PERSONAL INFORMATION

Nicolò Albanelli

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

WORK EXPERIENCE

Jan 2022 - to date — **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 CO_2 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 $NaTi_2(PO_4)_3$ 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.

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

Driving license: B

PUBLICATIONS

2022

Paper to be published
G. Lacarbonara, N. Albanelli, R. Petruzzelli, D. Fazzi and C. Arbizzani,
"A spectroelectrochemical study of copper chloro-complexes for high performance copper redox flow batteries".

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".

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 controelettrodi 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 CO_2 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.

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Bologna, 19/11/2021

Signature