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Education

1983 **PhD, Inorganic Chemistry**, Brown University, Providence RI
1978 **BA, Chemistry**, Swarthmore College, Swarthmore, PA

Experience

1990-present **Staff Scientist**, Lawrence Berkeley National Laboratory, Berkeley, CA
Principle investigator in the Batteries for Advanced Transportation Technologies program, funded by the Department of Energy (FY10 \$15 million). Research in BATT is currently focused on cathode materials for Li ion batteries; other projects include metallic lithium/polymer batteries, intercalation anodes for Li ion batteries, and Na ion systems.

1986-1989 **Senior Member, Technical Staff**, Computer Sciences Corporation, San Diego, CA.
Research performed at the Naval Ocean Systems Center involved synthesis, characterization, and testing of low surface tension fluorocarbons and polymers and organometallic compounds for anti-fouling applications. Responsibilities included supervision of two chemists on the project and the writing of proposals and technical papers on this topic and related work.

1985-1986 **Postdoctoral Chemist**, Lawrence Berkeley Laboratory, Berkeley, CA.
Research with Professor Robert Connick was directed towards understanding the mechanism of the oxidation of bisulfite.

1983-1985 **Postdoctoral Chemist**, University of California at Santa Barbara, Santa Barbara, CA.
Research with Professors Ralph G. Pearson and Paul Barrett concerned the matrix isolation of iron complexes of catalytic interest.

Refereed Publications

1. "Characterization of Electrode Materials for Lithium Ion and Sodium Ion Batteries using Synchrotron Techniques" Marca M. Doeff, Guoying Chen, Jordi Cabana, Thomas J. Richardson, Apurva Mehta, Mona Shirpour, Hugues Duncan, Chunjoong Kim, Kinson Kam, and Thomas Conry, **J. Vis. Exp.** submitted.
2. "Effect of Lithium Borate Addition on the Physical and Electrochemical Properties of the Lithium Ion Conductor $\text{Li}_{3.4}\text{Si}_{0.4}\text{P}_{0.6}\text{O}_4$ " Liying Zhang, Lei Cheng, Jordi Cabana, Guoying Chen, Marca M. Doeff, and Thomas J. Richardson, **Solid State Ionics**, 10.1016/j.ssi.2012.09.002.
3. "XAFS Investigations of $\text{LiNi}_{0.45}\text{Mn}_{0.45}\text{Co}_{0.1-y}\text{Al}_y\text{O}_2$ Positive Electrode Materials" Thomas E. Conry, Apurva Mehta, Jordi Cabana, and Marca M. Doeff, **J. Electrochem. Soc.** 159, A1562 (2012).
4. "Electrochemical and Physical Properties of Ti-substituted Layered Nickel Manganese Cobalt Oxide (NMC) Cathode Materials" Kinson C. Kam, Apurva Mehta, John T. Heron, and Marca M. Doeff, **J. Electrochem. Soc.** 159, A1383 (2012).
5. "Structural Underpinnings of the Enhanced Cycling Stability upon Al-Substitution in $\text{LiNi}_{0.45}\text{Mn}_{0.45}\text{Co}_{0.1-y}\text{Al}_y\text{O}_2$ Positive Electrode Materials for Li-Ion Batteries" Thomas E. Conry, Apurva Mehta, Jordi Cabana, and Marca M. Doeff, **Chem. Mater.**, 24, 3307 (2012).
6. "Spherical Nanoporous LiCoPO_4/C Composites as High Performance Cathode Materials for Rechargeable Lithium Batteries" Jun Liu, Thomas E. Conry, Xiangyun Song, Li Yang, Marca M. Doeff, and Thomas J. Richardson, **J. Mater. Chem.** 21, 9984 (2011).
7. "Aliovalent Titanium Substitution in Layered Mixed Li Ni-Mn-Co Oxides for Lithium Battery Applications" Kinson Kam and Marca M. Doeff, **J. Mater. Chem.**, 21, 9991 (2011).
8. "Three Dimensional Nanoporous Spherical LiFePO_4 for High Performance Cathodes" Jun Liu, Thomas E. Conry, Xiangyun Song, Marca M. Doeff, and Thomas J. Richardson, **Energy & Environmental Science**, 4, 885 (2011).
9. "Batteries: Overview of Battery Cathodes" Marca M. Doeff, in **Springer Encyclopedia of Sustainability Science and Technology** Springer Science + Business Media, LLC, New York, in press (2011).
10. "Structural and Electrochemical Investigation of $\text{Li}[\text{Ni}_{0.4}\text{Co}_{0.15}\text{Al}_{0.05}\text{Mn}_{0.4}]\text{O}_2$ Cathode Material" C. Rumble, T.E. Conry, Marca Doeff, Elton J. Cairns, James E. Penner-Hahn, and Aniruddha Deb, **J. Electrochem. Soc.** 157, A1317 (2010).

11. "Combustion Synthesis of Nanoparticulate $\text{LiMg}_x\text{Mn}_{1-x}\text{PO}_4$ ($x=0, 0.1, 0.2$) Carbon Composites" Marca M. Doeff, Jiajun Chen, Thomas E. Conry, Ruigang Wang, James Wilcox, and Albert Aumentado, **J. Mater. Res.**, 25, 1460 (2010).
12. "The Impact of Aluminum and Iron Substitution on the Structure and Electrochemistry of $\text{Li}[\text{Ni}_{0.4}\text{Co}_{0.2-y}\text{M}_y\text{Mn}_{0.4}]\text{O}_2$ Materials" James D. Wilcox, Efrain E. Rodriguez, and Marca M. Doeff, **J. Electrochem. Soc.**, 156, A1011 (2009).
13. "Nanoscale LiFePO_4 and $\text{Li}_4\text{Ti}_5\text{O}_{12}$ for High Rate Li-ion Batteries" A. Jaiswal, C.R. Horne, O. Chang, W. Zhang, W. Kong, E. Wang, T. Chern, and M. M. Doeff, **J. Electrochem. Soc.**, 156, A1041 (2009).
14. "Structure and Electrochemistry of $\text{LiNi}_{1/3}\text{Co}_{1/3-y}\text{M}_y\text{Mn}_{1/3}\text{O}_2$ ($M=\text{Ti, Al, Fe}$) Cathode Materials", James Wilcox, Sébastien Patoux, and Marca Doeff, **J. Electrochem. Soc.**, 156, A192 (2009).
15. "Microwave Plasma Chemical Vapor Deposition of Carbon Coatings on $\text{LiNi}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}\text{O}_2$ for Li-ion Battery Composite Cathodes", M. Marcinek, J. D. Wilcox, M. M. Doeff, and R. Kostecki, **J. Electrochem. Soc.**, 156, A48 (2009).
16. "FTIR and Raman Study of the $\text{Li}_x\text{Ti}_y\text{Mn}_{1-y}\text{O}_2$ ($y=0, 0.11$) Cathodes in Pyrrolidinium-based Ionic Liquid Electrolyte Systems", L. J. Hardwick, J. A. Saint, I. T. Lucas, M. M. Doeff, and R. Kostecki, **J. Electrochem. Soc.**, 156, A120 (2009).
17. "Electrode Materials with the $\text{Na}_{0.44}\text{MnO}_2$ Structure: Effect of Titanium Substitution on Physical and Electrochemical Properties", J.A. Saint, J.D. Wilcox and M.M. Doeff, **Chem. Mater.**, 20, 3404 (2008).
18. "TEM Study of Fracturing in Spherical and Plate-Like LiFePO_4 Particles", H. Gabrisch, J. Wilcox and M. M. Doeff, **Electrochem. and Sol. State Lett.**, 11, A25 (2008).
19. "Compatibility of $\text{Li}_x\text{Ti}_y\text{Mn}_{1-y}\text{O}_2$ ($y=0, 0.11$) Electrode Materials with Pyrrolidinium-based Ionic Liquid Electrolyte Systems", Juliette Saint, A.S. Best, A. F. Hollenkamp, J. Kerr, J.-H. Shin, and M. M. Doeff, **J. Electrochem. Soc.** 155, A172 (2008).
20. "Impact of Carbon Structure and Morphology on the Electrochemical Performance of LiFePO_4 Composites", Marca M. Doeff, James D. Wilcox, Rong Yu, Albert Aumentado, Marek Marcinek, and Robert Kostecki, **J. Solid State Electrochem.**, 12, 995 (2008).
21. "Synthesis and Electrochemistry of Li_3MnO_4 : Mn in the +5 Oxidation State", Juliette A. Saint, Marca M. Doeff, and John Reed, **J. Power Sources**, 172, 189 (2007).

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22. "Factors Influencing the Quality of Carbon Coatings on LiFePO₄", James D. Wilcox, Marca M. Doeff, Marek Marcinek, and Robert Kostecki, **J. Electrochem. Soc.**, 154, A389 (2007).
23. "Effect of Structure on the Storage Characteristics of Manganese Oxide Electrode Materials" Yong Joon Park and Marca M. Doeff, **J. Power Sources**, 165, 573, (2007).
24. "Carbon Surface Layers on a High-Rate LiFePO₄" Heike Gabrisch, James D. Wilcox, and Marca M. Doeff, **Electrochem. and Sol. State Lett.**, 9, A360 (2006).
25. "Synthesis and Characterization of M₂Mn₃O₈ (M=Ca, Cu) Compounds and Derivatives" Yong Joon Park and Marca M. Doeff, **Solid State Ionics**, 177, 893 (2006).
26. "Optimization of Carbon Coatings on LiFePO₄", Marca M. Doeff, James D. Wilcox, Robert Kostecki and Grace Lau, **J. Power Sources**, 163, 180 (2006).
27. "Layered Manganese Oxide Intergrowth Electrodes for Rechargeable Lithium Batteries: Part 1. Substitution with Co or Ni", Mickaël Dollé, Sébastien Patoux and Marca M. Doeff, **Chem. Mater.**, 17, 1036 (2005).
28. "Layered Manganese Oxide Intergrowth Electrodes for Rechargeable Lithium Batteries: Part 2. Substitution with Al", Sébastien Patoux, Mickaël Dollé, and Marca M. Doeff, **Chem. Mater.**, 17, 1044 (2005).
29. "Corrosion of Aluminum Current Collectors in Lithium-Ion Batteries", Xueyuan Zhang, Bryon Winget, Marca Doeff, James W. Evans, and Thomas M. Devine, **J. Electrochem. Soc.**, 152, B448 (2005).
30. "Direct Synthesis of LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂ from Nitrate Precursors", Sébastien Patoux and Marca M. Doeff, **Electrochem. Commun.**, 6/8, 767 (2004).
31. "Electrochemical and Structural Characterization of Titanium-substituted Manganese Oxides base on Na_{0.44}MnO₂", Marca M. Doeff, Thomas J. Richardson, and Kwang-Taek Hwang, **J. Power Sources**, 135, 240 (2004).
32. "Electrochemical Characterization of Manganese Oxide Cathode Materials based on Na_{0.4}MnO₂", Felix Hu and Marca M. Doeff, **J. Power Sources**, 129, 296 (2004).
33. "Investigation of Layered Intergrowth Li_xM_yMn_{1-y}O_{2+z} (M=Ni, Co, Al) Compounds as Positive Electrodes for Li-ion Batteries", M. Dollé, J. Hollingsworth, T. J. Richardson, and M. M. Doeff, **Solid State Ionics**, 175/1-4, 225 (2004).
34. "Electrochemical Performance of Sol-Gel Synthesized LiFePO₄ in Lithium Batteries", Yaoqin Hu, Marca M. Doeff, Robert Kostecki, and Rita Fiñones, **J. Electrochem. Soc.**, 151, A1279 (2004).

35. "Influence of Substitution on the Structure and Electrochemistry of Layered Manganese Oxides", Tom A. Eriksson, Young Joo Lee, Joel Hollingsworth, Jeffrey A. Reimer, Elton J. Cairns, Xiao-feng Zhang, and Marca M. Doeff, **Chem. Mater.**, 15, 4456 (2003).
36. "Effect of Surface Carbon Structure on the Electrochemical Performance of LiFePO₄", Marca M. Doeff, Yaoqin Hu, Frank McLarnon, and Robert Kostecki, **Electrochem. and Solid State Letters**, 6, A207 (2003).
37. "Evaluation of Sulfur-Doped Aluminum-substituted Manganese Oxide Spinel for Lithium Ion Battery Applications", Marca M. Doeff, Joel Hollingsworth, Joongpyo Shim, Young Joo Lee, Kathryn Striebel, Jeffrey A. Reimer, and Elton J. Cairns, **J. Electrochem. Soc.**, 150, A1060 (2003).
38. "A Study of Layered Lithium Manganese Oxide Cathode Materials", Thomas A. Eriksson and Marca M. Doeff, **J. Power Sources**, 119-120C, 145 (2003).
39. "Synthesis and Characterization of a Copper-substituted Manganese Oxide with the Na_{0.44}MnO₂ Structure", Marca M. Doeff, Thomas J. Richardson, Joel Hollingsworth, Chun-wei Yuan, and Marcela Gonzales, **J. Power Sources**, , 112/1, 294 (2003).
40. "Thermal Properties of the Polymer Electrolyte System P(EO)_nLITFSI", Ludvig Edman, Marca M. Doeff, Anders Ferry, John Kerr, and L.C. De Jonghe, **Solid State Ionics**, 158/1-2, 177 (2003).
41. "⁷Li and ³¹P MAS NMR of LiFePO₄-Type Materials", Michael C. Tucker, Marca M. Doeff, Thomas J. Richardson, Rita Fiñones, Jeffrey A. Reimer, and Elton J. Cairns, **Electrochem. and Solid State Letters**, 5, A95 (2002).
42. "Hyperfine Fields at the Li Site in LiFePO₄-Type Olivine Materials for Lithium Rechargeable Batteries: A ⁷Li MAS NMR and SQUID Study" Michael C. Tucker, Marca M. Doeff, Thomas J. Richardson, Rita Fiñones, Elton J. Cairns, and Jeffrey A. Reimer, **J. Am. Chem. Soc.**, 124, 3833 (2002).
43. "A High-Rate Manganese Oxide for Rechargeable Lithium Battery Applications", M. M. Doeff, A. Anapolsky, L. Edman, T.J. Richardson and L.C. De Jonghe, **J. Electrochem. Soc.** 148, A230 (2001).
44. "Improved Discharge Characteristics of Tunnel-Containing Manganese Oxide Electrodes for Rechargeable Lithium Battery Applications", M. M. Doeff, T. J. Richardson, K.-T. Hwang, and A. Anapolsky, **ITE Battery Lett.**, Vol.2, No. 3 B-63 (2001).
45. "Slow Recrystallization in the Polymer Electrolyte System P(EO)_nLiTFSI", L. Edman, A. Ferry and Marca M. Doeff, **J. Mater. Res.**, 15, 1950-4 (2000).

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46. "Transport Properties of the Solid Polymer Electrolyte System P(EO)_nLiTFSI", L. Edman, M. M. Doeff, A. Ferry, J. Kerr, and L. C. De Jonghe, **J. Phys. Chem. B.**, 104, 3476 (2000).
47. "Transport Properties of Binary Salt Polymer Electrolytes", Marca M. Doeff, L. Edman, S. E. Sloop, J. Kerr and L. C. De Jonghe, **J. Power Sources**, 89, 227 (2000).
48. "Transport Properties of a High Molecular Weight Poly(propylene oxide)-LiCF₃SO₃ System", M. M. Doeff, P. Georen, J. Qiao, J. Kerr, and L.C. De Jonghe, **J. Electrochem. Soc.**, 146, 2024 (1999).
49. "Li Ion Conductors Based on Laponite/Poly(Ethylene Oxide) Composites", M. M. Doeff and J. Reed, **Solid State Ionics**, 115, 109 (1998).
50. "Polymer Electrolytes-Self-Organization and Ionic Transport Properties", A. Ferry and M.M. Doeff, in **Current Trends in Polymer Science**; Vol. 3., S.G. Pandalai (Ed.), Research Signpost, Trivandrum, India (1998), pp. 117-130.
51. "Transport Property and Raman Spectroscopic Studies of the Polymer Electrolyte System P(EO)_n-NaTFSI" A. Ferry, M. M. Doeff, and L. C. De Jonghe, **J. Electrochem. Soc.** 145, 1586 (1998).
52. "Transport Property Measurements of Polymer Electrolytes", A. Ferry, M. M. Doeff and L. C. De Jonghe, **Electrochim. Acta.** 43, 1387 (1998).
53. "Effect of Electrolyte Composition on the Performance of Sodium/Polymer Cells", M. M. Doeff, A. Ferry, Y. Ma, L. Ding and L. C. De Jonghe, **J. Electrochem. Soc.**, 144, L20 (1997).
54. "²³Na NMR Studies of Na_xCoO₂ Cathode Materials", P.I. Stallworth, S. Greenbaum, M. M. Doeff, Y. Ma, L. Ding and S. Visco **Solid State Ionics**, 86-88, 797 (1996).
55. "Lithium Insertion Processes of Orthorhombic Na_xMnO₂-based Electrode Materials" M. M. Doeff, T. J. Richardson and L. Kepley, **J. Electrochem. Soc.**, 143, 2507 (1996).
56. "Electrochemical Characterization of Orthorhombic Na_xMnO₂ for Alkali Metal Polymer Batteries," M. M. Doeff, L. Ding and L. C. De Jonghe, **Mat. Res. Soc. Proc.**, 393, 107 (1995).
57. "Thin Film Solid State Sodium Batteries for Electric Vehicles", M. M. Doeff, S. J. Visco, Y. Ma, M. Peng, L. Ding and L. C. De Jonghe, **Electrochim. Acta**, 40, 2205 (1995).
58. "The Measurement of a Complete Set of Transport Properties for a Concentrated Solid Polymer Electrolyte Solution", Y. Ma, M. Doyle, M. M. Doeff, T. F. Fuller, L. C. De Jonghe and J. Newman, **J. Electrochem. Soc.**, 142, 1859 (1995).

59. "Orthorhombic Na_xMnO_2 as a Cathode Material for Secondary Sodium and Lithium Polymer Batteries" M. M. Doeff, M. Y. Peng, Y. Ma, and L. C. De Jonghe, **J. Electrochem. Soc.**, **141**, L145 (1994).
60. "Characteristics of Laminated Electrochromic Devices using Polyorganodisulfide Electrodes", C. M. Lampert, S. J. Visco, Y. Ma, M. M. Doeff, Y. He and J. C. Giron, **Solar Energy Mat. and Solar Energy**, **33**, 91 (1994).
61. "Electrochemical Insertion of Sodium into Carbon", M. M. Doeff, Y. Ma, S. J. Visco and L. C. De Jonghe, **J. Electrochem. Soc.** **140**, L169 (1993).
62. "Rechargeable $\text{Na}/\text{Na}_x\text{CoO}_2$ and $\text{Na}_{15}\text{Pb}_4/\text{Na}_x\text{CoO}_2$ Polymer Electrolyte Cells", Y. Ma, M. M. Doeff, S. J. Visco, and L. C. De Jonghe, **J. Electrochem. Soc.** **140**, 2726 (1993).
63. "Polyorganodisulfide Electrodes for Solid-State Batteries and Electrochromic Devices", S. J. Visco, M. M. Doeff, M. Liu, Y. Ma, C. Lampert, and L.C. De Jonghe, **Solid State Ionics** **60**, 175 (1993).
64. "The Use of Polydisulfides and Copolymeric Disulfides in the Li/PEO/SRPE Battery System", M. M. Doeff, M. M. Lerner, S. J. Visco and L. C. De Jonghe, **J. Electrochem. Soc.** **139**, 2097 (1992).
65. "Thin Film Rechargeable Room Temperature Batteries Using Solid Redox Polymerization Electrodes", M. M. Doeff, S. J. Visco and L. C. De Jonghe, **J. Electrochem. Soc.** **139**, 1808 (1992).
66. "The Use of Redox Polymerization Electrodes in Lithium Batteries with Liquid Electrolytes", M. M. Doeff, S. J. Visco and L. C. De Jonghe, **J. Applied Electrochem.** **22**, 307 (1992).
67. "Preparation and Discharge Characteristics of Solid Redox Polymerization Electrodes Employing Disulfide Polymers and Co-Polymers" M. M. Lerner, S. J. Visco, M. M. Doeff, M. Ue and L. C. De Jonghe, **J. Mat. Res. Symp. Proc.** **210**, 81 (1991).
68. "Structure and Surface Energy Characteristics of a Series of Pseudo-perfluoroalkyl Polysiloxanes", M. M. Doeff and E. Lindner, **Macromolecules** **22**, 2951 (1989).
69. "An Electrochemical Study of the Substitution and Decomposition of Reactions of (Arene)tricarbonylchromium Radical Cations", C. G. Zoski, M. M. Doeff, D. A. Sweigart, N. J. Stone, P. H. Rieger, E. Mocellin, T.F. Mann, D. R. Mann, D. K. Gosser, and A. M. Bond, **J. Am. Chem. Soc.** **110**, 2109 (1988).
70. "The Reaction of Matrix-Isolated Iron Atoms with Carbon Disulfide", M. M. Doeff **Inorg. Chem.** **25**, 2474 (1986).

71. "Matrix Isolation of Binary Iron-Nitrosyl Compounds" M. M. Doeff, P. H. Barrett and R. G. Pearson, **Inorg. Chim. Acta** 117, 151 (1986).
72. "Reaction of Matrix-Isolated Iron Atoms with Dinitrogen" M. M. Doeff, S. F. Parker, P. H. Barrett and R.G. Pearson, **Inorg. Chem.** 23, 4108 (1984).
73. "Hydrogen Bonding from Coordinated Imidazole in Ferric Porphyrin Complexes. Effect on the Fe(III)/Fe(II) Reduction Potential" P. O'Brien, M. M. Doeff, and D. A. Sweigart, **Inorg. Chem.** 22, 851 (1983).
74. "Hydrogen Bonding in Metalloporphyrin Reactions. The Reaction of Tetraphenylporphyrinatoiron(III) Chloride and N-Methylimidazole" M. M. Doeff and D. A. Sweigart, **Inorg. Chem.** 21, 3699 (1982).
75. "Axial Ligand Substitution Reactions of Ruthenium(II) Phthalocyanines" M. M. Doeff and D.A. Sweigart, **Inorg. Chem.** 20, 1683, (1981).

Abstracts and non-refereed Publications

- 1) "Aluminum Migration during Deposition of $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ Thin Films on Aluminum Oxide Substrates" Jung Hoon Park, Wan-Shick Hong, Joong Sun Park, Lei Cheng, Jordi Cabana, Guoying Chen, Marca M. Doeff, Thomas J. Richardson, and Ji-Won Sohn, 223rd meeting of the Electrochemical Society, Toronto, Canada, May 12-17, 2013.
- 2) "Aqueous Sodium Ion Batteries for Grid Applications" Mona Shirpour, Marca M. Doeff and Jordi Cabana, 2013 Materials Research Society meeting, San Francisco, CA April 2013.
- 3) "Lithium Ion Conducting Thin Film Electrolyte for Li-Metal Cells", Joong Sun Park, Lei Cheng, Jordi Cabana, Guoying Chen, Marca M. Doeff, Thomas J Richardson, and Wan-Shick Hong, 2012 Materials Research Society meeting, Boston, MA, November, 2012.
- 4) "Electrode Materials for Lithium Ion Batteries" Kinson C. Kam and Marca M. Doeff, **Materials Matters**, Aldrich Materials Science, 7(4), 56 (2012).
- 5) "Thin Film Lithium Ion Conducting Electrolyte for Li Metal Cells", Joong Sun Park, Lei Cheng, Jordi Cabana, Guoying Chen, Marca M. Doeff, Thomas J. Richardson, and Wan-Shick Hong, Beyond Lithium Ion V-Symposium on Scalable Energy Storage, Berkeley, CA June 5-7, 2012.
- 6) "Improved Layered Oxide Cathodes for Lithium-ion Batteries" Kinson C. Kam, Apurva Mehta, John C. Heron and Marca M. Doeff Beyond Lithium Ion V-Symposium on Scalable Energy Storage, Berkeley, CA June 5-7, 2012.

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7) “Thin Film Lithium Ion Conducting Electrolyte for Li Metal Cells”, Joong Sun Park, Lei Cheng, Jordi Cabana, Guoying Chen, Marca M. Doeff, Thomas J. Richardson, and Wan-Shick Hong, Beyond Lithium Ion V-Symposium on Scalable Energy Storage, Berkeley, CA June 5-7, 2012.

8) “Transmission Electron Microscopy Studies on Lithium Battery Materials III: Effect of Aluminum Substitution in Layered Oxides” Alpesh Shukla, Thomas Conry, Marca Doeff, and Thomas Richardson TMS 2012, Linking Science and Technology for Global Solutions, Orlando, FL, March 11-15, 2012.

9) “Effect of Lithium Borate Addition on the Physical and Electrochemical Properties of the Lithium Ion Conductor $\text{Li}_{3.4}\text{Si}_{0.4}\text{P}_{0.6}\text{O}_4$ ” Lei Cheng, Liying Zhang, Jordi Cabana, Guoying Chen, Marca Doeff and Thomas Richardson, 36th International Conference and Exposition on Advanced Ceramics and Composites, ICACC 12, Daytona Beach, FL, January 22-27th, 2012, Abstract # ICACC-S14-029-2012.

10) “Spray Pyrolysis Synthesis of Hierarchically Structured Olivine Particles for Battery Applications” Marca M. Doeff, Kinson C. Kam, Thomas Conry, Jun Liu, and Thomas J. Richardson, 7th International Symposium on Inorganic Phosphate Materials, Argonne National Laboratory, November 8-11, 2011.

11) “Ultrasonic Spray Pyrolysis of Hierarchically Structured Cathode Materials” Kinson C. Kam, Anthony Chern, and Marca M. Doeff, 220th meeting of the Electrochemical Society, October 2011, Boston MA, Abstract # 604.

12) “Characterization of the Effects of Al-Substitution in Layered Oxide Cathode Materials for Lithium-Ion Batteries” Thomas E. Conry, Apurva Mehta, and Marca M. Doeff, 220th meeting of the Electrochemical Society, October 2011, Boston MA, Abstract # 1271.

13) “ Li_4SiO_4 - Li_3PO_4 Solid Solutions as Ceramic Electrolytes in Li Metal Cells” Liying Zhang, Lei Cheng, Jordi Cabana, Guoying Chen, Marca Doeff, and Tom Richardson, 220th meeting of the Electrochemical Society, October 2011, Boston MA, Abstract # 1288.

14) “ Li_4SiO_4 - Li_3PO_4 System as Protective Layer in Li-Metal Batteries” Liying Zhang, Lei Cheng, Jordi Cabana-Jimenez, Guoying Chen, Marca M. Doeff, and Thomas J. Richardson, 4th Symposium on Energy Storage: Beyond Li Ion, Pacific Northwest National Laboratory, Richland WA, June 2011.

15) “Aliovalent Substitution in Mixed Ni-Mn-Co Oxide Cathodes” Kinson C. Kam and Marca M. Doeff 2011 Materials Research Society Meeting, San Francisco, CA April 2011, Abstract M3.5.

16) “Finding Room for Improvement in Transition Metal Oxide Cathodes for Lithium-Ion Batteries” Kinson C. Kam and Marca Doeff, International Conference on Advanced

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Ceramics and Composites, January, 2011 Daytona Beach, FL, Abstract ICACC-S14-019-2011.

17) "Strategies for Improving Electrochemical Capacitor Performance" John Chmiola, Marca Doeff and John Kerr, 218th meeting of the Electrochemical Society, October 2010, Las Vegas Nevada, Abstract 235.

18) "The Effect of Al-Substitution in $\text{LiNi}_{0.45}\text{Co}_{0.1-x}\text{Al}_x\text{Mn}_{0.45}\text{O}_2$ Layered Oxide Cathode Materials" T. Conry, J. Cabana, and M Doeff, John Kerr, 218th meeting of the Electrochemical Society, October 2010, Las Vegas Nevada, Abstract 1000.

19) "Improved Layered Mixed Transition Metal Oxides for Li-ion Batteries" Marca M. Doeff, Thomas Conry, and James Wilcox, **SPIE Energy Harvesting and Storage: Materials, Devices, and Applications**, Proceedings of SPIE, SPIE Defense, Security, and Sensing, Vol. 7683, 768309-2 5-9 April 2010, Orlando, Florida.

20) "Layered Mixed Transition Metal Oxide Materials for Li-ion Battery Cathodes" Thomas E. Conry and Marca M. Doeff, Materials Research Society, April 2010, San Francisco, CA.

21) "Microwave Plasma CVD of Carbon Coatings on $\text{LiNi}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}\text{O}_2$ for High-Power Li-ion Battery Composite Cathodes" M. L. Marcinek, J.D. Wilcox, M. M. Doeff and R. Kostecki 214th meeting of the Electrochemical Society, October 2008, Honolulu, HI., Abstract 567.

22) "The Origins of the Rate Enhancement in $\text{LiNi}_{0.4}\text{Co}_{0.2-y}\text{Al}_y\text{Mn}_{0.4}\text{O}_2$ ($0 < y \leq 0.2$) Cathode Materials" James Wilcox and Marca M. Doeff, 214th meeting of the Electrochemical Society, October 2008, Honolulu, HI., Abstract 576.

23) "Comparison of LiMnPO_4 made by Combustion and Hydrothermal Syntheses" Jiajun Chen, Marca M. Doeff and Ruigang Wang, 214th meeting of the Electrochemical Society, October 2008, Honolulu, HI., Abstract 583.

24) "Spectroscopic Investigation of the Surface of Li_xMnO_2 and $\text{Li}_x\text{Ti}_{0.11}\text{Mn}_{0.89}\text{O}_2$ Composite Electrodes in Pyrrolidinium-based Ionic Liquid Electrolyte Systems" L. J. Hardwick, J. Saint, M. M. Doeff and R. Kostecki, 214th meeting of the Electrochemical Society, October 2008, Honolulu, HI., Abstract 718.

25) "Scalable, Solid State Synthesis Process for Producing Nanostructured Electrode Materials" Amit Singhal, G. Skandan, M. Doeff, and S. Kroutla, Particles 2008, May 2008, Orlando FL.

26) "Combustion Synthesis of Lithium Manganese Phosphate" J. Chen, J. Wilcox, A. Aumentado and M. M. Doeff, Materials Research Society Meeting, March 2008, San Francisco, CA.

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- 27) "Effect of Titanium Substitution on the Compatibility of Electrodes with Pyrrolidinium-Based Ionic Liquid Electrolytes" J. Saint, J.-H. Shin, A. Best, A. Hollenkamp, J. Kerr and M. M. Doeff, 212th meeting of the Electrochemical Society, October 2007, Washington D. C., Abstract 733.
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Invited Lectures

"Designing Dual Intercalation Batteries Based on Sodium", Marca M. Doeff, Mona Shirpour and Jordi Cabana, American Chemical Society, E. V. Murphree Award in Industrial and Engineering Chemistry: Symposium in Honor of Esther S. Takeuchi, 245th meeting of the American Chemical Society, New Orleans, LA April 2013.

"Dual Intercalation Batteries based on Sodium" Marca M. Doeff, Mona Shirpour and Jordi Cabana, International Battery Association (IBA2013), Barcelona, Spain March 9-15, 2013.

"Protective Layers for the Lithium Electrode based on Ceramic Phases" given by J. Cabana, co-authors L. Chen, J.-S. Park, L. Zhang, I. Gurevitch, C. O'Laoire, V. Zorba, T. J. Richardson, G. Chen, M. M. Doeff, N. P. Balsara, R. Kostecki, Pacific Rim Meeting on Electrochemical and Solid-State Science/222nd Meeting of the Electrochemical Society, October 2012, Honolulu, HI, Abstract #B-7-1153.

"Sodium Ion Batteries for Grid Applications", Marca M. Doeff, Mona Shirpour, and Jordi Cabana, Pacific Rim Meeting on Electrochemical and Solid-State Science/222nd Meeting of the Electrochemical Society, October 2012, Honolulu, HI, Abstract #B-11-04910.

"Sodium Ion Batteries for Grid Storage" Power Our Future 2012, March, 2012 Vitoria-Gasteiz, Spain.

"Spray Pyrolysis: Environmentally Friendly Synthesis of High Performance Electrode Materials" Pacific Power Symposium 2012, January 2012, Waikoloa, HI.

"Lithium Ion Battery Cathodes for Traction Applications" Electrical Energy Storage Meeting, University of Michigan, Ann Arbor, MI, August 3, 2011.

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“Lithium Ion Battery Cathodes for Traction Applications” ALS-CXRO seminar series, Lawrence Berkeley National Laboratory, Berkeley, CA, July 6, 2011.

“Advanced Li-ion Battery Cathode Materials for Vehicle Technologies” American Chemical Society, Electrochemistry and Battery Applications symposium, August 2010, Boston, MA, Paper 355.

“Improved Layered Transition Metal Oxides for Li Ion Batteries” SPIE Defense, Security, and Sensing, April 2010, Orlando FL.

“Substitution of Ti, Fe, and Al for Co in $\text{Li}[\text{Ni}_x\text{M}_y\text{Co}_{1-y}\text{Mn}_z]\text{O}_2$ Systems” International Battery Association Pacific Power Source Symposium 2010, January 2010, Waikoloa, HI.

“Nanostructured Cathodes for Li Ion Batteries” Berkeley Lab Women Scientists Council, Lawrence Berkeley National Laboratory, Oct. 23, 2009, Berkeley, CA.

“Nanostructured Electrode Materials Made by Combustion Synthesis” International Conference on Materials for Advanced Technologies, June 2009, Singapore.

“Batteries for Vehicular Applications: The Materials Challenge”, given at the University of New Orleans Advanced Materials Research Institute, New Orleans, LA, October 12, 2007.

“The Impact of Carbon Structure and Morphology on the Electrochemical Performance of LiFePO_4/C Composites” International Conference on Materials For Advanced Technologies, July 2007, Singapore.

“Co-synthesis of LiFePO_4 and Carbon Nanotubes” 2006 Joint International Meeting of the Electrochemical Society (ECS) and Sociedad Iberoamericana de Electroquímica, Cancun, Mexico, October, 2006, Vol 2006-2 Abstract 230.

“Effect of Structure on the Storage Properties of Manganese Oxide Electrode Materials” International Battery Association/Hawaii Battery Conference 2006, Waikoloa, HI, January 2006.

“Optimization of Carbon Coatings on LiFePO_4 ” Polymer Battery and Fuel Cell 2, Las Vegas, NV, June 2005, Abstract 3.

“Layered Manganese Oxide Intergrowth Electrodes for Lithium Batteries” 2004 Joint International Meeting of the Electrochemical Society (ECS) and The Electrochemical Society of Japan (ECSJ), Honolulu, HI, October, 2004, Vol 2004-2 Abstract 600.

“Exploiting the Na-Mn-O Phase Diagram to Make Novel Lithium Battery Electrodes” International Battery Association/Hawaii Battery Conference 2003, Waikoloa, HI, January 2003.

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“Stable Manganese Oxides for Lithium Battery Applications”, Pacific Coast Regional Meeting of the American Ceramics Society, San Francisco, CA September, 2000.

“Synthesis and Electrochemical Characterization of Tunnel-containing Doped and Undoped Manganese Oxides”, Solid State Chemistry I Gordon Conference, New London, New Hampshire, August, 2000.

“Lithium/Polymer Batteries on a Laboratory Scale” Nordic Energy Research Program workshop, Lund, Sweden, May 2000.

“Electrochemical Characterization of Lithium/Polymer Batteries” Nordic Energy Research Program workshop, Lund, Sweden May 2000.

"Li-ion Conductors Based on Laponite/Poly(ethylene Oxide)" presented at the 11th International Conference on Solid State Ionics", Honolulu, Hawaii, November, 1997.

"Transport Property Measurements of Polymer Electrolytes" presented to the International Society for Polymer Electrolytes meeting (ISPE-5), Uppsala, Sweden, August, 1996.

“Alkali Metal Polymer Batteries for Electric Vehicles” presented as a special seminar in inorganic chemistry at Brown University, June 1994.

“Thin Film Solid State Sodium Batteries for Electric Vehicles” presented jointly with S. J. Visco at the International Society for Polymer Electrolytes meeting (ISPE IV), Newport, RI, June 1994.

"Solid Sodium Solid Polymer Electrolyte Batteries" presented to the Intersociety Energy Conversion Engineering Conference, Atlanta GA August 1993.

"Thin Film Rechargeable Lithium Polymer Batteries with Solid Redox Polymerization Electrodes" presented to the Santa Clara Electric Vehicle Association, September 1991.

"The Solid Redox Polymerization Electrode for use in Lithium Polymer Batteries" presented for the Chemistry Seminar series at San Francisco State University, November 1991.

Patents and Patent Applications

1) “Aluminum-substituted Layered Mixed Transition Metal Oxide Cathode Materials for Lithium Ion Batteries” M. M. Doeff, James D. Wilcox World patent application 2010/036723 A1 (2010).

2) “Optimization of Carbon Coatings on LiFePO₄” M. M. Doeff, J. D. Wilcox, R. Kostecki, G. Y. Lau. US Patent Application 20090183650 (July 23, 2009)

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6) "Electrochromic Device Using Mercaptans and Organothiolate Compounds" C. M Lampert, M. M. Doeff, Y. P. Ma and S. J. Visco. U. S. Patent 5,442,478, Aug. 15, 1995.

Awards Finalist, Center for Entrepreneurship and Technology CleanTech Innovation Awards, April 2008.

Best Poster Award, Berkeley Energy and Resource Collaborative (BERC) Innovation Expo, October, 2012.

Service to Professional Societies

Chair of the San Francisco local section of the Electrochemical Society, Electrochemical Science and Technology Subsection, 1995-1997. Vice-chair - 1994-1995. Secretary-1993-1994. Councilor 2000-2004. Co-organizer of the SSI-14 meeting in Monterey, CA, June 2003 (International Solid State Ionics) and of the IMLB-11 meeting in Monterey, CA, June 2002 (International Meeting on Lithium Batteries). Member, Technical Affairs committee of the Electrochemical Society, 2003-2007. Editorial Board, Energy and Fuels Journal, 2007-present. Member-at-Large, Battery Division, Electrochemical Society (fall 2010-fall 2012). Treasurer, Battery Division (fall 2012-present).