

Fabrice Coustier M.S

Current Affiliation

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Major Fields of Concentration

Research and Development in Electrochemistry, Energy Storage, Batteries, Electrochromism and Polymers.

Summary

Chemistry of Solid State and Solutions
Electrochemistry in Aqueous and Organic Solutions
Characterization of Materials
Polymers
Thin Film Deposition

Education

1995: Master of Chemistry, Polymer Specialization. with Honors
University of Grenoble, France

Experience

January 1999-Present: **R and D Chemist** at PolyStor Corporation
New process development for Li-ion batteries

December 1995-October 1998: **Research Specialist** at the University of Minnesota

-Fabrication of Cathode Materials for Rechargeable Batteries

Thin Film Fabrication
High Porosity Materials Fabrication
Microstructure Characterization by Scanning Electron Microscopy and X-ray Diffraction

-Rechargeable Batteries Testing

Battery Assembly
Conductivity Measurements using the Four-point Probes Method
Cyclic Voltammetry
Galvanostatic Intermittent Titration Technique for Lithium Intercalation

-Techniques

Spin-coating, Dip-coating, E-beam Evaporation, Sputtering for Thin Film Deposition
Impedance Measurements
Super-critical Drying for High Porosity Materials
BET Technique for Porosity Characterization
Spectroscopy UV-vis

September 1997–October 1998: **Consulting in Rechargeable Li-ion Batteries.**

-Assembly and testing of Li-ion rechargeable batteries of various composition.
-Testing of different cathode materials, electrolytes. Constant Current, Pulsing, Long-term cycling. -Safety Tests: Short circuit, High Temperature, Over Charge, Over Discharge...

Previous Experience:

-**Quality Control** of Lubricants, Hot-Melts, Mastics (Condat Inc.) 1990
-**Oligo-Element Analysis** by Mass Spectroscopy at the University of Wine 1992
-**Vegetal Fibers Inclusion** in Polymer Matrix at CNRS Laboratory of Grenoble 1994
-**Research in Chemistry** with the European Exchange ERASMUS
“*Electrodeposition of Metals in Non-aqueous Solvents for Electrochromic Displays*” at the University of Rome, Italy 1995

Publications

1. “Electrodeposition Electrochromics from Gel Electrolyte”. F.Coustier, S.Panero, B.Scrosati. Published in Solar Energy Materials and Solar Cells. Presented during the “International Meeting of Electrochromism II” in San-Diego, September 1996.
2. “High Surface Area V₂O₅ as Host Material for Lithium Intercalation”. F.Coustier, D.B.Le, S.Passerini, W.H.Smyrl. Presented during the Electrochemical Society Meeting in Montreal, May 1997. Published in the Proceeding Vol. **97-13** p180 “Montreal Spring Meeting 1997”.
3. “Dip-coated Silver-Doped V₂O₅ Xerogel Hosts as Cathode Materials for Lithium Intercalation”. F.Coustier, S.Passerini, W.H.Smyrl. Published in Journal of Solid State Ionics, **100** (1997) 247-258.
4. “A 400 mAh/g Aerogel-like V₂O₅ Cathode for Rechargeable Lithium Batteries”. F.Coustier, S.Passerini, W.H.Smyrl. Published in the Journal of the Electrochemical Society, **145** (1998) L 73-74.
5. “Silver-Doped Vanadium Oxides as Host Materials for Lithium Intercalation”. F.Coustier, S.Passerini, W.H.Smyrl. Presented during the Meeting “Materials Research Society” in Boston December 1997 and published in the Proceeding Volume **496** (1998) 353-358.
6. “Intercalation of Polyvalent Cations into V₂O₅ Aerogels”. D.B.Le, S.Passerini, F.Coustier, J.Guo, T.Soderstrom, B.B.Owens and W.H.Smyrl. Published in Chemistry of Materials, 1997.
7. “V₂O₅ Aerogel-like Lithium Intercalation Host”. F.Coustier, J-M.Lee, S.Passerini and W.H.Smyrl. Published in Solid State Ionics, **116** (1998) 279-291.
8. “Doped Vanadium Oxides as Host Materials for Lithium Intercalation”. F.Coustier, J.Hill, B.B.Owens, S.Passerini and W.H. Smyrl. Published in the Journal of the Electrochemical Society, **146** (1999) 1355-1360.
9. “Silver and Copper doped Vanadium Oxides as Lithium Intercalation Hosts”. F.Coustier, J.Hill, S.Passerini and W.H. Smyrl. Presented during the Electrochemical Society Meeting in Boston, November 1998. Will be published in the Proceeding Volume.
10. “Performance of Lithium/Copper-Doped V₂O₅ Coin Cells”. G.Jarero, F.Coustier, S.Passerini, and W.H.Smyrl. Accepted for publication in the Journal of Power Source.
11. “Processing and Performances of V₂O₅ Xerogel, Aerogel and Aerogel-like Materials as Lithium Intercalation Hosts”. L.Manhart, J.Xu, F.Coustier, S.Passerini, B.B. Owens, W.H.Smyrl. Presented during the MRS meeting in Boston 1998. Will be published in the Proceeding Volume.
12. “The role of Morphology on High-rate Intercalation Materials”. S.Passerini, F.Coustier, M.Giorgetti and W.H.Smyrl. Submitted to the Journal of the Electrochemical Society (1999).

References

W.H.Smyrl : Professor and Director, Corrosion Research Center, 112 Amundson Hall
221 Church street S.E, Minneapolis MN 55455, USA.smyrl001@maroon.tc.umn.edu
B.Scrosati : Professor and Director, Department of Chemistry, University
“La Sapienza”, 5 Piazzale Aldo Moro, 00185 Rome, Italy.scrosati@axrma.uniroma1.it
B.B. Owens, Ph.D. : Research International, P.O. Box 809, Wrightsville Beach, NC 28480
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Other

Trilingual, French, English, Italian

Member of the Electrochemical Society