

SALVATORE LUISO

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Research Experience

North Carolina State University/The Nonwovens Institute (Raleigh, NC)

Raleigh, NC

Research Assistant

2016-present

- Developed an efficient nonwoven PVDF Li-Ion battery separator in collaboration with Arkema Inc. Produced gel-polymer electrolytes, sulfonated block-copolymer quasi-solid electrolytes.
- Production of transition metal sulfides as electrocatalysts for hydrogen evolution reaction. Experience with electrochemical 3 electrode cells, electrochemical and materials characterization techniques.

University of Bologna (Italy)

Bologna, Italy

Research Assistant

2014-2015

- Photocatalysis of TiO₂. Skills include use and design improving of photochemical reactor, use of total carbon analyzer, reliability engineering, damage and quantitative risk assessment

Teaching and Leadership Experience

North Carolina State University/The Nonwovens Institute (Raleigh, NC)

Raleigh, NC

Teaching Assistant and mentor

2016-present

- Instructed 2 courses of reactor and process engineering, supervised and mentored >20 researchers (undergraduate and graduate).
- Managed 34 grad students interdisciplinary and intercultural group for research sharing/collaboration under the direction of the Nonwovens Institute.
- Safety officer and first emergency contact in electrochemical lab
- Electrochemical research group (4 researchers) leader for the entire project

Education

Ph.D., Chemical & Biomolecular Engineering North Carolina State University	2016-2020
M.S., Chemical & Biomolecular Engineering North Carolina State University	2014-2015
M.S., Chemical & Process Engineering University of Bologna (Italy)	2013-2014
B.S., Chemical Engineering University of Bologna (Italy)	2010-2013
M.A., Clarinet State Academy of Music "G. Rossini", Pesaro (Italy)	2002-2010

Skills

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| - Design of Experiments | - <u>Leader</u> of 34 graduate students | - Teaching assistant and <u>mentor</u> |
| - Detail-oriented mindset | - Materials characterization | - Strong verbal and presentation skills |
| - Persistent problem-solver and effective troubleshooting | - Strong communication and organizational skills | - <u>Design and cost assessment</u> of distillation columns/heat exchangers |
| - Data collection and concise analysis | - Highly flexible, team player | - Surface Catalysis Reactions |
| - Chemical risk analysis and <u>industrial safety</u> | - What-if, HazId. HazOp, Fault tree analysis | - Expert in polymer and electrocatalyst synthesis |

Conference Presentations and publications

- S.-Y. Huang, S. Luiso, et al., Journal of the Electrochemical Society 2017 164: F276-F282.
- **232nd Electrochemical Society meeting**: "Structure-Property-Process Relationships of Melt-Blown PVDF: A Potential Li-Ion Battery Separator", 1-5 Oct. 2017, National Harbor, MD.
- **69th Annual meeting of the International Society of Electrochemistry**: "Structure-Property-Process Relationships of Melt-Blown PVDF: A Potential Li-Ion Battery Separator" S. Luiso, P. S. Fedkiw, R. J. Spontak, and B. Pourdeyhimi. "Sulfonated Block Ionomer for a Quasi-Solid Gel-Polymer Electrolyte", S. Luiso, P. S. Fedkiw, R. J. Spontak, 2 - 7 Sept. 2018, Bologna (Italy).
- **RISE 2018**: "Process-Structure-Property Relationships of Melt-Blown PVDF: A Potential Li-Ion Battery Separator", S. Luiso, P. S. Fedkiw, R. J. Spontak, and B. Pourdeyhimi, Sept. 11-13 2018, Raleigh (NC).
- **TechTextil North America 2019**: Tech Talk "Melt-blown PVDF as a potential Li-ion battery separator" S. Luiso, P. S. Fedkiw, R. J. Spontak, and B. Pourdeyhimi, Feb. 26-28 2019, Raleigh (NC).
- **IDEA 2019**: "Melt-blown PVDF as a Li-ion battery separator" S. Luiso, P. S. Fedkiw, R. J. Spontak, and B. Pourdeyhimi, Mar. 25-28 2019, Miami Beach (FL).