



## Luca Bargnesi

**Date of birth:** 17 Dec 1994 | **Nationality:** Italian | **Gender:** Male | **Phone number:** (+39) 3495610506 (Mobile) | **Email address:** [luca.bargnesi2@unibo.it](mailto:luca.bargnesi2@unibo.it) | **Email address:** [b.luca@peceasy.com](mailto:b.luca@peceasy.com) | **Website:** <https://site.unibo.it/leme/en/people> | **LinkedIn:** <https://www.linkedin.com/in/luca-bargnesi-0a7b03205/> | **Address:** Viale G. Marconi, 4, 61121, Pesaro, Italy (Home) | **Address:** Via Francesco Selmi, 2, 40126, Bologna, Italy (Work)

### WORK EXPERIENCE

1 JAN 2022 – CURRENT Bologna, Italy

**PH.D STUDENT IN CHEMISTRY** UNIVERSITY OF BOLOGNA - DEPARTMENT OF CHEMISTRY "GIACOMO CIAMICIAN"

Supervisor: Prof. Catia Arbizzani

Research activity: Lithium ion / lithium metal batteries, functional separator, electrode manufacturing, aqueous electrolytes and aqueous super capacitor, lamination process

1 APR 2021 – 31 DEC 2021 Bologna, Italy

**RESEARCH FELLOW** UNIVERSITY OF BOLOGNA - DEPARTMENT OF CHEMISTRY "GIACOMO CIAMICIAN"

Research contract for Enea - Ministero dello sviluppo economico RdS PAR 2019 - 2021 "Study on sustainable aqueous batteries and interphase between electrode and electrolyte for advanced batteries" @ Laboratory of Electrochemistry of Materials for Energetics at the Department of Chemistry "Giacomo Ciamician" – University of Bologna

Supervisor: Catia Arbizzani

Research activity: Study and characterization of materials and interphases for electrochemical storage of energy from renewable sources.

1 JUL 2020 – 28 FEB 2021 Bologna, Italy

**GRADUATE RESEARCH** UNIVERSITY OF BOLOGNA

Master degree internship at the Laboratory of Electrochemistry of Materials for Energetics at the Department of Chemistry "Giacomo Ciamician" – University of Bologna

Thesis: "Characterization of aqueous electrolytes for sustainable sodium-ion batteries"

Supervisor: Prof.ssa Catia Arbizzani Co-Supervisor: Dott. Morteza Rahmanipour

Research activity: Preparation of concentrated aqueous electrolytes based on sustainable and environmental friendly sodium salts. Conventional and novel electrode preparation and cell assembly. The chemical-physical characterization was achieved using: Conductivity and viscosimetric measurement for the electrolyte, Scanning Electron Microscopy (SEM), X-ray diffraction analysis (XRD) and Fourier-transform infrared spectroscopy (FTIR) for the morphology and structure of electrodes. The electrochemical characterization was achieved using: Cyclic voltammetry (CV), Galvanostatic charge/discharge cycles (GCPL) and Impedance spectroscopy (EIS).

1 JUN 2017 – 31 OCT 2017 Falconara M.ma, Italy

**TRAINEE** UNIVERSITÀ DI BOLOGNA - A.P.I. REFINERY OF ANCONA S.P.A.

Bachelor degree internship at A.P.I. Refinery of Ancona S.p.A.

Thesis: "Assesment on the impact on air quality of refinery plant in the area of Falconara M.ma"

Supervisors: Ivano Vassura, Ing. Giovanni Bartolini

Activity: Analysis of the refination process of the crude oil, and processes of pollutants removal like Claus process. Identification of the gases pollutants species issued from the plant site and their distribution in the atmosphere between 2011 - 2016 in different site across the Marche region. To see dependencies for pollutants species, it has been used correlations indexes between pollutants data recorded at different sites.

Skills acquired: knowledge of Legislative Decree 155/2010 and OHSAS 14001 certification, environmental monitoring of gases pollutants and methodology of sampling, and refinery production process.

## EDUCATION AND TRAINING

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OCT 2018 – MAR 2021 Bologna, Italy

**MSC IN PHOTOCHEMISTRY AND MOLECULAR MATERIALS** University of Bologna - Department of Chemistry "Giacomo Ciamician"

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**Address** Bologna, Italy | **Website** <https://corsi.unibo.it/2cycle/PhotochemistryMolecularMaterials> |

**Field of study** Chemistry | **Final grade** 110/110 cum laude |

**Thesis** "Characterization of aqueous electrolytes for sustainable sodium-ion batteries"

OCT 2014 – MAR 2018 Rimini, Italy

**BSC IN CHEMISTRY AND TECHONOLOGIES FOR THE ENVIRONMENT AND MATERIALS** Universit y of Bologna - Department of Industrial Chemistry "Toso Montanari"

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**Address** Rimini, Italy | **Website** <https://corsi.unibo.it/1cycle/EnvironmentalChemistry> |

**Field of study** Industrial Chemistry | **Final grade** 106/110 |

**Thesis** "Assesment on the impact on air quality of refinery plant in the area of Falconara M.ma"

SEP 2008 – JUN 2013 Pesaro, Italy

**TECHNICAL HIGH SCHOOL DEGREE** Istituto tecnico economico tecnologico " Bramante Genga"

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**Address** Pesaro, Italy | **Website** <https://www.itbramantegenga.edu.it/> | **Final grade** 86/100

## LANGUAGE SKILLS

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Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>ENGLISH</b>	B2	B2	B2	B2	B2
<b>FRENCH</b>	B1	B1	A2	A2	A2
<b>GERMAN</b>	A1	A2	A1	A1	A1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

## DIGITAL SKILLS

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Microsoft Office | Outlook | Social Media | Windows Linux OS | Familiar with MacOS and Windows | Origin software | TA instruments | EC-Lab | chemBioDraw | HTML (basic) | C/C++/C# Basics | MATLAB, Python

## ADDITIONAL INFORMATION

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### PUBLICATIONS

#### [Ammonium and Tetraalkylammonium Salts as Additives for Li Metal Electrodes](#) – 2023

Di Cillo, Dario, Luca Bargnesi, Giampaolo Lacarbonara, and Catia Arbizzani  
Department of Chemistry "Giacomo Ciamician", University of Bologna, Via F. Selmi 2, 40126 Bologna, Italy  
*Batteries* **2023**, 9, 142

*Keywords:* lithium metal interphase; ammonium salts; protonated salt; impedance spectroscopy

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#### [Sustainable Modification of Chitosan Binder for Capacitive Electrodes Operating in Aqueous Electrolytes](#)

– 2023

Luca Bargnesi, Arianna Rozzarin, Giampaolo Lacarbonara, Serena Tombolesi, Catia Arbizzani  
Department of Chemistry "Giacomo Ciamician", University of Bologna, Via F. Selmi 2, 40126 Bologna, Italy  
*ChemElectroChem* **2023**, 10, e202201080.

*Keywords:* aqueous devices, chitosan electrode recycling, sustainable processing, water soluble binder

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#### [A Tailored Ceramic Composite Separator with Electron-Rich Groups for High-Performance Lithium Metal Anode](#)

– 2022

Lei Sheng <sup>a,b</sup>, Xin Xie <sup>a</sup>, Catia Arbizzani <sup>b</sup>, Luca Bargnesi <sup>b</sup>, Yaozong Bai <sup>c</sup>, Gaojun Liu <sup>c</sup>, Tao Wang <sup>a</sup>, Jianping He <sup>a</sup>

<sup>a</sup> College of Material Science and Technology, Nanjing University of Aeronautics and Astronautics, 210016, Nanjing, Jiangsu Province, China.

<sup>b</sup> Department of Chemistry "Giacomo Ciamician", University of Bologna, 40126, Bologna, Italy

<sup>c</sup> Sinoma Lithium Battery Separator Co. Ltd, 277500, ZaoZhuang, Shandong province, China

*Journal of Membrane Science* **2022**, 657, 120644

*Keywords:* Composite separator; Electron-rich groups; Interface capacitance; DFT; Lithium anode

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#### [Crosslinked Chitosan Binder for Sustainable Aqueous Batteries](#) – 2022

Luca Bargnesi, Federica Gigli, Luigi Faggiano, Nicolò Albanelli, Christina Toigo and Catia Arbizzani  
Department of Chemistry "Giacomo Ciamician", University of Bologna, Via F. Selmi 2, 40126 Bologna, Italy  
*Nanomaterials* **2022**, 12(2), 254

*Keywords:* chitosan; water-soluble binder; aqueous Na ion

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### DRIVING LICENCE

Driving Licence: A

Driving Licence: B

### CONFERENCES AND SEMINARS

22 JAN 2023 – 25 JAN 2023 – Bressanone

#### **30 years of INSTM: past, present and future of the Consortium** *Sustainable modification of chitosan binder for electrodes operating in aqueous electrolytes*

Luca Bargnesi, Arianna Rozzarin, Giampaolo Lacarbonara, Serena Tombolesi and Catia Arbizzani  
Department of Chemistry "Giacomo Ciamician", University of Bologna, 40126, Bologna, Italy

Link [https://www.instm.it/30\\_years\\_of\\_instm\\_past\\_present\\_and\\_future\\_of\\_the\\_consortium.aspx](https://www.instm.it/30_years_of_instm_past_present_and_future_of_the_consortium.aspx)

12 SEP 2022 – 16 SEP 2022 – Online

#### **73rd Annual Meeting of the International Society of Electrochemistry** *Functionalized and sustainable separator enabling safer and long cycling lithium batteries*

Luca Bargnesi <sup>a</sup>, Lei Sheng <sup>b</sup> and Catia Arbizzani <sup>a</sup>

<sup>a</sup> Department of Chemistry "Giacomo Ciamician", University of Bologna, 40126, Bologna, Italy

<sup>b</sup> College of Material Science and Technology, Nanjing University of Aeronautics and Astronautics 210016, Nanjing, Jiangsu Province, China.

Link <https://annual73.ise-online.org/index.php>

11 SEP 2022 – 15 SEP 2022 – Orvieto

#### **SCI 2022 "Italian Electrochemistry Days"** *Alternative Maleic anhydride-modified chitosan binder for sustainable aqueous electrochemical energy storage systems*

Luca Bargnesi, Arianna Rozzarin and Catia Arbizzani

Department of Chemistry "Giacomo Ciamician", University of Bologna, 40126, Bologna, Italy

Link <https://gei2022.it/>

21 SEP 2021 – 24 SEP 2021 – Rome

**Nanoinnovation conference 2021** *Sustainable Na<sup>+</sup> ion batteries for stationary applications*

Luca Bargnesi

Department of Chemistry "Giacomo Ciamician", University of Bologna, 40126, Bologna, Italy

Link [https://www.nanoinnovation2021.eu/home/ProgramBook/2021\\_PROGRAMMA\\_web\\_finale.pdf](https://www.nanoinnovation2021.eu/home/ProgramBook/2021_PROGRAMMA_web_finale.pdf)

14 SEP 2021 – 23 SEP 2021 – Online

**SCI 2021 "Italian Electrochemistry Days"** *Alternative sustainable binder for environmental friendly Na<sup>+</sup>/Li<sup>+</sup> ion batteries*

Luca Bargnesi, Francesca Gigli and Catia Arbizzani

Department of Chemistry "Giacomo Ciamician", University of Bologna, 40126, Bologna, Italy

Link <https://sci2021.ibrida.io/pages/home-page-45>

## COMMUNICATION AND INTERPERSONAL SKILLS

**Professional skills** Analytical procedures, data elaborations and library research, team working, problem solving, collaboration with other research group, compilation of report.

Spectroscopy (UV - VIS, FTIR/ATR, GC - MS), Electrochemistry (conductivity measurement, voltammetric techniques, impedance spectroscopy, galvanostatic techniques); Calorimetry (DSC, TGA).

## PRIVACY ACKNOWLEDGMENT

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Pursuant to Article 76 of Presidential Decree 28 December 2000, n. 445 and aware that anyone who makes false statements, issues false documents or uses them in the cases referred to in this text is punishable according to the Penal Code and special laws and incur, furthermore, in loss of benefits in accordance to Article 75 of the above mentioned Presidential Decree 445/2000, I declare under my own responsibility that that what is indicated this CV corresponds to the truth. In compliance with the European Regulation (EU) 2016/679 and of the Italian Legislative Decree 196/2003, I hereby authorize to use my personal details and I confirm to be informed of my rights in accordance to art. 7 of the above mentioned decree.

7 May 2023



Luca Bargnesi