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Decreto Rettore Università di Roma “La Sapienza” n 1220 del 06-05-2020

MARIA LAURA SANTARELLI
Curriculum Vitae

Place Roma

Date 19-05-2020

Part I – General Information

Full Name	
CF	
Date of Birth	
Place of Birth	
Citizenship	
Permanent Address	
Mobile Phone Number	
E-mail	
Spoken Languages	

Part II – Education

Type	Year	Institution	Notes (Degree, Experience,...)
University graduation	1989	Sapienza Università di Roma	Degree in Chemistry
PhD	1995	Sapienza Università di Roma	PhD in Material Engineering Raw Materials and Metallurgy

Part III – Appointments

IIIA – Academic Appointments

Start	End	Institution	Position
2008	now	Sapienza Università di Roma	Assistant Professor (Ricercatore Universitario)

IIIB – Other Appointments

Start	End	Institution	Position
2020	now	Heritage – Open Access Journal	Member Editorial Board
1999	2008	Sapienza Università di Roma	Co.co.co
1996	1997	Sapienza Università di Roma	Fellowship
1995	1996	Sapienza Università di Roma	Fellowship

Part IV – Teaching experience

Year	Institution	Lecture/Course
2006/now	Sapienza Università di Roma	Processi di Polimerizzazione (LM-22 Ingegneria Chimica)
2011/now	Sapienza Università di Roma	Degrado e Conservazione dei Materiali non metallici (LM-11 Scienze e Tecnologie per la Conservazione dei Beni Culturali)
2006/2011	Sapienza Università di Roma	Processi e Prodotti per la Conservazione dei Materiali (LS-12S Scienze Applicate ai beni Culturali e alla Diagnostica per la loro Conservazione)
1996/2000	Sapienza Università di Roma	Chimica Organica (Diploma Universitario in Ingegneria Chimica)
2014/now	Sapienza Università di Roma	Lectures in Corso di Alta Formazione in Processi di Polimerizzazione e di Materiali Polimerici

Part V - Society memberships, Awards and Honors

Year	Title
2013/2019	Direttore del Centro di Ricerca in Scienza e Tecnica per la Conservazione del Patrimonio Storico Architettonico, Sapienza Università di Roma
2019	3° Classificato a livello nazionale per il brevetto M.P.Bracciale, A.Broggi, C.R.Chandraiahgari, G.De Bellis, A.Marrocchi, M.L.Santarelli, M.S.Sarto, D.Uccelletti, E.Zanni, “Coating Composition with Antimicrobial and Antisalinity Activity, and Process for the Preparation Thereof”, EU Patent PCT/EP2017/050890, 17.01.2017. Brevetto Università di Roma Sapienza – Università di Perugia
2004	Premio SITEB assegnato alla ricerca sperimentale originale "Caratterizzazione dell'asfalto naturale con tecniche moderne e sua apporto alla modifica dei bitumi da distillazione"

Part VI - Patent

2017	M.P.Bracciale, A.Broggi, C.R.Chandraiahgari, G.De Bellis, A.Marrocchi, M.L.Santarelli, M.S.Sarto, D.Uccelletti, E.Zanni, “Coating Composition with Antimicrobial and Antisalinity Activity, and Process for the Preparation Thereof”, EU Patent PCT/EP2017/050890, 17.01.2017. Brevetto Università di Roma Sapienza – Università di Perugia
2008	M.Bacchi, C.Giavarini, M.L.Santarelli, “Photocatalytic composition applicable to bituminous surfaces and use thereof”, EU PATENT EP2014726 A1, 28.03.2008. Brevetto Impresa Bacchi srl
1999	C. Giavarini, M.L. Santarelli, M. Scarsella, V. Braga, “Bitumen modified with phosphorus compounds and a polyolefin composition”, European Patent n. EP0710700B1, 03-03-1999. Brevetto Basell North America INC
1996	C. Giavarini, M.L. Santarelli, M. Scarsella, V.Braga, “Mixtures of Bitumen and Polymer Composition”, U.S. Patent Number 5565510, 15 Ottobre 1996. Brevetto Basell North America

Part VII - Funding Information [grants as PI-principal investigator or I-investigator]

Year	Title	Program	Grant value
2019	ECO-SMART: Produzione e ottimizzazione di catalizzatori nano-compositi multifunzionali ed eco-compatibili per la rimozione di sostanze inquinanti non biodegradabili contenute nell'aria e nell'acqua	Progetto Ateneo 2018	11.000€
2018/2019	Metodologie e materiali di nuova generazione per il ripristino, il restauro e il recupero	Progetto Regionale Lazio SISMI - Centro di Eccellenza Distretto Tecnologico Beni e Attività Culturali del Lazio DE- G08622 del 22-06-2017	18.212€
2018/2019	Sistemi avanzati di monitoraggio	Progetto Regionale Lazio ADAMO - Centro di Eccellenza Distretto Tecnologico Beni e Attività Culturali del Lazio DE-G08622 del 22-06-2017	14.000€
2015/2018	Nanotecnologie e nanomateriali per i beni culturali (TECLA)	PON-REC Cod. PON03PE_00214_1	75.000€
2013/2015	High-performance, cost-effective sustainable organic thin-film transistor (OTFT) based on natural dyes and pigments	Progetto di Ateneo 2013	2.000 € + Assegno di ricerca
2013/2015	ARCADIA 3.0	Progetto Ricerca e Sviluppo POR-FESR Lazio 2013-2017 (cod. A0064P0044)	60.000€

Part VIII – Research accordance and collaboration

Year	Title	Institution	Grant value
2018-now	Chemical characterization of Roman mortars from different archaeological sites in Rome and Switzerland, physical characterization of the properties of the Roman mortars and comparison with modern binders	ETH Zurich	Research Accordance
2016/2018	Sintesi e messa a punto di biossido di titanio dopato da utilizzare come anti-inquinante atmosferico	Advanced Materials srl	75.000€
2016/2017	Caratterizzazione e messa a punto di miscela Polymer modified Bitumen (PMB) per uso stradale	Centro Ricerche “Giulio Natta” - Basell Poliolefine Italia, Ferrara	10.000 €
2014/2016	Fluoropolymer Protection of Archaeological Sites	ETH Zurich	Research accordance

2013/2014	Nuova applicazione di poliolefine come matrici di semiconduttori per fotovoltaico organico con riferimento a semiconduttori sia già commercialmente disponibili che di sintesi	Centro Ricerche “Giulio Natta” - Basell Poliolefine Italia, Ferrara	Research accordance
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Part IX – Research Activities

Keywords	Brief Description
Nano-materials	<p>In last years, the research activity has focused on the study of nanocomposite coatings for the protection of surfaces and artefacts of various nature.</p> <p>In particular, the studies have been developed towards the application of nano-reinforced polymers for the protection of cement surfaces by studying their interactions and aging, for the optimization and efficiency of building materials and the protection against the formation of biofilms.</p> <p>The studies are developed in collaboration with various Italian and foreign academic and research institutions, such as CNR, ENEA and ETH in Zurich.</p> <p>In addition, research for the optimization of polymer/asphalt mixtures for road use has continued, especially in the application and chemical compatibility of new polyolefin polymers, in collaboration with the G.Natta Research Center of LyondellBasell in Ferrara.</p> <p>In recent years, research has also focused on the characterization of polymer-based heterogeneous catalysts for the fundamental organic transformations in the broader context of Green Chemistry, as well as on the development of polymeric systems for applications in optoelectronics.</p>
Coatings	
Polyolefinic polymers	

Part X– Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Papers [international]	45	Scopus	1992	2020
Papers [national]	2	Scopus	1996	2005
Books [scientific]				
Books [teaching]				
Conference papers	7	Scopus	2010	2018

Total Impact factor (WOS-JCR)*	105,017
Impact Factor for product (WOS-JCR)**	2.334
Total Citations (SCOPUS)***	671
Average Citations per Product (SCOPUS) ***	14,91
Hirsch (H) index (SCOPUS)	16

*calculated for publishing year

**calculated for International papers (45) and for publishing year

***calculated on Total Citation for International Papers (Scopus)

Total Citation for all products on SCOPUS: 685

Part XI – Selected Publications (12)

List of the publications selected for the evaluation. For each publication report title, authors, reference data, journal IF (if applicable), citations, press/media release (if any).

- 1) Iorio, M., Olmos, D., Santarelli, M.L., González-Benito, J.
Fluorescence study of the hydrolytic degradation process of the polysiloxane coatings of basalt fibers
(2019), *Applied Surface Science*, **475**, 754-761. 10.1016/j.apsusc.2018.12.223
IF (2019 e attuale): 5.155 Cited:0
- 2) Maffei, G., Bracciale, M.P., Broggi, A., Zuorro, A., Santarelli, M.L., Lavecchia, R.
Effect of an enzymatic treatment with cellulase and mannanase on the structural properties of *Nannochloropsis* microalgae
(2018), *Bioresource Technology*, **249**, 592-598. 10.1016/j.biortech.2017.10.062
IF (2018 e attuale): 6.669 Cited: 15
- 3) Iorio, M., Santarelli, M.L., González-Gaitano, G., González-Benito, J.
Surface modification and characterization of basalt fibers as potential reinforcement of concretes
(2018), *Applied Surface Science*, **427**, 1248-1256, 10.1016/j.apsusc.2017.08.196
IF (2018 e attuale): 5.155 Cited: 23
- 4) Trombettoni, V., Sciosci, D., Bracciale, M.P., Campana, F., Santarelli, M.L., Marrocchi, A., Vaccaro, L.
Boosting biomass valorisation. Synergistic design of continuous flow reactors and water-tolerant polystyrene acid catalysts for a non-stop production of esters
(2018), *Green Chemistry*, **20** (14), 3222-3231, 10.1039/c8gc00824h
IF (2018 e attuale): 9.405 Cited: 8
- 5) Broggi, A., Kim, H., Jung, J., Bracciale, M.P., Santarelli, M.L., Kim, C., Marrocchi, A.
Squaraine-Based Polymers: Toward Optimized Structures for Optoelectronic Devices
(2017), *Macromolecular Chemistry and Physics*, **218** (13), 1600487. 10.1002/macp.201600487
IF attuale: 2.622, IF (2017): 2.492 Cited: 10
- 6) Esposito Corcione, C., De Simone, N., Santarelli, M.L., Frigione, M.
Protective properties and durability characteristics of experimental and commercial organic coatings for the preservation of porous stone
(2017), *Progress in Organic Coatings*, **103**, 193-203. 10.1016/j.porgcoat.2016.10.037
IF attuale: 3.420 IF (2017): 2.955 Cited: 19
- 7) Santarelli, M.L., Sbardella, F., Zuena, M., Tirillò, J., Sarasini, F.
Basalt fiber reinforced natural hydraulic lime mortars: A potential bio-based material for restoration
(2014), *Materials and Design*, **63**, 398-406. 10.1016/j.matdes.2014.06.041
IF attuale: 5.770, IF (2014): 3.501 Cited: 23

- 8) Bracciale, M.P., Broggi, A., Cerbelli, S., Formisano, M., Santarelli, M.L., Scarsella, M., Marrocchi, A.
The impact of chaotic advection on the microstructure of polymer-modified bitumen (2014), *AIChE Journal*, **60** (5), 1870-1879. 10.1002/aic.14361
IF attuale: 3.463, IF (2014): 2.749 Cited: 0
- 9) Alonzi, M., Bracciale, M.P., Broggi, A., Lanari, D., Marrocchi, A., Santarelli, M.L., Vaccaro, L.
Synthesis and characterization of novel polystyrene-supported TBD catalysts and their use in the Michael addition for the synthesis of Warfarin and its analogues (2014), *Journal of Catalysis*, **309**, 260-267. 10.1016/j.jcat.2013.10.009
IF attuale: 7.723 IF(2014): 6.921 Cited: 24
- 10) Zanni, E., De Bellis, G., Bracciale, M.P., Broggi, A., Santarelli, M.L., Sarto, M.S., Palleschi, C., Uccelletti, D.
Graphite nanoplatelets and *Caenorhabditis elegans*: Insights from an in vivo model (2012), *Nano Letters*, **12** (6), 2740-2744. 10.1021/nl204388p
IF attuale: 12,279, IF: 13.025 Cited: 98
- 11) De Bellis, G., Tamburrano, A., Dinescu, A., Santarelli, M.L., Sarto, M.S.
Electromagnetic properties of composites containing graphite nanoplatelets at radio frequency (2011), *Carbon*, **49** (13), 4291-4300. 10.1016/j.carbon.2011.06.008
IF attuale: 7.466, IF: 5.378 Cited: 60
- 12) Wolfer, P., Santarelli, M.L., Vaccaro, L., Yu, L., Anthopoulos, T.D., Smith, P., Stingelin, N., Marrocchi, A.
Influence of molecular architecture and processing on properties of semiconducting arylacetylene: Insulating poly(vinylidene fluoride) blends (2011), *Organic Electronics*, **12** (11), 1886-1892. 10.1016/j.orgel.2011.07.018
IF attuale: 3.495, IF: 4.047 Cited: 21

Part XII – Last 5 years Publications

List of the publications selected for the evaluation. For each publication report title, authors, reference data, journal IF (if applicable), citations, press/media release (if any).

1. Bracciale, M.P. , Sammut, S., Cassar, J., Santarelli, M.L., Marrocchi, A.
Molecular crystallization inhibitors for salt damage control in porous materials: An overview (2020) *Molecules*, **25** (8), , Article 25081873 open access. 10.3390/molecules25081873IF
IF (2020 e attuale): 3.060 Cited: 0
2. Grottoli, A., Beccaccioli, M., Zoppis, E., Fratini, R.S., Schifano, E., Santarelli, M.L., Uccelletti, D., Reverberi, M.,
Nanopore Sequencing and Bioinformatics for Rapidly Identifying Cultural Heritage Spoilage Microorganisms (2020), *Frontiers in Materials*, **7**, art.14 open access. 10.3389/fmats.2020.00014
IF (2020 e attuale): 2.689 Cited: 0

3. De Caprariis, B., Bassano, C., Bracciale, M.P., Deiana, P., Hernandez, A.D., Santarelli, M.L., Scarsella, M., De Filippis, P.
Biomass Gasification: The Effect of the Surface Area of Different Materials on Tar Abatement Efficiency
(2020), *Energy and Fuels*, **34** (2), 1137-1144. 10.1021/acs.energyfuels.9b02371
IF (2020 e attuale): 3.021 Cited: 1
4. Schifano, E., Cavallini, D., De Bellis, G., Bracciale, M.P., Felici, A.C., Santarelli, M.L., Sarto, M.S., Uccelletti, D.
Antibacterial effect of zinc oxide-based nanomaterials on environmental biodeteriogens affecting historical buildings
(2020), *Nanomaterials*, **10** (2), article 335 open access. 10.3390/nano10020335
IF (2020 e attuale): 4.034 Cited: 0
5. Iorio, M., Olmos, D., Santarelli, M.L., González-Benito, J.
Fluorescence study of the hydrolytic degradation process of the polysiloxane coatings of basalt fibers
(2019), *Applied Surface Science*, **475**, 754-761. 10.1016/j.apsusc.2018.12.223
IF (2019 e attuale): 5.155 Cited:0
6. Sbardella, F., Pronti, L., Santarelli, M.L., González, J.M.A., Bracciale, M.P.
Waterborne acrylate-based hybrid coatings with enhanced resistance properties on stone surfaces,
(2018), *Coatings*, **8** (8), 283 open access. 10.3390/coatings8080283
IF (2018 e attuale): 2.330 Cited: 5
7. Pronti, L., Mazzitelli, J.-B., Bracciale, M.P., Massini Rosati, L., Vieillescazes, C., Santarelli, M.L., Felici, A.C.
Multi-technique characterisation of commercial alizarin-based lakes
(2018), *Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy*, **200**, 10-19. 10.1016/j.saa.2018.04.008
IF (2018 e attuale): 2.931 Cited: 3
8. Maffei, G., Bracciale, M.P., Broggi, A., Zuurro, A., Santarelli, M.L., Lavecchia, R.
Effect of an enzymatic treatment with cellulase and mannanase on the structural properties of *Nannochloropsis* microalgae
(2018), *Bioresource Technology*, **249**, 592-598. 10.1016/j.biortech.2017.10.062
IF (2018 e attuale): 6.669 Cited: 15
9. Iorio, M., Santarelli, M.L., González-Gaitano, G., González-Benito, J.
Surface modification and characterization of basalt fibers as potential reinforcement of concretes
(2018), *Applied Surface Science*, **427**, 1248-1256, 10.1016/j.apsusc.2017.08.196
IF (2018 e attuale): 5.155 Cited: 23

10. Pronti, L., Perino, M., Cursi, M., Santarelli, M.L., Felici, A.C., Bracciale, M.P.,
Characterization and Digital Restoration of XIV-XV Centuries Written Parchments by
Means of Nondestructive Techniques: Three Case Studies,
(2018), *Journal of Spectroscopy*, **2018**, article 2081548 open access.
10.1155/2018/2081548
IF (2018 e attuale): 1.376 Cited:1
11. Trombettoni, V., Sciosci, D., Bracciale, M.P., Campana, F., Santarelli, M.L., Marrocchi, A.,
Vaccaro, L.
Boosting biomass valorisation. Synergistic design of continuous flow reactors and water-
tolerant polystyrene acid catalysts for a non-stop production of esters
(2018), *Green Chemistry*, **20** (14), 3222-3231, 10.1039/c8gc00824h
IF (2018 e attuale): 9.405 Cited: 8
12. Broggi, A., Kim, H., Jung, J., Bracciale, M.P., Santarelli, M.L., Kim, C., Marrocchi, A.
Squaraine-Based Polymers: Toward Optimized Structures for Optoelectronic Devices
(2017), *Macromolecular Chemistry and Physics*, **218** (13), article 1600487.
10.1002/macp.201600487
IF attuale: 2.622, IF (2017): 2.492 Cited: 10
13. Bidsorkhi, H.C., D'Aloia, A.G., De Bellis, G., Proietti, A., Rinaldi, A., Fortunato, M., Ballirano,
P., Bracciale, M.P., Santarelli, M.L., Sarto, M.S.
Nucleation effect of unmodified graphene nanoplatelets on PVDF/GNP film composites
(2017), *Materials Today Communications*, **11**, 163-173. 10.1016/j.mtcomm.2017.04.001
IF attuale: 1.859, IF (2017): 0 Cited: 21
14. Capobianco, G., Bracciale, M.P., Sali, D., Sbardella, F., Belloni, P., Bonifazi, G., Serranti, S.,
Santarelli, M.L., Cestelli Guidi, M.,
Chemometrics approach to FT-IR hyperspectral imaging analysis of degradation products in
artwork cross-section
(2017), *Microchemical Journal*, **132**, 69-76. 10.1016/j.microc.2017.01.007
IF attuale: 3.206, IF (2017): 2.746 Cited: 16
15. Esposito Corcione, C., De Simone, N., Santarelli, M.L., Frigione, M.
Protective properties and durability characteristics of experimental and commercial
organic coatings for the preservation of porous stone
(2017), *Progress in Organic Coatings*, **103**, 193-203. 10.1016/j.porgcoat.2016.10.037
IF attuale: 3.420 IF (2017): 2.955 Cited: 19
16. Scarsella, M., Bracciale, M.P., De Caprariis, B., De Filippis, P., Petruccio, A., Pronti, L.,
Santarelli, M.L.,
Improved photocatalytic properties of doped titanium-based nanometric oxides
(2017), *Chemical Engineering Transactions*, **60**, 133-138. 10.3303/CET1760023
IF attuale: 0.76 IF (2017): 0.88 Cited: 7

17. V. D'Aranno, P.J., De Donno, G., Marsella, M., Orlando, L., Renzi, B., Salviani, S., Santarelli, M.L., Scifoni, S., Sonnessa, A., Verri, F., Volpe, R.
High-resolution geomatic and geophysical techniques integrated with chemical analyses for the characterization of a Roman wall
(2016), *Journal of Cultural Heritage*, **17**, 141-150. 10.1016/j.culher.2015.06.005
IF attuale: 1.955, IF (2016): 1.838 Cited: 5

18. Pronti, L., Felici, A.C., Alesiani, M., Tarquini, O., Bracciale, M.P., Santarelli, M.L., Pardini, G., Piacentini, M.
Characterisation of corrosion layers formed under burial environment of copper-based Greek and Roman coins from Pompeii
(2015), *Applied Physics A: Materials Science and Processing*, **121** (1), 59-68.
10.1007/s00339-015-9351-5
IF attuale: 1.784, IF (2015): 1.444 Cited: 2

19. De Caprariis, B., Santarelli, M.L., Scarsella, M., Herce, C., Verdone, N., De Filippis, P.
Kinetic analysis of biomass pyrolysis using a double distributed activation energy model
(2015), *Journal of Thermal Analysis and Calorimetry*, **121** (3), 1403-1410. 10.1007/s10973-015-4665-2
IF attuale: 2.471 IF (2015): 1.781 Cited: 27

20. Franceschini, M., Broggi, A., Bracciale, M.P., Sommei, L., Santarelli, M.L., Marrocchi, A.,
Effectiveness of phosphocitrate as salt crystallization inhibitor in porous materials: Case study of the roman mosaic of orpheus and the beasts (Perugia, Italy)
(2015), *International Journal of Architectural Heritage*, **9** (3), 195-200.
10.1080/15583058.2012.760121
IF attuale: 1.440, IF (2015): 0.518 Cited: 3

Mario Luis Santarelli