

PERSONAL INFORMATION

Elena Semenzin



Office: Via Torino 155, 30172 Mestre-Venice, Italy

+39 0412348914 +39 3312332359

semenzin@unive.it

https://www.unive.it/data/persone/5592978

Sex Female | Date of birth 17/07/1977 | Nationality Italian

Enterprise	University	EPR
<input type="checkbox"/> Management Level	<input type="checkbox"/> Full professor	<input type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist
<input type="checkbox"/> Mid-Management Level	<input checked="" type="checkbox"/> Associate Professor	<input type="checkbox"/> Level III Researcher and Technologist
<input type="checkbox"/> Employee / worker level	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator

WORK EXPERIENCE

From May 2021

**Associate professor**

Ca' Foscari University of Venice – Dept. of Environmental Sciences, Informatics and Statistics

Via Torino 155 - 30172 Mestre, Venice

- **RESEARCH:** Scientific responsible of the HEurope research project GREENART “GREEn ENdeavor in Art ResToration” and WP leader of WP6 Life Cycle Safety and Sustainability Assessment. Scientific responsible of the research line 2.1 “Qualità del sedimento lagunare a supporto della sua gestione sostenibile” of Venezia 2021 project, funded by Provveditorato Interregionale per le Opere Pubbliche per il Veneto, Trentino Alto Adige e Friuli Venezia Giulia (former Magistrato alle Acque-Venezia). WP leader in the H2020 Active & intelligent PACKaging materials and display cases as a tool for preventive conservation of Cultural Heritage (APACHE) project (WP5 Development of decision-making tool for curators and conservators to support preventive conservation actions); WP3 co-leader in the H2020 Science-based RISK GOVERNance of Nano-tEchnology (RiskGONE) project (WP3 Guidelines for risk-benefit assessment). Involvement in the implementation of the HEU SUNRISE (Safe and sUstainable by desigN: IntegRated approaches for Impact aSsesment of advanced matERials) project, in the H2020 SUNSHINE (Safe and sUstainable by desigN Strategies for High performance multi-component NanomatERials), EMERGE (Evaluation, control and Mitigation of the EnviRONmental impacts of shipping Emissions), and BIORIMA (BIOMaterial Risk Management) projects, in the PRIN SMarT4BioArCH (Reversible adsorbent smart materials for molecular archeology to disclose palaeolithic stone tools as bioarchives) project and in the POR FESR Regione del Veneto 3S\_4H (Safe, Smart, Sustainable Food for Health) project.
- **TEACHING:** professor in the course “Assessment and management of environmental sustainability” for the MSc in Environmental Sciences (AA. 2021-22, 2022-23 and 2023-24), in the course “Assessment and management of environmental risk” for the Minor “Energy, Climate Change and Environmental Risks” (AA. 2020-21, 2021-22, 2022-23 and 2023-24), and in the course “Life Cycle Assessment of products and processes and environmental sustainability assessment” for MSc in Biotechnology for sustainable development and the environment (AA. 2021-22, 2022-23 and 2023-24) at Ca' Foscari University of Venice.
- **INSTITUTIONAL ROLE:** Delegate of Ca' Foscari University Rector, Prof. Tiziana Lippiello, for Sustainability since October 2020 and, subsequently, Delegate of Ca' Foscari in the Italian network RUS (Rete delle Università per lo Sviluppo Sostenibile) and part of its Coordination Committee. Reference person for Ca' Foscari in the Veneto Region “Protocollo d'intesa in materia di GPP”. Member of the Board of Directors of UN Global Compact Network Italy since 2022, representing both Ca' Foscari University and Venice International University (VIU). Since 2023, Director of the Department of Excellence project (funded by the Italian Ministry of University and Research, MUR).

Environmental chemistry – Environmental Risk and Sustainability Assessment

From May 2018 to May 2021

**Research assistant – RTD type b (tenure track position)**

Ca' Foscari University of Venice – Dept. of Environmental Sciences, Informatics and Statistics

Via Torino 155 - 30172 Mestre, Venice

- **RESEARCH:** Scientific responsible of the research line 2.1 “Qualità del sedimento lagunare a supporto della sua gestione sostenibile” of Venezia 2021 project, funded by Provveditorato Interregionale per le Opere Pubbliche per il Veneto, Trentino Alto Adige e Friuli Venezia Giulia (former Magistrato alle Acque-Venezia). WP leader in the H2020 NANOMaterials for the REStoration of works of ART (NANORESTART) project (WP6 Environmental Impact); WP leader in the H2020 Active & intelligent PACKaging materials and display cases as a tool for preventive conservation of Cultural Heritage (APACHE) project (WP5 Development of decision-making tool for curators and conservators to support preventive conservation actions); WP3 co-leader in the H2020 Science-based RISK GOVERNance of Nano-tEchnology (RiskGONE) project (WP3 Guidelines for risk-benefit assessment). Involvement in the implementation of the H2020 CaLIBRAte, BIORIMA (BIOmaterial Risk Management) and EMERGE (Evaluation, control and Mitigation of the EnviRONmental impacts of shipping Emissions) projects and in the POR FESR Regione del Veneto 3S\_4H (Safe, Smart, Sustainable Food for Health) project.
- **TEACHING:** professor in the course “Assessment and management of environmental sustainability” for the MSc in Environmental Sciences (AA. 2018-2019, 2019-2020 and 2020-2021), in the course “Assessment and management of environmental risk” for the Minor “Energy, Climate Change and Environmental Risks” (AA. 2017-2018; 2018-2019 and 2019-2020), and in the course “Life Cycle Assessment of products and processes and environmental sustainability assessment” for MSc in Biotechnology for sustainable development and the environment (AA. 2020-2021) at Ca’ Foscari University of Venice.
- **INSTITUTIONAL ROLE:** Delegate of Ca’ Foscari University Rector, Prof. Tiziana Lippiello, on Sustainability since October 2020 and, subsequently, Delegate of Ca’ Foscari in the Italian network RUS (Rete delle Università per lo Sviluppo Sostenibile) and part of its Coordination Committee. Reference person for Ca’ Foscari in the Veneto Region “Protocollo d’intesa in materia di GPP”.  
Environmental chemistry – Environmental Risk and Sustainability Assessment

From February 2019

### **Senior researcher**

Fondazione Università Ca’ Foscari University Venezia - Venezia, Dorsoduro 3246

- Responsible of the team implementing the research lines “Validazione della procedura per la valutazione del rischio ecologico dei siti contaminati” and “Ecological Risk Assessment”  
Environmental chemistry – Environmental Risk and Sustainability Assessment

From October 2016 to May 2018

### **Lecturer**

Ca’ Foscari University of Venice – Dept. of Environmental Sciences, Informatics and Statistics

Via Torino 155 - 30172 Mestre, Venice

- Course “Assessment and management of environmental sustainability” for the MSc in Environmental Sciences. AA 2016-2017 and 2017-2018.  
Environmental chemistry – Environmental Risk and Sustainability Assessment

From October 2016 to May 2018

### **Postdoctoral fellow – senior researcher**

Ca’ Foscari University of Venice – Dept. of Environmental Sciences, Informatics and Statistics

Via Torino 155 - 30172 Mestre, Venice

- Research activities in the frame of the EU 7FP SUN (Sustainable Nanotechnology) and H2020 NANORESTART (NANOMaterials for the REStoration of works of ART), CALIBRATE and BIORIMA (BIOmaterial Risk Management) projects with leading role in work packages (WP8 Decision support in SUN and WP6 Environmental Impact in NANORESTART).  
Environmental chemistry – Environmental Risk and Sustainability Assessment

From August 2015

### **Spin-off founding partner**

GreenDecision s.r.l. (spin off of Ca’ Foscari University of Venice)

- Member of the scientific and technical committee; Consultancy in the field of environmental footprinting (e.g. LCA, Carbon Footprint).  
Knowledge and technology transfer; Consultancy

From October 2013 to September  
2016

### **Research assistant – RTD type a**

Ca’ Foscari University of Venice – Dept. of Environmental Sciences, Informatics and Statistics

Via Torino 155 - 30172 Mestre, Venice

- Research and teaching activities. RESEARCH: WP leader in the 7FP Sustainable Nanotechnology

(SUN) project (WP8 Decision support) and in the H2020 NANOMaterials for the REStoration of works of ART (NANORESTART) project (WP6 Environmental Impact); involvement in the implementation of the 7FP MARINA (MANaging Risk of Nanoparticles) and H2020 NanoFASE (Nanomaterial FAte and Speciation in the Environment) projects. TEACHING: for the AA 2013-2014 assistant professor in the course "Assessment and management of environmental sustainability + Environmental performance of firms" (36h) for the MSc in Environmental Science at Ca' Foscari University of Venice; professor in the course "Risk analysis and environmental auditing" (6CFU, 30 h) and assistant professor in the course "Introduction to environmental impact assessment" (24h) for the BSc in Environmental Sciences at Ca' Foscari University of Venice. For the AA 2014-2015 and 2015-2016 professor in the courses: "Assessment and management of environmental sustainability" (6CFU, 48h) and "Environmental performance of firms" (6CFU, 30h) for the MSc in Environmental Science at Ca' Foscari University of Venice; "Risk analysis and environmental auditing" (6CFU, 30h) for the BSc in Environmental Sciences at Ca' Foscari University of Venice.

Environmental chemistry – Environmental Risk and Sustainability Assessment

From April 2011 to September 2013 (maternity leave from September 2011 to June 2012)

### **Post doctoral research fellow**

Prof. Antonio Marcomini c/o Department of Environmental Sciences, Informatics and Statistics, Ca' Foscari University of Venice

Calle Larga, S. Marta 2137 - 30123, Venice

Tel. +39-0412348548 Fax. +39-0412348584; e-mail: marcom@unive.it

- Coordination of the research team and collaboration in the KULTURisk EU project: "Knowledge-based approach to develop a cULTure of Risk prevention".

Environmental Risk Assessment

From April 2005 to June 2011 (maternity leave from November 2007 to May 2008)

### **Researcher (co.co.co + 3 years contract)**

CVR-Consortio Venezia Ricerche

Via della Libertà 5-12, 30175 Marghera, Venice (Italy)

Tel. +39-0415093018 Fax. +39-0415093074; e-mail: cvr@vegapark.ve.it

- Coordination of and collaboration in the MODELKEY EU project: "Models for Assessing and Forecasting the Impact of Environmental Key Pollutants on Marine and Freshwater Ecosystems and Biodiversity"; and in the AMORE project "Multi Criteria Analysis and Decision Support system for preventing Environmental Risks" funded by Agence Nationale de la Recherche (France).

Ecological Risk Assessment (ERA)

From October 2004 to March 2005 (6 months)

### **Marie Curie training site fellow**

Dept. Soil Quality, Wageningen University

Dreijenplein 10 6703HB Wageningen (The Netherlands)

- Research in the topic of bioavailability of metals in soil

Chemical Speciation, Biological Availability and Ecotoxicological Effects of Contaminants in Soils and Water (SPECIES)

From October 2003 to July 2004

### **Junior researcher (co.co.co)**

Prof. Antonio Marcomini, c/o Department of Environmental Sciences - Ca' Foscari University

Calle Larga, S. Marta 2137 - 30123, Venice

Tel. +39-0412348548 Fax. +39-0412348584; e-mail: marcom@unive.it

- Collaboration in the national ERA-MANIA project: "Ecological Risk Assessment: development of a Methodology and Application to sites of National Interest; the case of ACNA di Cengio", in the activities related to the development of a food chain bioaccumulation model for terrestrial ecosystems and of a decision support system for the TRIAD-based site-specific ERA.

Ecological Risk Assessment (ERA) and bioavailability assessment

From February 2003 to August 2003

### **Junior researcher (co.co.co)**

Prof. Antonio Marcomini, c/o Department of Environmental Sciences - Ca' Foscari University

Calle Larga, S. Marta 2137 - 30123, Venice

Tel. +39-0412348548 Fax. +39-0412348584; e-mail: marcom@unive.it

- Collaboration in the DESYRE project: “Environmental quality evaluation system for the Venice lagoon and the Porto Marghera areas”, in the activities related to the development and implementation of the post remediation risk analysis and to the uncertainty and sensitivity analysis. Environmental Risk Assessment

From October 2001 to December  
2002

### **MSc student internship**

Prof. Antonio Marcomini, c/o Department of Environmental Sciences - Ca' Foscari University of Venice

Calle Larga, S. Marta 2137 - 30123, Venice

Tel. +39-0412348548 Fax. +39-0412348584; e-mail: marcom@unive.it

- Collaboration in the CORILA project: “Metabolic processes in the Venice Lagoon: productivity, cycles of nutrients and effects of contaminants on biota. Integration between experimental approaches and environmental risk modelling” Environmental Risk Assessment

## **EDUCATION AND TRAINING**

- 22<sup>nd</sup>-23<sup>rd</sup> and 25<sup>th</sup>-26<sup>th</sup> January  
2024
- Attendance to the online courses (basic and intermediate) on openLCA software (13 h) by GreenDelta GmbH
- 19th October, 16th November and  
23rd November 2017
- Attendance to the course on Sustainability manager: sustainable management of firms and social analysis of sustainability (sustainability report) (24 h)
- Project funded by Fondo Sociale Europeo Regione Veneto DGR nr. 37, 19 January 2016
- Sustainability manager: sustainable management of firms and social analysis of sustainability (sustainability report)
- 11th-16th January 2015
- Attendance to the First Sustainable Nanotechnology School (Venice, Italy)
- Partners of the EU 7FP project SUN
- Ca' Foscari University of Venice (Italy)
- Characterization, Exposure, Effect, Risk assessment and management of nanomaterials
- 25th August 2014
- Attendance to the full day training on Bench Mark Dose
- Partners of the EU 7FP project SUN
- RIVM, Bilthoven (NL)
- Statistical treatment of (eco)toxicological data
- 7th March 2014
- Attendance to the full day course: “Environmental realism in NP dosing and experiments (practical consideration and modelling)”
- Partners of the EU 7FP projects QualityNano, NanoFATE and NanoMILE
- Birmingham (UK)
- Nanoparticle speciation and behaviour in soils, sediments and water; ecotoxicological tests
- From November 2003 to  
November 2006 (Defense on 9th  
February 2007)
- PhD (Doctor Europaeus) in Environmental Sciences (idoneo cum laude) *EQF level 8*
- Ca' Foscari University of Venice
- Calle Larga, S. Marta 2137 - 30123, Venice (Italy)
- Environmental Risk Assessment; Environmental chemistry; Ecotoxicology; Ecology, Statistics.
- 13th November 2005
- Attendance to the full-day course: “Identifying Causes of Biological Impairment Using the EPA’s Stressor Identification Process”

- SETAC (Society of Environmental Toxicology and Chemistry) North America
- Ecological Risk Assessment
- 1st November- 22nd December 2004 **Certificate of attendance and examination (score 7/10) of the MSc course “Soil quality”**  
Wageningen University  
Dreijenplein 10 6703HB Wageningen (The Netherlands)
- Soil quality: sustainable agriculture, bioavailability, soil remediation and risk assessment
- 18th March 2004 **Attendance to the short course: “Methods (old and new) in Probabilistic Ecological Risk Assessment”**  
SETAC (Society of Environmental Toxicology and Chemistry) Europe
- Ecological Risk Assessment
- 22-26 September 2003 **Attendance at the International Summer School in “Risk based rehabilitation of contaminated megasites”**  
Ca' Foscari University of Venice and Centre of Excellence for Sustainable Development (CESD)  
Venice International University, Island of San Servolo, Venice (Italy)
- Human Health Risk Assessment; Ecological Risk Assessment; Political, social and economic value of risk; Risk management of large industrial sites; Risk management of wetlands and sediments.
- From October 1996 to December 2002 **Master of Science in Environmental Sciences (110/110 cum laude)** *EQF level 7*  
Ca' Foscari University of Venice  
Calle Larga, S. Marta 2137 - 30123, Venice (Italy)
- Environmental Risk Assessment; Environmental chemistry; Biology; Ecotoxicology; Ecology, Statistics, Mathematics, Physics
- From October 1991 to June 1996 **Scientific diploma (60/60)** *EQF level 4*  
Scientific high school (Liceo) Primo Levi; Montebelluna, Treviso (Italy)
- Mathematics, Physics, Chemistry, Natural Sciences, Latin

## PERSONAL SKILLS

---

Mother tongue(s) Italian

Other language(s) English

Fluent written and oral

Job-related skills Solid research skills in Environmental Risk Assessment for contaminated sites (i.e. both terrestrial and aquatic systems), applied to both traditional and emerging pollutants (including nanotechnologies) along the products/processes' life cycle and including the safe and sustainable by design (SSbD) concept; in the development of integrated risk indexes according to Multi Criteria Decision Analysis (MCDA)-based Weight of Evidence (WoE) approaches as well as in the conceptual design of decision support systems (DSS). Proven experience in the development and application of bioaccumulation models, in the evaluation of contaminants' bioavailability, and in the species sensitivity distribution (SSD) concept. Experience in assessing sustainability and environmental impacts of innovative products (e.g. for cultural objects conservation) along their life cycle. Strong ability to work with the scientific community by producing papers and presentations for scientific audiences as well as for the general public, acquired during the participation to several conferences worldwide (Europe, US). Very good lecturing skills, also at academic level. Extended knowledge of HEurope and H2020 programs (project proposal preparation, submission, implementation and management) as well as of other EU cooperation programs (e.g. CBE JU) and national research programs (e.g. PRIN).



National Scientific Qualification (Abilitazione Scientifica Nazionale, ASN) for the Academic Discipline (Settore Concorsuale, SC) 03/A1 for Associate Professor (seconda fascia) obtained in March 2018.

Attitude to team working and positive leadership. Strong organizational and managerial skills of multidisciplinary teams.

Digital skills Knowledge and use of: Microsoft Office programs: Word, Excel, PowerPoint, Chrome; LCA software Simapro and OpenLCA.

## ADDITIONAL INFORMATION

Editorial role in international scientific journals Member of the advisory board of the scientific journal Environmental Sciences Europe (ESEU) since 2011.  
Member of the Editorial Board of the scientific journal Integrated Environmental Assessment and Management (IEAM) since January 2015.  
Member of the Editorial Board of the scientific journal Toxics from 2019 to 2023.

Publications Overall scientific production (Scopus): 61 publications, 1156 citations, h-index 21.  
Last 3 years publications (the complete list is available at <https://www.unive.it/data/people/5592978/pubblicazioni>):

### Research papers

- Pizzini S., Giubilato E., Morabito E., Barbaro E., Bonetto A., Calgaro L., Feltracco M., Semenzin E., Vecchiato M., Zangrando R., Gambaro A., Marcomini A., 2024. Contaminants of emerging concern in water and sediment of the Venice Lagoon, Italy. *Environmental Research*. <https://doi.org/10.1016/j.envres.2024.118401>.
- Cecchetto M., Giubilato E., Bernardini I., Bettiol C., Asnicar D., Bertolini C., Fabrello J., Bonetto A., Peruzza L., Ciscato M., Matozzo V., Marin M.G., Bargelloni L., Patarnello T., Marcomini A., Milan M., **Semenzin E.**, 2023. A Weight of Evidence approach to support the assessment of the quality of Manila clam farming sites in a coastal lagoon. *Marine Pollution Bulletin*. <https://doi.org/10.1016/j.marpolbul.2023.115668>
- Bernardini I., Quagliariello A., Peruzza L., Martino M.E., Dalla Rovere G., Iori S., Asnicar D., Ciscato M., Fabrello J., Corami F., Cecchetto M., Giubilato E., Carrer C., Bettiol C., **Semenzin E.**, Marcomini A., Matozzo V., Bargelloni L., Milan M., Patarnello T., 2023. Contaminants from dredged sediments alter the transcriptome of Manila clam and induce shifts in microbiota composition. *BMC biology*. DOI: 10.1186/s12915-023-01741-9
- Menegaldo M., Livieri A., Isigonis P., Pizzol L., Tyrolt A., Zabeo A., **Semenzin E.**, Marcomini A., 2023. Environmental and economic sustainability in cultural heritage preventive conservation: LCA and LCC of innovative nanotechnology-based products. *Cleaner Environmental Systems*. DOI: 10.1016/j.cesys.2023.100124
- Cecchetto M., Peruzza L., Giubilato E., Bernardini I., Dalla Rovere G., Marcomini A., Regoli F., Bargelloni L., Patarnello T., **Semenzin E.**, Milan M., 2023. An innovative index to incorporate transcriptomic data into weight of evidence approaches for environmental risk assessment. *Environmental Research*. <https://doi.org/10.1016/j.envres.2023.115745>.
- Menegaldo M., Pizzol L., Tinello A., Scanferla P., Zabeo A., Breda S., Marcomini A., Frisario S. A., Zaninetta L., Bonfedi G., Villani F., **Semenzin E.**, 2023. Identification of most relevant variables and processes to assess the environmental impacts of remediation technologies along their life cycles: focus on the waste management scenarios. *Resources, Conservation & Recycling Advances*. <https://doi.org/10.1016/j.rcradv.2023.200155>
- Calgaro L., Giubilato E., Lamon L., Calore F., **Semenzin E.**, Marcomini A., 2023. Emissions of pharmaceuticals and plant protection products to the lagoon of Venice: development of a new emission inventory. *Journal of Environmental Management*. <https://doi.org/10.1016/j.jenvman.2022.117153>
- Milan M., Bernardini I., Bertolini C., Dalla Rovere G., Manuzzi A., Pastres R., Peruzza L., Smits M., Fabrello J., Breggion C., Sambo A., Boffo L., Gallochio L., Carrer C., Sorrentino F., Bettiol C., Lodi G.C., **Semenzin E.**, Varagnolo M., Matozzo V., Bargelloni L., Patarnello T., 2023. Multidisciplinary long-term survey of Manila clam grown in farming sites subjected to different environmental conditions. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2022.160796>
- Molin M., Pizzol L., Pesce M., Maura A., Civiero M., Gritti E., Giotto S., Ferri A., Liguoro L., Bagnoli C., **Semenzin E.**, 2022. An integrated decision-making framework for corporate

sustainability. Corporate Social Responsibility and Environmental Management. <https://doi.org/10.1002/csr.2410>

- Marchese E., Bizzotto E., Giubilato E., **Semenzin E.**, Marcomini A., 2022. Pre-industrial background concentrations vs environmental quality standards for metals in lagoon coastal sediments. *Environmental Science and Pollution Research*. DOI:10.1007/s11356-022-23378-x.
- Cazzagon V., Giubilato E., Bonetto A., Blosi M., Zanoni I., Costa A. L., Vineis C., Varesano A., Marcomini A., Hristozov D., **Semenzin E.**, Badetti E., 2022. Identification of the Safe(r) By Design alternatives for nanosilver-enabled wound dressings. *Frontiers in Bioengineering and Biotechnology-Nanobiotechnology*. <https://doi.org/10.3389/fbioe.2022.987650>
- Bizzotto E., **Semenzin E.**, Giubilato E., Frisario S., Zaninetta L., Bonfedi G., Villani F., Marcomini A., 2022. Ecological risk assessment for contaminated sites in Italy: guidelines and path forward. *Integrated Environmental Assessment and Management*. <https://doi.org/10.1002/ieam.4654>
- Brunelli A., Foscari A., Basei G., Lusvardi G., Bettoli C., **Semenzin E.**, Marcomini A., Badetti E., 2022. Colloidal stability classification of TiO<sub>2</sub> nanoparticles in artificial and in natural waters by cluster analysis and a global stability index: influence of standard and natural colloidal particles. *Science of The Total Environment*. <https://dx.doi.org/10.1016/j.scitotenv.2022.154658>
- Cazzagon V., Giubilato E., Pizzol L., Ravagli C., Doumett S., Baldi G., Blosi M., Brunelli A., Fito C., Huertas F., Marcomini A., **Semenzin E.**, Zabeo A., Zanoni I., Hristozov D., 2022. Occupational risk of nano-biomaterials: assessment of nano-enabled magnetite contrast agent using the BIORIMA Decision Support System, *Nanoimpact*. <https://doi.org/10.1016/j.impact.2021.100373>
- Damiani M., Pastorello T., Carlesso A., Tesser S., **Semenzin E.**, 2021. Quantifying environmental implications of surplus food redistribution to reduce food waste. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2021.125813>

#### Review papers

- Brunelli A., Calgaro L., **Semenzin E.**, Cazzagon V., Giubilato E., Marcomini A., Badetti E., 2021. Leaching of nanoparticles from nano-enabled products for the protection of cultural heritage surfaces: a review. *Environmental Sciences Europe* 33:48. <https://doi.org/10.1186/s12302-021-00493-z>.

Venice, 4<sup>th</sup> April 2024

Elena Semenzin