TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type A post-doc fellowship

[Alessio Massironi]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Massironi
Name	Alessio
Date of birth	16, may, 1991

PRESENT OCCUPATION

Appointment	Structure
Post-doc Fellow (Assegnista di ricerca di tipo **B)**	Università degli Studi di Milano (Department of environmental science and policy)

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Master Degree	Biotecnologie molecolari bioinformatica (LM08)	Università degli Studi di Milano	2016
PhD	Chemistry and Material Science	Università di Pisa	2020
Other	Percorso Formativo Propedeutico al Tirocinio per l'Insegnamento (PF24)	Università di Pisa	2020

FOREIGN LANGUAGES

Languages	level of knowledge
Italiano	Mother tongue
Inglese	Professional
Spagnolo	Fluent
Portoghese	Base

Università degli Studi di Milano - Direzione Trattamenti Economici e Lavoro Autonomo
Ufficio Contratti di formazione e Ricerca
Via Sant'Antonio 12 - 20122 Milano, Italia - Assegni.postdoc@unimi.it

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2014	Erasmus Scholarship (Università studi di Milano Statale) 9 months at Universidad Complutense de Madrid (Spain)
2011- 2016	Scholarship (Borse di studio regionali DSU)
2016-2019	Scholarship (Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali) within the Ph.D. program
2020	European 5 months grant: Life long Learning program- Erasmus student Placement 3B's research group (Braga, Portugal)
2019-2020	Scholarship (Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali)

TRAINING OR RESEARCH ACTIVITY

I'm a postdoctoral researcher specialized in polymer chemistry and synthesis, design, and characterization of polymeric and metallic nanostructures for biological and industrial applications. During my studies, I acquired a strong background in natural compound extraction and their possible exploitation spanning from apolar molecules such as fatty acids, and terpenes to polar compounds such as polysaccharides and amino acids.

I carried out my research as principal investigator and in a team where I had also the duty to mentor younger researchers such as Ph.D., master and bachelor students both during my Ph.D. and now as postdoctoral fellow.

Technical expertise:

Knowledge of common laboratory analysis techniques and instruments (DLS, DSC, TGA, UPLC/HPLC, GC-MS, TEM/SEM, AFM, UV-vis spect., FT-IR spect., NMR, Rheometer, XRD, Laminar flow cabinet) and basis of biological characterization (cytotoxicity and cells availability tests); knowledge of bioinformatics, programming languages: phyton, matlab, c++, R.

Oct 2020 Mar 2023	During my last years as a **post-doctoral fellow** at the Department of Environmental Science and Policy (University of Milan), I consolidated my knowledge in natural compound extraction and characterization through green technologies such as supercritical CO_2 and their exploitation as additives for biomedical applications. I'm currently involved in different projects (StairWAY project) over the exploitation of industrial biomass residuals as an alternative source of high-value-added chemicals through their isolation, bio, or chemical transformation aimed to find new fates and utility to residue generally considered as waste.
Nov 2020 April 2020	**Contract researcher** at Università di Pisa (Department of chemistry) at BioLab research group. Research activity: Development of hybrid organic/inorganic hydrogels; development of micro/nanostructured emulsions.
Nov 2016 Feb 2020	-**Ph.D. in chemistry and Material Science** under the supervision of prof. Federica Chiellini (Department of chemistry and industrial chemistry). Research activity: During the three years of research, I performed some studies over the synthesis of hybrid inorganic/organic nanostructures with potential applications in biomedical, cosmetic and food area. Novel micro-nanostructured materials were obtained by exploiting polymers from natural and synthetic origins and semi-natural polymers chemically modified. In particular polysaccharides extracted from algae biomass commonly considered as waste materials (*Ulva lactuca*) were extracted, characterized, chemically modified and finally exploited as novel-based biomaterials for biomedical and industrial studies. -**Visiting Ph.D. student** at 3B's research group (Braga, Portugal) under the supervision of prof. Manuela Gomes. During the 5 months as visiting Ph.D. student novel hybrid hyaluronic acid hydrogels reinforced with metal nanostructures were unprecedently synthetized as scaffold base for possible biomedical applications.

Jul 2017	**Summer school** - Materials science and technologies approaches to biomedical challenges (Ischia, Italy)
Sep 2016 Nov 2016	**Post-graduated researcher** Laboratorio di interazione cellule-biomateriali at Università degli Studi di Pavia (Italy) under the supervision of professor Livia Visai. Research activity: Biological characterization of novel anticancer agents.
Sep 2014 Oct 2016	-**Master's Degree in Molecular Biotechnology and Bioinformatics** **Master Internship**: 12 months internship under the supervision of prof. Elisabetta Ranucci (Macromolecular laboratory, Dipartimento di Chimica Industriale, Università degli studi di Milano, Italy) within the research project of: synthesis of polyamidoamine for the stabilization of gold nanostructures as novel anticancer carrier. Research activity: Synthesis of nanostructured anticancer agents composed by a biocompatible polymer, gold nanostructure and anticancer drugs. Biological investigation of obtained device.
Sep 2011 Sep 2014	-**Bachelor's Degree in Industrial Biotechnology** (Università degli Studi di Milano, Italy) **Bachelor Internship** (within the ERASMUS program): 9 months at Universidad Complutense de Madrid (Spain) under the supervision of Prof. Francisco Monteiro (Facultad de Ciencias Químicas, Laboradorio de biofisica). Research activity: Computational reconstruction of bacteria metabolism

PROJECT ACTIVITY

Year	Project
2020-2023	Staff Member StairWAY: Valorization of medicinal plant residues (University of Milan, Italy)
2016-2018	Staff Member NanoBioAlgae: Synthesis of biomedical devices from macroalgae materials (Regione Toscana, POR FESR) (University of Pisa, Italy)
2016	Staff Member Tumore al seno: sconfiggerlo con nanosfere d'oro intelligenti: Synthesis of gold nanoparticles as carrier for anticancer drugs (University of Pavia, Italy)

CONGRESSES AND SEMINARS

Date	Title	Place
28-30 Sept 2022	15thPolyphenols applications (Oral Contribution)	Valencia, Spain
16 Nov 2021	6th Green & Sustainable Chemistry Conference (Poster Contribution)	Online
12-15 Nov 2019	15th International Conference on Polysaccharides Glycoscience (15th ICPG). (Oral Contribution)	Prague, Italy
3-5 Jul 2019	Chemistry for the future CFF2019 (Oral Contribution)	Pisa, Italy
26-29 Sept 2018	SIM2018 (Poster Contribution)	Palermo, Italy
4-6 Jul 2018	Chemistry for the future CFF2018 (Organizing committee)	Pisa, Italy

14-15 Sept 2017	Italian-Nordic Polymer Future Pisa, Italy (Poster Contribution)	Pisa, Italy
26-30 Jun 2017	TERMIS, 2017 (Poster Contribution)	Davos, Switzerland
12-15 Jul 2017	Convegno Nazionale INSTM sulla Scienza e Tecnologia dei Materiali	Ischia, Italy
18 Oct 2016	CEN symposium (Poster Contribution)	Milan, Italy

PUBLICATIONS

Articles in journals
Massironi A., Marzorati S., Marinelli A., Toccaceli M., Gazzotti S., Ortenzi M., Maggioni D., Petroni K., Verotta V.(2022). Synthesis and characterization of curcumin-loaded nanoparticles of poly(glycerol sebacate): a novel highly stable anticancer system. Molecules 27(20), 6997.
Massironi, A., Di Fonzo, A., Bassanini, I., Ferrandi, E. E., Marzorati, S., Monti, D., & Verotta, L. (2022). Selective Supercritical CO2 Extraction and Biocatalytic Valorization of Cucurbita pepo L. Industrial Residuals. Molecules, 27(15),4783.
Marzorati S., Massironi A., Nasti R., Jiménez-Querob A., Verotta L. (2022) Zero Waste" and "Green" Approaches towards Valorisation of Vegetable Residues Chemical engineering transactions, (92)
Massironi, A., Franco, A. R., Babo, P. S., Puppi, D., Chiellini, F., Reis, R. L., & Gomes, M. E. (2022). Development and Characterization of Highly Stable Silver NanoParticles as Novel Potential Antimicrobial Agents for Wound Healing Hydrogels. International Journal of Molecular Sciences, 23(4), 2161.
Massironi, A., Morelli, A., Puppi, D., & Chiellini, F. (2020). Renewable Polysaccharides Micro/Nanostructures for Food and Cosmetic Applications. Molecules, 25(21), 4886.
Bloise N., Massironi A., Della Pina C., Alongi J., Siciliani S., Manfredi A., Biggiogera M., Rossi M., Ferruti P., Ranucci E. & Visai L. (2020) Extra-small gold nanospheres decorated with a thiol functionalized biodegradable and biocompatible linear polyamidoamine as nanovectors of anticancer molecules. Frontiers in Bioengineering and Biotechnology, 8, 132.
Morelli, A., Massironi A., Puppi, D., Creti, D., Domingo Martinez, E., Bonistalli, C. & Chiellini, F. (2019). Development of ulvan-based emulsions containing flavour and fragrances for food and cosmetic applications. Flavour and Fragrance Journal, 34(6), 411-425.
Massironi, A., Morelli, A., Grassi, L., Puppi, D., Braccini, S., Maisetta, G. & Chiellini, F. (2019). Ulvan as novel reducing and stabilizing agent from renewable algal biomass: Application to green synthesis of silver nanoparticles. Carbohydrate polymers, 203, 310-321.

Congress proceedings

Mastalygina, E., Pantyukhov, P., **Massironi, A.**, Morelli, A., Puppi, D., & Chiellini, F. (2020, January). Development of eco-friendly composites based on polypropylene and cellulose for additive manufacturing (fused deposition modeling). In AIP Conference Proceedings (Vol. 2205, No. 1, p. 020066). AIP Publishing LLC.

Nora, B., Della Pina, C., **Massironi, A**., Federico, B., Michele, R., Manfredi, A. G. & Livia, V. (2018, February). Gold nanoparticles decorated with polyamidoamines for the delivery of anticancer drugs: synthesis and biological characterization. In Milan Polymer Days (pp. 85-85). Edises.

Poster

- Green technologies for the valorization of medicinal plants residuals (6th Green & Sustainable Chemistry Conference). Online November 16 2021.
- Green synthesis and evaluation of antibacterial activity of silver nanoparticles prepared by using ulvan as novel reducing and stabilizing agent from renewable algal biomasses (SIM2018. 26-29 September 2018, Palermo Italy)
- Exploitation of Algal Biomasses as Renewable Resources of Sulphated Polysaccharides for Food and Cosmetic Applications (Chemistry for the future. 4-6 July, 2018, Pisa, Italy)
- Green synthesis of silver nanoparticles by using ULVAN a sulphated polysaccharide from renewable resource (Chemistry for the future. 4-6 July, 2018, Pisa, Italy)
- Potential application of ulvan a sulphatated polysaccharides of algal origin (Italian-Nordic Polymer Future 14-15 September, 2017, Pisa, Italy)
- A new gold nanoparticle-based nanosystem for the delivery of anticancer drugs (TERMIS 26 – 30 June, 2017, Davos, Switzerland)
- Gold nanoparticles decorated with biocompatible stabilizing agents for the delivery of anticancer drugs" (CEN symposium, October, 2016, Milan, Italy)

Oral Presentation

- Poly(glycerol-sebacate)-based delivery systems, alternative routes for polyphenols administration (15thPolyphenols applications, September, 2022, Valencia, Spain)
- Design, preparation and characterization of ulvan polysaccharide-based nanostructures for biomedical, food and cosmetic applications (15th International Conference on Polysaccharides and Glycoscience (ICPG, November, 2019, Prague, Czech Republic)
- Synthesis of novel ulvan polysaccharides based micro/nanostructures: expanding its current application (Chemistry for the Future, July, 2019, Pisa, Italy)

OTHER INFORMATION

Teaching experience

•University of Milan: Department of Environmental Science and Policy - Master degree Environmental Science and Policy: **Teaching assistant** "crash course" in organic and inorganic chemistry and laboratory of organic chemistry (2022/23)

•University of Milan Department of Environmental Science and Policy - Master's degree in Environmental Science and Policy: **Teaching assistant laboratory of organic chemistry** (2021/22)

•University of Pisa: Department of chemistry and industrial chemistry - Bachelor's degree in Chemistry**: laboratory assistant laboratory of Physical-chemistry** (2017-18-19)

•University of Pisa: Department of chemistry and industrial chemistry - Master's degree in Industrial Chemistry: **Teaching assistant Biopolymers for industry** (2018/19)
Dissemination activities: •Production of promotional videos for the Department of Environmental Science and Policy (University of Milan)
Organizer of national/international conferences: • Bright 2018 notte dei ricercatori (Pisa, 28 September) • Bright 2019 notte dei ricercatori (Pisa, 27 September) • Chemistry for the Future 2018 (organizing committee) (Pisa, July 4-6)

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Place and date: ____Milan_____, ___23/01/2023_____

SIGNATURE

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