear Research (CERN) of Geneva where he performed research activity on barrier effects of thin film on polymer substrate.

Role in PhD Committee

- 2014: University of Roma "La Sapienza" valuator of PhD in "Materials Science" Academic year 2014 - Cycle: 26 - Duration: 3 years.
- 2013: University of PERUGIA PhD in "Civil Engineering and Innovative Materials" Academic year 2013 - Cycle: XXIX - Duration: 3 years.
- 2009: University of PERUGIA PhD in "Nanotechnology" Academic year 2009 - Cycle: XXV - Duration: 3 years.
- 2008: University of PERUGIA PhD in "Nanotechnology" Academic year 2008 - Cycle: XXIV - Duration: 3 years.

Lectures to PhD School

- Lecture to Summer School "NEW TRENDS IN PLASTICS ENGINEERING" - 9-11 Luglio 2013 INSA School Balignat - France.
- Lecture to 18a AIMAT School Advances in Materials Sciences and Technologies, Ischia 11 - 15 July 2012 "Flexible Photovoltaic Textiles for Smart Applications".
- Lecture to Second Young Polymer Scientists Conference and Sixth Short Course on Nanostructured Polymer Materials: from Chemistry to Applications TERNI – ITALY April 13-15, 2008.

Role in Committee for PhD defenses

- January 2012 Reviewer for the Licentiate Thesis in Polymer Technology, KTH Chemical Science and Engineering, Stockholm, Sweden. Candidate Michaela Salajkova.
- July 2011 Reviewer for the PhD Thesis at Departamento Ciencia e Ingeniería de Materiales, ESCET, Universidad Rey Juan Carlos, Madrid, Spain. Candidate Ruben Chaos Moran.
- February 2011 PhD at Industrial Engineering, University of Perugia, Italy. Candidate Marta Cardinali.
- February 2010 PhD at Industrial Engineering, University of Perugia, Italy. Candidate Silvia Bittolo Bon.
- February 2009 PhD at Industrial Engineering, University of Perugia, Italy. Candidate Diego Bagnis.
- February 2008 PhD at Industrial Engineering, University of Perugia, Italy. Candidate Francesco Mengoni.

High level international Awards and invitation as a speaker to Conferences

- 2007 Invited speaker at INTERNATIONAL SYMPOSIUM: nanoscience and nanotechnology 2007 - 15-16 October 2007. "Nanotubes based composites".
- 2006 Invited speaker at 4th International Dielectric Society and 9th International Conference Dielectric and Related Phenomena 3-7 September 2006 Poznan, Poland. "Dielectric relaxation mechanism of

- single-walled carbon nanotubes epoxy composites".
- 2008 Invited speaker at European Materials Research Society 2008 Fall Meeting 15-19 September 2008 Warsaw, Poland. "Polymer nanocomposites from functionalized carbon nanotubes".
 - 2008 Front cover of the journal Nanotechnology for the article "Realization of Porous Poly(methyl methacrylate) Films Filled with Electrodeposited Carbon Nanotubes", L. Valentini, S. Bittolo Bon, J. M. Kenny, Nanotechnology 19 (2008) 295301.
 - 2011 Invited Speaker at the Multidisciplinary and Multisectorial European Workshop on Synthesis, Characterization and Technological Exploitation of Graphene - Gran Sasso National Laboratories Italy: "Incorporation of reduced graphene oxide sheets into organic media for the realization of conducting and photoresponsive nanocomposites".
 - 2011 Invited Speaker at the II° International Workshop on characterization, properties and application of nanostructured ceramics, polymers and composites Belgrade Serbia: "Graphene Polymer Nanocomposites for Optoelectronic Applications".
 - 2012 Invited Speaker at NanoBelgrade 2012, Belgrade Serbia: "Emerging methods for producing graphene based nanocomposites".
 - 2013 Invited Speaker at the workshop "New trends in the research of carbon based nanomaterials", from the 22nd until the 23rd of April 2013, Bucharest - Romania.
 - 2013 Front cover of the journal J. Polym. Science Part B: Polymer Physics for the article "Liquid Droplet Excitation of Freestanding Poly(methylmethacrylate)/Graphene Oxide Films for Mechanical Energy Harvesting" L. Valentini, S. Bittolo Bon, J. Kenny, J. Polym. Science Part B: Polymer Physics (2013).
 - 2014 Invited speaker at EMN Open Access Week Meeting - Sept.22-25, 2014 Chengdu, China.

**ATTIVITA' DI RICERCA /
RESEARCH ACTIVITIES**

One specific activity focus on photo- and electroactive polymers, nanocomposites and their low-molecular-weight analogues. Physical phenomena, such as electrical conductivity, photoconductivity and transport of charge carriers are investigated in dependence on the chemical structure of the materials. Actually the research is aimed to gain understanding in the field of transparent and conductive coatings based on carbon-based – nanotubes and graphene – ensembles and construction of nanostructured thin films for optoelectronics. In the last years he is particularly interested in the composition, assembly, and charge-separation in polymer nanocomposites.

He is involved in the development of technologies for graphene tailoring into dispersions, inks and films with desired structure and properties to meet the requirements of different applications from the point of view of scalability in industrial production.

A. Functionalization strategy was developed to enhance the inherent and flake-to-flake properties of graphene according to the needs of specific applications. Covalent and adsorption based modification of graphene and its derivatives with different molecules has been provided.

B. Ink formulation and printing. Printing is the most potential large scale fabrication method for thin films based on graphene powders. Raw materials has been dispersed and combined with binders to generate easily printable graphene inks.

C. Technologies for graphene transfer has been developed for high conductivity. Scalable transfer processes have been developed, including the development of fast and cost efficient transfer printing and hot press transferring methods.

Luca Valentini is author of **135 publications** in international journals with citation index and **30 as h-index** (Web of Science®), **4 chapters** in printed books and several publications in international conferences.

Sum of the Times Cited: 3052

Sum of the Times Cited without self-citation: 2902

Average Citations per Item: 22,61

H-index: 30

Recent Papers

2010

96. "Selective deposition of semiconducting single-walled carbon nanotubes onto amino-silane modified indium tin-oxide surface for the development of poly(3-hexylthiophene)/carbon-nanotube photovoltaic heterojunctions" L. Valentini, M. Cardinali, J. M. Kenny, Carbon 48 (2010) 861.
97. "Use of Butylamine Modified Graphene Sheets in Polymer Solar Cells" L. Valentini, M. Cardinali, S. Bittolo Bon, D. Bagnis, R. Verdejo, M. A. Lopez-Manchado, J. M. Kenny, J. Mater. Chem. 20 (2010) 995.
98. "Mapping of carbon nanotubes in the polystyrene domains of a polystyrene-b-polyisoprene-b-polystyrene block copolymer matrix using electrostatic force microscopy" L. Peponi, A. Tercjak, J. Gutierrez, M. Cardinali, I. Mondragon, L. Valentini, J. M. Kenny, Carbon 48 (2010) 2590.
99. "Morphology and Photoelectrical Properties of Solution Processable Butylamine Modified Graphene and Pyrene-Based Organic Semiconductor" S. Bittolo Bon, L. Valentini, R. M. Moustafa, F. M. Jradi, B. R. Kaafarani, R. Verdejo, M. A. Lopez-Manchado, J. M. Kenny, J. Phys. Chem. C 114 (2010) 11252.
100. "Preparation of extended alkylated graphene oxide conducting layers and effect study on the electrical properties of PEDOT:PSS polymer composites" S. Bittolo Bon, L. Valentini, J. M. Kenny, Chem. Phys. Lett. 494 (2010) 264.
101. "Electrodeposition of transparent and conducting graphene/carbon nanotube thin films" S. Bittolo Bon, L. Valentini, J. M. Kenny, L. Peponi, R. Verdejo, M. A. Lopez-Manchado, Physica Status Solidi A 207 (2010) 2461.
102. "Stimuli-Responsive Polymer Hydrogels Containing Partially Exfoliated Graphite" V. Alzari, A. Mariani, O. Monticelli, L. Valentini, D. Nuvoli, M. Piccinini, S. Scognamillo, S. Bittolo Bon, J. Illescas, J. Polymer Sci. Part A: Polymer Chem. 48 (2010) 5375.

2011

103. "Transparent and conductive graphene oxide-polyethylenglycol diacrylate coatings obtained by photopolymerization" M. Sangermano, S. Marchi, L. Valentini, S. Bittolo Bon, P. Fabbri, Macromolecular Materials and Eng. 296 (2011) 401.
104. "High Concentration Few-layer Graphene Sheets Obtained by Liquid Phase Exfoliation of Graphite in Ionic Liquid" D. Nuvoli, L. Valentini, V. Alzari, S. Scognamillo, S. Bittolo Bon, M. Piccinini, J. Illescas, A. Mariani, J. Mater. Chem. 21 (2011) 3428.
105. "Formation of Unzipped Carbon Nanotubes by CF₄ Plasma Treatment" L. Valentini, Diamond and Related Materials 20 (2011) 445.
106. "Electric Field Assisted Thermal Annealing Reorganization of Graphene Oxide/Polystyrene Latex Films" S. Bittolo Bon, L. Valentini, J. M. Kenny, Express Polymer Lett. 5 (2011) 819.
107. "Radiofrequency plasma assisted exfoliation and reduction of large area graphene oxide platelets produced by a mechanical transfer process" M. Cardinali, L. Valentini, P. Fabbri, J. M. Kenny, Chem. Phys. Lett. 508 (2011) 285.
108. "Wettability and switching of electrical conductivity in UV irradiated graphene oxide films" S. Bittolo Bon, M. Piccinini, A. Mariani, J. M. Kenny, L. Valentini, Diamond and Related Materials 20 (2011) 871.
109. "A new terpyridine tethered polythiophene: electrosynthesis and characterization" P. Manca, M. I. Pilo, G. Casu, S. Gladiali, G. Sanna, R. Scanu, N. Spano, A. Zucca, C. Zanardi, D. Bagnis, L. Valentini, J. Polymer Sci. Part A: Polymer Chem. 49 (2011) 3513.
110. "Anisotropic electrical transport properties of graphene nanoplatelets/pyrene composites by electric field assisted thermal annealing" M. Cardinali, L. Valentini, J. M. Kenny, J. Phys. Chem. C 115 (2011) 16652.

2012

111. "Processing and functionalization effect in CNF/PMMA nanocomposites" H. Varela-Rizo, S. Bittolo-Bon, I. Rodriguez-Pastor, L. Valentini, I. Martin-Gullon, *Composites: Part A* 46 (2012) 711.
112. "Preparation and characterization of poly (butylene terephthalate)/graphene composites by in-situ polymerization of cyclic butylene terephthalate" P. Fabbri, E. Bassoli, S. Bittolo Bon, L. Valentini, *Polymer* 53 (2012) 897.
113. "Graphene based composites prepared through exfoliation of graphite platelets in methyl methacrylate/poly(methylmethacrylate)" M. Cardinali, L. Valentini, J. M. Kenny, I. Mutlay, *Polymer International* 61 (2012) 1079.
114. "Deposition of amino-functionalized polyhedral oligomeric silsesquioxanes on graphene oxide sheets immobilized onto amino-silane modified silicon surface" L. Valentini, S. Bittolo Bon, O. Monticelli, J. M. Kenny, *J. Mater. Chem* 22 (2012) 6213.
115. "POSS vapor grafting on graphene oxide film" Luca Valentini, Silvia Bittolo Bon, Marta Cardinali, Orietta Monticelli, José M. Kenny, *Chem. Phys. Lett.* 537 (2012) 84.
116. "A photoresponsive hybrid nanomaterial based on graphene and polyhedral oligomeric silsesquioxanes" L. Valentini, M. Cardinali, J. M. Kenny, M. Prato, O. Monticelli, *European Journal of Inorganic Chemistry* (2012) in press.
117. "Light induced change in conductivity of graphene oxide films patterned by metal masks" L. Valentini, M. Cardinali, J. M. Kenny, *Functional Materials Letters* 5 (2012) 1250034.
118. "Emerging methods for producing graphene oxide composites in coatings with multifunctional properties" L. Valentini, S. Bittolo Bon, J. M. Kenny, *J. Mater. Chem.* 22 (2012) 21355.
119. "In-situ graphene oxide reduction during UV-photopolymerization of graphene oxide/acrylic resins mixtures" P. Fabbri, L. Valentini, S. Bittolo Bon, D. Foix, L. Pasquali, M. Montecchi, M. Sangermano, *Polymer* 53 (2012) 6039.

2013

120. "Flexible transistors exploiting P3HT on paper substrates and graphene oxide films as gate dielectrics: proof of concept" L. Valentini, M. Cardinali, M. Mladjenovic, P. Uskokovic, F. Alimenti, L. Roselli, J. Kenny, *Sci. Adv. Mater.* 5 (2013) 530.
121. "Plasma etching of polystyrene latex particles for the preparation of graphene oxide nanowalls" L. Valentini, S. Bittolo Bon, *J. Serbian Chem. Soc.* 77 (2012) 1701.
122. "Liquid Droplet Excitation of Freestanding Poly(methylmethacrylate)/Graphene Oxide Films for Mechanical Energy Harvesting" L. Valentini, S. Bittolo Bon, J. Kenny, *J. Polym. Science Part B: Polymer Physics* (in press).
123. "A Novel Method to Prepare Conductive Nanocrystalline Cellulose/Graphene Oxide Composite Films" L. Valentini, M. Cardinali, E. Fortunati, L. Torre, J. M. Kenny, *Materials Letters* 105 (2013) 4.
124. "Poly(methyl methacrylate)/Graphene Oxide Layered Films as Generators for Mechanical Energy Harvesting" L. Valentini, S. Bittolo Bon, J. M. Kenny, *ACS Applied Materials & Interfaces* 5 (2013) 3770.
125. "45S5 Bioglass®-derived scaffolds coated with organic-inorganic hybrids containing graphene" P. Fabbri, L. Valentini, J. Hum, R. Detsch, A. R. Boccaccini, *Materials Science and Engineering C* (in press).
126. "Multistimuli-responsive hydrogels of poly (2-acrylamido-2-methyl-1-propanesulfonic acid) containing graphene" V. Alzari, D. Nuvoli, R. Sanna, L. Peponi, M. Piccinini, S. Bittolo Bon, S. Marceddu, L. Valentini, J. M. Kenny, A. Mariani, *Colloid and Polymer Science* 291 (2013) 2681.
127. "Tough nanopaper structures based on cellulose nanofibers and carbon nanotubes" M. Salajkova, L. Valentini, Q. Zhou, L. Berglund, *Composites Science and Technology* 87 (2013) 103.

2014

128. "Preparation of transparent and conductive cellulose nanocrystals/graphene nanoplatelets films" L. Valentini, S. Bittolo Bon, E. Fortunati, J. M. Kenny, *J. Mater. Sci.* 49 (2014) 1009.
129. "Pyroshock testing on graphene based EPDM nanocomposites" L. Valentini, A. Bolognini, A. Alvino, S. Bittolo Bon, M. Martin-Gallego, M. A. Lopez-Manchado, *Composites Part B* 60 (2014) 479.

130. "Multilayer Films Composed of Conductive Poly(3-hydroxybutyrate)/Carbon Nanotubes Bionanocomposites and a Photoresponsive Conducting Polymer" L. Valentini, P. Fabbri, M. Messori, M. degli Esposti, S. Bittolo Bon, J. Polym. Science Part B: Polymer Physics (2014).

BOOKS

J M Kenny, L Valentini, D Puglia and A Terenzi (2011) Epoxy carbon nanotube composites, Chapter 8, in Polymer-carbon nanotube composites: Preparation, properties and applications Edited by T McNally and P Pötschke, PART 1 PREPARATION AND PROCESSING OF POLYMER-CARBON NANOTUBE COMPOSITES, ISBN 1 84569 761 8 pag. 230-261

M. Monti, M. Natali, R. Petrucci, D. Puglia, A. Terenzi, L. Valentini, J. M. Kenny. Advanced fiber reinforced composites based on nanocomposite matrices. In: Encyclopedia of Composites. New York: Wiley, 2011. DOI: 10.1002/9781118097298.weoc025

R. Verdejo, M. A. Lopez-Manchado, L. Valentini, J. M. Kenny. Carbon Nanotube Reinforced Rubber Composites. In: Rubber Nanocomposites. Dr Sabu Thomas Ed. DOI: 10.1002/9780470823477.ch6

L. Valentini, D. Puglia, J. M. Kenny Methods for Improving the Integration of Functionalized Carbon Nanotubes in Polymers, in Carbon nanotube-polymer composites, Royal Society of Chemistry, RSC Nanoscience & Nanotechnology series, edited by Kroto, O'Brien and Nuzzo (accepted).

ULTERIORI INFORMAZIONI / ADDITIONAL INFORMATION

He was involved in several research projects founded by European and National institutions as following reported:

- European Network of Excellence Nanofun-poly founded by EC
- New Hybrid Functional Materials Based On Carbon Nanotubes-Polymer Matrix For Photovoltaic Devices founded by the Italian Ministry of Education and Research
- Environmentally friendly multifunctional fire retardant polymer hybrids and nanocomposite STREP project founded by the EC
- Research Program of Relevant National Interest (PRIN): "Development and characterization of new functional materials based on carbon nanotubes-polymer matrix composites for photovoltaic applications" 2002–2003
- Research Program of Relevant National Interest (PRIN): "Nanostructured glasses and polymers for advanced sensors: synthesis and properties" 2006–2007.
- National Research Program of Fundamental Basic Research (FIRB): "Carbon nanotube polymer composites" 2004–2006.
- National Research Program of Research Development (FISR): "Development of fuel cells with conductive polymer electrodes" 2006–2009.
- Large-scale integrating project Work Programme Topic: NMP-2007-2.1-1 Nanostructured polymer-matrix composites. Carbon Nanotube Confinement Strategies to Develop Novel Polymer Matrix Composites: POCO.
- Regional Research Project: "Development of thermochromic materials for food packaging, THERMOCHROME" 2012-2014.
- SEA MATTER: Revalorization Of Coastal Algae In Textile Non-Woven Industry With Applications In Building Noise Isolation. Project: LIFE11 ENV/ES/000600. September 2012 duration 30 months.

**TRATTAMENTO DEI DATI
PERSONALI, INFORMATIVA E
CONSENSO**

Il D.Lgs. 30/6/2003, n. 196 "*Codice in materia di protezione dei dati personali*" regola il trattamento dei dati personali, con particolare riferimento alla riservatezza, all'identità personale e al diritto di protezione dei dati personali; l'interessato deve essere previamente informato del trattamento .

La norma in considerazione intende come "trattamento" qualunque operazione o complesso di operazioni concernenti la raccolta, la registrazione, l'organizzazione, la conservazione, la consultazione, l'elaborazione, la modifica, la selezione, l'estrazione, il raffronto, l'utilizzo, l'interconnessione, il blocco, la comunicazione, la diffusione, la cancellazione e la distruzione di dati, anche se non registrati in una banca dati.

In relazione a quanto riportato, autorizzo al trattamento dei dati contenuti nel presente *curriculum vitae* e nella documentazione della quale fa parte integrante