

PERSONAL INFORMATION



Nicolò Albanelli

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Gender Male | Date of birth 22/10/1997 | Nationality Italy

WORK EXPERIENCE

Nov 2022 – to date

PhD student in Nanoscienze per la medicina e per l'ambiente in collaboration with Ferrari S.p.A.

LEME Laboratory – Department of Chemistry “G. Ciamician” - Alma Mater Studiorum – Università di Bologna (BO).

Supervisor(s): Prof.ssa Catia Arbizzani, Dr. Shang Congcong

Activities: development of all-solid-state batteries of high power for automotive and implementation of sensors. Study, characterization and modification of solid state electrolytes for the optimization of compatibility with other battery components.

Jan 2022 - Nov 2022

Research contract for the European Project EIT Raw Materials CO2CARBON

LEME Laboratory – Department of Chemistry “G. Ciamician” - Alma Mater Studiorum – Università di Bologna (BO).

Supervisor: Prof.ssa Catia Arbizzani

Activities: physico-chemical characterization of carbonaceous materials obtained by the reduction of CO₂ through the MSCC-ET process. Optimization of the formulations of electrodes prepared with such carbonaceous materials exploiting a Design of Experiment (DOE) approach and electrochemical characterization in coin cells and T-shaped cells, in half and full-cell configurations.

Nov 2021 – Dec 2021

Internship

LEME Laboratory – Department of Chemistry “G. Ciamician” - Alma Mater Studiorum – Università di Bologna (BO).

Topic: study of carbonaceous materials for Li ion batteries.

Activities: formulation and preparation of different slurries and electrochemical characterization. Study of the rheological properties of slurries.

Mar 2021 - Jul 2021

Curricular internship

Department of Chemistry “G. Ciamician” - Alma Mater Studiorum - Università di Bologna (BO), Italy.

Topic: Characterization of electrolytic solutions used in copper-based redox flow batteries.

Activities: characterization of electrolytes carried out using various spectrophotometric and electrochemical techniques, including UV/Vis and NIR spectrophotometry, cyclic voltammetry (CV), chronoamperometry, voltabsorptometry.

Sep 2019 - Dec 2019

Undergraduate Internship

Department of Chemistry “G. Ciamician” - Alma Mater Studiorum - Università di

Bologna (BO), Italy.

Topic: characterization of titanium-based electrode materials used as anodes for sodium-ion batteries.

Activities: synthesis of electroactive material $\text{NaTi}_2(\text{PO}_4)_3$ and preparation of electrodes by roll coating. Use of specific instrumentation and techniques for the characterization of electrode materials, including SEM, EDX, TEM, TGA, XRD, FT-IR, cyclic voltammetry (CV) and galvanostatic techniques.

EDUCATION

2019 - 2021

Chemistry (LM-54)

2nd level-cycle degree/Master of Science (2 years)

Department of Chemistry "G. Ciamician" - Alma Mater Studiorum - Università di Bologna.

Thesis topic: "Spectroelectrochemical characterization of copper chloride complexes formed in electrolytical solutions used in redox flow batteries"

Supervisor: Prof.ssa Catia Arbizzani

Co-supervisor: Giampaolo Lacarbonara

Final mark: 110/110 cum laude

2016 – 2019

Chemistry and Materials Chemistry (L-27)

1st level-cycle degree/Bachelor (3 years)

Department of Chemistry "G.Ciamician" - Alma Mater Studiorum – Università di Bologna.

Thesis topic: "Titanium based anodes for sodium ion batteries"

Supervisor: Prof.ssa Catia Arbizzani

Co-supervisor: Christina Verena Toigo

Final Mark: 109/110

PERSONAL SKILLS

Mother tongue(s)

Italian

Foreign language(s)

	UNDERSTANDING				SPEAKING				WRITING	
	Listening		Reading		Spoken interaction		Spoken production			
English	B2	Independent	C1	Proficient	B2	Independent	B2	Independent	B2	Independent

Professional skills **Physico-chemical characterization of materials:** UV/Vis and near-infrared (NIR) spectroscopy, Scanning electron microscopy (SEM), Energy dispersive X-ray analysis (EDX), Transmission electron microscopy (TEM), X-ray diffraction (XRD), Thermogravimetric analysis (TGA), Fourier-transform infrared spectroscopy (FT-IR), rheological measurements.

Electrochemistry: Cyclic voltammetry (CV), Galvanostatic cycling with potential limitations (GCPL), potentiostatic techniques, Electrochemical Impedance Spectroscopy (EIS), 4-point probe conductivity.

Digital skills

Microsoft Office suite, Origin software, EC-Lab, X'Pert HighScore, TA Universal analysis, ChemDraw, ImageJ, graphic design programs (basic), audio editing software.

Driving license B

PUBLICATIONS

- 2023 Paper**
G. Lacarbonara, N. Albanelli, D. Fazzi and C. Arbizzani,
“A spectroelectrochemical study of copper chloro-complexes for high performance copper redox flow batteries”, *Electrochimica Acta* 458 (2023): 142514.
- 2022 Paper**
L. Bargnesi, F. Gigli, N. Albanelli, C. Toigo and C. Arbizzani,
“Crosslinked chitosan binder for sustainable aqueous batteries”, special Issue on *Nanomaterials* "Advances in Nanomaterials for Lithium-Ion/Post-Lithium-Ion Batteries and Supercapacitors", 12(2), 254.
- 2019 Report ENEA – Ricerca di Sistema Elettrico**
C. Arbizzani, M. Rahmanipour, J. Aricò, N. Albanelli, M. Di Carli, “Caratterizzazione chimico fisica ed elettrochimica di elettroliti non acquosi per celle sodio ione e di contro elettrodi carboniosi”.

PRESENTATIONS

- Sep 2022 Giornate dell'Elettrochimica Italiana – GEI2022**
Oral presentation titled “*A Mixture Design approach for the optimization of electrode formulation: case study of graphitic carbon obtained by CO₂ reduction used as active material*”.
- Jun 2022 First Symposium of Young Chemists Innovation and Sustainability – SYNC2022**
Oral presentation titled “*Mixture Design: a multivariate modeling approach for electrode formulation optimization*”.

AWARDS

- 2022 Award from the Italian Society of Chemistry (SCI) – Division of Electrochemistry**
For the oral presentation titled “*Mixture Design: a multivariate modeling approach for electrode formulation optimization*” presented at the First Symposium of Young Chemists Innovation and Sustainability (SYNC2022).
- 2021 Borsa di studio BCC Felsinea “in memoria di Stefano Berti”**
Per l'eccellente risultato conseguito nell'ambito del percorso di studi.

In compliance with the GDPR and Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize the recipient of this document to use and process my personal details for the purpose of recruiting and selecting staff and I confirm to be informed of my rights in accordance to art. 7 of the above mentioned Decree.

Bologna, 19/11/2021

Signature

A handwritten signature in black ink, appearing to read "Niccolò Andler", is written above a solid horizontal line.