

Umair Gulzar

Doctoral Fellow
Energy Storage Materials



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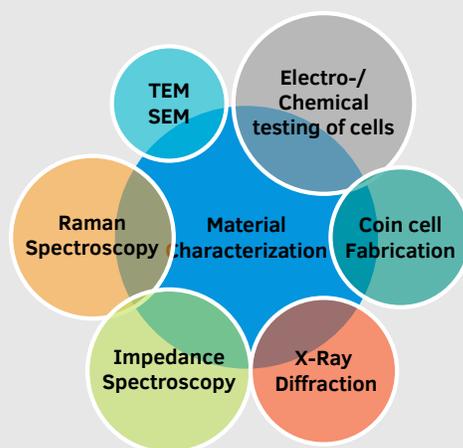


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Skills



Interests

Energy Storage Systems

Traveling

Philosophy and Music

Chess

Live Sketching

References



Remo Proietti Zaccaria



remo.proietti@iit.it



Claudio Capiglia



claudio@mvc.biglobe.ne.jp

Education

2015 - 2017

(Expected)

Ph.D. Nanotechnology

Italian Institute of Technology

Genova, Italy

Specialization: Energy Storage Materials

Advisor: Remo Proietti Zaccaria

2011 - 2013

Erasmus Mundus Masters, Analytical Sciences

University of Lincoln

Lincoln, United Kingdom

Specialization: Magnetic Nanoparticles based sensors

Research Experience

2015 - 2017

Ph.D. Research Fellow

Italian Institute of Technology

- Worked on single wall carbon nanohorns based sulfur composite as a cathode material for lithium sulfur cell. Mechanistic studies were performed to understand the shuttle effect of polysulfides using impedance spectroscopy.
- Single wall carbon nanohorns based Germanium nanocomposite (Ge@SWCNHs) as an anode active material for lithium ion battery. Studied the effect of SWCNHs on the electrochemical performance of lithium ion battery.
- Binder and carbon free porous germanium network as high capacity and ultra stable electrode for lithium ion battery.
- Facile Room temperature synthesis of tin (Sn) nanoparticles decorated on single wall carbon nanohorns as a cheap active material for lithium ion battery.
- Insight to the destruction mechanism of Tin (Sn) thin film electrode while sodiation/de-sodiation. Electrochemical and morphological study.

Conferences and Summer Schools

May 2017

EMRS, Spring Meeting

Strasbourg (France)

- Presented a poster on Single Wall carbon Nanohorns based sulfur and tin composite as cathode and anode materials.

Sept 2017

Joint European Summer School

Athens (Greece)

- Comprehensive courses on the fundamentals of solid state ionics along with state of the art anodes, cathodes and solid state electrolytes.

Sept 2016

Jyväskylä Summer School

Jyväskylä (Finland)

- Fundamentals of electrochemistry and catalysis

Future Research Interests

- In-depth understanding of electrode processes (SEI formation) involved in existing and future generation electrode materials using state of the art characterization technique.

Publications

- For Submitted manuscripts go to the next page or **Click here for Google scholar**

It is an interactive CV, Please print if necessary



- Next-generation textiles: From embedded supercapacitors to lithium ion batteries. **U Gulzar**, S Goriparti, E Miele, T Li, G Maidecchi, A Toma, F De Angelis, J. Mater. Chem. A, 2016, 4, 16771-16800. ([link](#))



- Facile Synthesis of Ge-MWCNTs Nanocomposite Electrodes for High Capacity Lithium Ion Batteries. S Goriparti, **U Gulzar**, E Miele, F Palazon, A Scarpellini, S Marras, S Monaco, R P Zaccaria and C Capiglia, J. Mater. Chem. A, 2017, 5, 19721-19728. ([link](#))
- Achieving Higher Capacities using a Carbon-Sulfur Composite for Lithium Sulfur Batteries. **U Gulzar**, T Li, X Bai, M Colombo, A Ansaldo, S Marras, M Prato, S Goriparti, C Capiglia*, R P Zaccaria, Advance Materials, Submitted
- Insight into the Mode of Damage upon Sodiation/de-sodiation of Tin Thin Film: An Electrochemical and Morphological Study. **U Gulzar***, T Li, X Bai, R P Zaccaria, and C Capiglia, In writing.
- Nanostructured anatase TiO₂ anode with extraordinary sodium-ion storage performance by facile Al₂O₃ surface modification. T Lia, **U Gulzar**, X Bai, S Monaco, M Prato, S Marras, Z Dang, C Capiglia, R P Zaccaria, Nano Energy Submitted.

Table 1: Publication List