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French Research Network on Electrochemical Energy Storage (RS2E)

Scientific coordinator “Carbon and Hybrid Materials” group

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EDUCATION

- 2015** **Research Habilitation- HDR, Material Chemistry**, University of Haut-Alsace
Development of novel carbon hybrid materials for energy storage and environment
- 2007** **Ph.D «European» label**, University of Metz and TU Delft, The Netherlands
Synthesis and characterization of metal oxide semiconductor films for gas sensors
- 2005** **Master, Renewable Energy Systems**, Transylvania University, Romania
Electrostatic spray deposition of tungsten trioxide (TU Delft, The Netherlands)
- 2003** **Bachelor, Physics and Chemistry**, Transylvania University, Romania
Extraction of lithium from lithium manganese oxide spinel (Socrates-Erasmus grant)

RESEARCH CAREER

- 10/2020 - present:** **Director of Research**, IS2M, Mulhouse, France
Design of carbon hybrid materials for energy storage/environmental applications
- 10/2011 - 09/2020:** **Researcher**, IS2M, Mulhouse, France
- 06/2008 - 09/2011:** **Postdoctoral fellowships**, IS2M, Mulhouse, France
Activated carbon and graphite electrodes for Li-ion supercapacitors (ANR HipasCap)
Carbon brushes and collectors for car fuel pumps (Industrial project, Carbone Lorraine)
- 2018- now:** Member of Scientific Council, RS2E
- 2017-2020:** Elected Member of Laboratory Council (college B), IS2M
- 2017-now:** Editorial Boarding, “Journal of Carbon Research, C”, MDPI
- 2016-now:** Member of Scientific Council, IS2M

AWARDS

- 2019 :** Award « Guy Ourisson », Cercle Gutenberg
- 2018 :** Award for researcher with exceptional research contribution (PEDR)
- 2018 :** Award « Solid-State Chemistry Division», French Chemistry Society
- 2017 :** CNRS Bronze Medal
- 2014 :** Award for researcher with excellent scientific level (PES)
- 2002 :** Bourse Socrates-Erasmus, Bachelor internship (6 months, TU-Delft)

SUPERVISION/TEACHING ACTIVITIES

11 Post-doctorants, **8** PhD students, **4** engineers, **27** undergraduate students
Master 2 Courses: “Carbon materials for Energy”, University of Haute-Alsace

RESEARCH PROJECTS TRACK

- 10 international/European projects (Horizon 2020, PHC, JSPS)
- 12 national projects (ANR, RS2E, UHA, Region Alsace, DGA)
- 3 industrial projects (Heracles, ONET Technologies)
- 3 internal projects (IS2M, UHA)

RESEARCH SKILLS AND TOPICS

- Synthesis/modification/characterization of carbon-based materials with controlled features (texture, structure, surface chemistry, NPs size/distribution/location)
- Green synthesis of nanostructured carbon-based materials
- Confinement of metal-based nanoparticles in carbon materials
- Study of carbon synthesis mechanisms and interactions of carbon-environment
- Correlation between carbon synthesis parameters- characteristics- performance
- Carbon materials for energy storage (batteries/supercapacitors) and water/air depollution

SCIENTIFIC RECORDS

- **ResearcherID:** N-7855-2015
- **H-Index: 31; Citations number: 2830** (*google scholar at 07/01/2021*)
- **100** articles, **4** book chapters, **2** industrial reports.
- **158** international and national communications.
- **12** seminars; **3** patents; **5** CNRS Press releases.

Selected articles :

1. A Beda, F Rabuel, S Knopf, P-L Taberna, P Simon, M Morcrette, C Matei Ghimbeu*, *Hard carbon key properties allow for the achievement of high Coulombic efficiency and high volumetric capacity in Na-ion batteries*, **J Mater Chem A**, 2021
2. C Matei Ghimbeu*, J Górká, V Simone, L Simonin, S Martinet, C Vix-Guterl, *Insights on the Na⁺ ion storage mechanism: discrimination between the hard carbon porosity, surface chemistry and active surface area*, **NanoEnergy** 44 (2018) 327-335
3. B Zhang, C Matei Ghimbeu, C Laberty, C Vix-Guterl and J-M Tarascon*, *Correlation between microstructure and Na storage behavior in hard carbon*, **Adv Energ Mater** 6 (2016) 61501588
4. G Moussa, C Matei Ghimbeu*, P-L Taberna, P Simon, C. Vix-Guterl, *Relationship between the carbon nano-onions (CNOs) surface chemistry/defects and their capacitance in aqueous and organic electrolytes*, **Carbon** 105 (2016) 268-277
5. C Bousige, C Matei Ghimbeu, C Vix-Guterl, R J.-M. Pellenq, B Coasne* et al., *Realistic molecular model of kerogen's nanostructure*, **Nature Materials** 15 (2016) 576-582
6. C Matei Ghimbeu*, L Vidal, L. Delmotte, J-M Le Meins, C Vix-Guterl, *Catalyst-free soft-template synthesis of ordered mesoporous carbon tailored by phloroglucinol/glyoxylic acid environmentally friendly precursors*, **Green Chem.**, 16 (2014) 3079-3088
7. A Jahel, C Matei Ghimbeu*, L Monconduit, C Vix-Guterl, *Confined ultrasmall SnO₂ particles in micro/mesoporous carbon as an extremely long cycle-life anode material for Li-ion batteries*, **Adv. Energ. Mater.**, 4 (2014)1400025