John (Jack) Vaughey

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Education:

1992 Northwestern University, Evanston, IL. Ph.D. Inorganic Chemistry
Thesis: "The Synthesis, Structure, and Properties of Several New Layered Cuprates"
Advisor: Prof Ken Poeppelmeier

- Determination of structure/property relationships in several new classes of oxygen deficient perovskite-type mixed metal oxides; including $Y_{1-x}Ca_xSr_2Cu_2GaO_7$, the only non-centrosymmetric high-T_c superconductor, and $YBaCuFeO_5$, the prototype structure for a large class of SOFC cathodes.

1987 Worcester Polytechnic Institute, Worcester, MA. B. Sc. in Chemistry
Thesis: "X-Ray Studies of Coal Oxidation"
Advisor: Prof Herbert Beall

Professional Experience:

2020-pres Program Co-Lead: Silicon Consortium Project (EERE)
2017-pres Senior Scientist (RD6 RDL1); Li-Ion Anode/Cathode Materials/Ca-Ion Materials
2018-2020 Program Lead: Deep Dive Silicon Anode Materials (EERE)
2012-2017 Chemist (RD5 RDL1); Li-Ion Anode/Cathode Materials/Mg-Ion Materials
2012-pres Group Leader, Interfacial Materials Chemistry
2007-2012 Chemist (707) Chemical Technologies Division, Battery Materials Group; Li-Ion Anodes/Solid Electrolytes/Grid Storage
2002-2007 Associate Chemist (706) Chemical Technologies Division, Battery Materials Group; Li-Ion Anode/Cathode Materials/Electrolytes
1997-2002 Assistant Chemist (705) Chemical Technologies Division, Battery Materials Group; Li-Ion Anode/Cathode Materials/Medical Batteries
1994-1997 Postdoctoral Research Fellow, Chemistry Division, Ames Laboratory
(Advisor: Prof. John D. Corbett)

- Synthesis, structure, and characterization of main group Zintl compounds (batteries, thermoelectrics)

1992-1994 Postdoctoral Research Fellow, Chemistry, University of Houston
(Advisor: Prof. Allan J. Jacobson)

- Synthesis, structure, and characterization of microporous transition metal phosphates (catalysis, batteries).
- Discovery and characterization of the high-capacity high voltage two electron cathode ε-VOPO4.

Professional Societies:

American Chemical Society, Neutron Scattering Society of America, The Electrochemical Society, Materials Research Society, Association for the Advancement of Science (AAAS)

Awards and Honors:

2018	Fellow, American Association for the Advancement of Science (AAAS)
2008	Outstanding Mentor Award from US Department of Energy, Office of Science
2000	Pacesetter Award (ANL) for the Development of the Intermetallic Anode
1992	Robert A. Welch Postdoctoral Fellowship, University of Houston

Service:

- Associate Editor, Materials Research Bulletin, 2011-present
- Editorial Board, Chemistry of Materials, 2011-present
- Review Editor, Frontiers in Electrochemical Materials, (2022-pres)
- Strategic Laboratory Leadership Program, Executive Program, University of Chicago Booth School of Business, 2017-18.
- Chair, Maria Goeppert Mayer Postdoctoral Fellowship Committee, 2018-present
- Chair, Walter Massey Postdoctoral Fellowship Committee, 2021-present
- Electrochemical Society Battery Division, At-Large Member Board of Directors, 2018-pres
- Electrochemical Society Toyota Young Investigator Award, Judge, 2017-pres
- Electrochemical Society Battery Division Technology Award, Judge, 2017-2020
- Electrochemical Society, Interdisciplinary Science and Technology Subcommittee, Battery Division Representative, 2019-2022.
- Scientific Advisory Committee, Annual Conference on Magnesium-ion Batteries, Ulm, Germany, 2016-present
- Co-organizer *International Battery Association Conference on Manganese Dioxide,* 2000
- Co-organizer, 7th International Symposium on Inorganic Phosphate Materials, 2011.
- Symposium Lead Organizer, *Beyond Li-Ion Batteries*, 232nd Meeting of the Electrochemical Society, National Harbor, MD, 2017.
- Symposium Lead Organizer, *Lithium-Ion Batteries and Beyond*, 233rd Meeting of the Electrochemical Society, Seattle, WA, 2018.
- Symposium Co-Organizer, Next Generation Battery Materials, 238th Meeting of the Electrochemical Society, Honolulu, HI, 2020.
- Symposium Lead Organizer, Next Generation Battery Materials, 239th Meeting of the Electrochemical Society, Chicago, IL, 2021.
- Symposium Lead Organizer, Lithium-Ion Battery Recycling and Safety, 241th Meeting of the Electrochemical Society, Vancouver, BC, 2022.
- ARPA-E Review Panel (various topics), 2012-present
- NSF Panel Reviewer (Materials, Energy Storage) 2015-present
- Member, Technical Advisory Board, *Advanced Materials Research Institute* (AMRI), University of New Orleans, New Orleans, LA, 2007-2016.
- External Review Board, *Fast and Cooperative Ion Transport in Polymer Electrolytes* (FaCT), an Energy Frontier Research Center (ORNL), 2022-pres.
- *Research and Development Magazine's R&D 100* Awards, Judge, 2000-2003
- *Research and Development Magazine's Lab of the Year* Awards, Judge, 2004-2006
- Dissertation Committee(s): *Three-Dimensional Electrode Structures*, Northwestern University, 2001-5.

- Dissertation Committee: *Solid State NMR and Pair Distribution Function Studies of Silicon Electrodes for Lithium-Ion Batteries*, Stony Brook (NY) University, 2010.
- Chemical Engineering Division Representative on *Laboratory Directed Research and Development (LDRD)* Committee, 2005-2008.
- Electrochemical Energy Storage Search Committee Representative for ACCESS Chief Science Officer (2021)

Active Research Projects:

- Earth Abundant Cathode Materials (2022-pres) Lead - Non-Oxide Cathodes
  Advanced Battery Research (ABR), EERE; Identify, synthesize, and evaluate bulk fluoride-containing materials containing earth-abundant transition metals as new lithium-ion battery cathodes

- Silicon Consortium Program (2020-present), Deputy Director
  Vehicle Technology Office (VTO), EERE. Organize and manage a new DOE program dedicated to understanding next generation silicon-based anode materials for lithium-ion batteries. Coordinate cross-lab research, program organization, materials design and interfacial modification.

- Enabling Continuous Production of Defect-free, Ultrathin Sulfide Glass Electrolytes for Next Generation Solid State Lithium Metal Batteries (2020-present),
  Advanced Manufacturing Office (AMO), EERE with Tim Fister (CSE) and Polyplus (Berkeley CA); Utilize advanced characterization methods to understand the role of synthesis, morphology, and sintering on the ionic conductivity of sulfide-based solid-state electrolytes for lithium-ion batteries.

- ReCell Advanced Battery Recycling Center (2019-present) Lead – Direct Cathode Recovery
  Vehicle Technology Office (VTO) EERE; Determine, evaluate, and demonstrate methods to recover $Li(NiMnCo)O_2$ cathodes materials that have reached end-of-life conditions. Devise materials upcycling methods that allow for recycled cathode material properties to be updated as required.

- Joint Center for Energy Storage Research (2018-Present), Proposal Co-Lead: Multivalent Materials
  Office of Science, DOE Energy Innovation Hub for Energy Storage: core writing team - Science Multivalent Materials and Materials Design (Multivalent Electrode Materials). New multivalent cathode materials, multivalent cation-based electrolytes

Past Projects:

- Realizing Next Generation of Cathodes Program (2019-22)
  Advanced Battery Research (ABR), EERE; identify the role of cation disorder and surface instability on electrochemical properties; assess the role of coatings and dopants on the performance of low cobalt containing cathodes.

- SEI Stabilization of Silicon-Based Anodes (SEISta) Program Lead (2016-20) - Argonne

Battery Materials Research (BMR), EERE. Synthesize Li-Si model compounds (crystals, films, and powders), electrolyte additives, and MAS NMR Spectroscopy to study the effect of electrode structure and electrolyte composition on the SEI layer of LIB silicon anodes.

- High Energy Silicon Anodes (2015-2020); Principal Investigator, (2018-20) Program Lead
  Advanced Battery Research (ABR), EERE. Utilize thin film electrodes to assess the role of electrolyte additives on a silicon electrode SEI using EQCM-D spectroscopy.

- Joint Center for Energy Storage Research (JCESR) (2013-2018), Proposal co-lead - Science
  Office of Science, DOE Energy Innovation Hub for Energy Storage: core writing team - Science (Multivalent Batteries, Non-Aqueous Flow Batteries), Creative, Management), Materials Design (Multivalent Electrode Materials). Create new multivalent cathode materials, multivalent cation-based electrolytes, new active organic materials, and membranes for Non-Aqueous Redox Flow Batteries.

- High Energy/High Voltage (HE-HV) Cathode Program (2014-2018), Lead - Interfaces
  Advanced Battery Research (ABR), EERE. Proposal co-author; Synthesized model cathodes in conjunction with MAS-NMR team; Developed spectroscopic tools to assess the role of coatings, dopants, and electrolyte additives on the stability of cathode interfaces.

- Non-Aqueous Organic Redox Flow Batteries, (2010-12), Principal Investigator
  Laboratory Directed Research and Development (LDRD). With Andy Jansen (ANL), Fikile Brushett (ANL/MIT); developed a new energy storage concept for grid applications; Designed and tested active organic compounds, evaluated system designs for an all-Organic Non-Aqueous Redox Flow Battery. Merged program into JCESR in 2012.

- Three-Dimensional Silicon Anode Architectures (2010-2014), Principal Investigator
  Batteries for Advanced Transportation Technologies (BATT), EERE; Investigated SEI growth and the role of interfacial materials in silicon-based lithium-ion battery electrodes using techniques that included MAS-NMR, and in-situ X-Ray tomography.

- Solid Electrolytes for Lithium Batteries (2008-2013), Principal Investigator
  Integrated Lab Industry Research Partnership (ILIRP-BATT), EERE; Solid State Batteries Identify materials and processing techniques to enable solid state batteries that use (1) ceramic electrolytes based on garnet and NASICON structures (thin film, bulk), and (2) stabilize the lithium metal anode interface based on self-terminating surface reactions.

- High Energy Density Anodes for Lithium-Ion Batteries (2006-10),
  Batteries for Advanced Transportation Technologies (BATT), EERE; Investigate the correlation between the synthesis, electrode structure, and material properties of high energy density intermetallic anodes.

- Thin Film Batteries (2003-05),
  Laboratory Directed Research and Development (LDRD) with Orlando Auciello (MSD); Devise thin film batteries with high energy density anode structures in support of DOE's Artificial Retina Program.

- Hydrogen Storage in a Zintl Matrix (2002-05), Principal Investigator
  Laboratory Directed Research and Development (LDRD) with James Ralph (CMT); Developed an electrochemically driven storage system that reversibly stored 7wt% H_2 at RT based on $Li_{15}Si_4$.

- High Energy Density Medical Cathodes (1998-2001)
  Cooperative Research and Development Agreement (CRADA), Guidant with Dennis Dees (CMT); Discovery, characterization, and evaluation of new silver-based cathodes for medical batteries.

- High-Capacity Cathodes for Lithium-Ion Batteries (1998-2005)
  Batteries for Advanced Transportation Technologies (BATT), EERE; Discovery, evaluation, and characterization of lithium-rich NMC-cathodes with Mike Thackeray, Chris Johnson

- Intermetallic Insertion Anodes for Lithium-Ion Batteries (1998-2005)
  Batteries for Advanced Transportation Technologies (BATT), EERE; Discovery, evaluation, and characterization of several anodes based on lithium insertion into metallic host structures, including Cu_2Sb and Cu_6Sn_5.

Educational Activities:

Current Postdoctoral Researchers:

- Dr. Sanghyeon Kim (2019-pres)

Past Postdoctoral Researchers:

- Dr. Fikile Brushett (2011-2012; MIT Chemical Engineering)
- Dr. Baris Key (2011-2014; Argonne Chemical Sciences)
- Dr. Suzanna Neuhold (2011-2012; AVL Industries)
- Dr. Fulya Dogan (2012-2014; Argonne Chemical Sciences)
- Aude Hubaud (2011-2016; Volta Energy Technologies)
- Dr. Danielle Proffit (2013-2015; Rayovac)
- Dr. Niya Sa (2016-2017; University of Massachusetts – Boston)
- Dr. Sang-Don Han (2016-2017; National Renewable Energy Laboratory)
- Dr. Krista Hawthorne (2016-2018; Argonne Chemical and Fuel Cell Technologies)
- Dr. Anthony Montoya (2019-2022)

Graduate Students:

- Dr. Erin Sorenson, Inorganic Chemistry, Northwestern University, PhD 2005
  (PhD Advisor Ken Poeppelmeier)
- Scott Barry, Inorganic Chemistry, Northwestern University, MSc, 2005.
  (MSc Advisor Ken Poeppelmeier).
- Dr. Duminda Sanjeewa, Inorganic Chemistry, Clemson University, PhD 2013.

(PhD Advisor Prof Shiou-Jyh Hwu)

- Dr. Jessica Hong, Inorganic Chemistry, Oregon State University, PhD 2021
  (PhD Advisor David Ji)

Teaching

1985-1986 **Sterling Elementary School,** Fourth Grade Science Teacher.
Designed and implemented (with P. Barrett) an elementary school science curriculum based on weekly hands-on projects, classroom labs, and a science fair.

1987-1988 **Northwestern University,** Teaching Assistant, General Chemistry Laboratory,
Responsible for helping set up and supervise undergraduate chemistry lab classes, test grading, glassblowing class.

1988-1989 **Northwestern University,** Departmental Lecture Demonstrator,
Responsible for designing, preparing, and performing daily lecture demonstrations for undergraduate chemistry classes.

1990-1991 **Northwestern University,** Teaching Assistant, Advanced Inorganic Chemistry,
Designed and implemented two new materials chemistry modules within the junior level laboratory course.

1995 **Iowa State University,** Substitute Teacher, Freshman Chemistry,

Publications:

- Metrics (Oct 2022)
- Refereed Articles: 171 (WoS)
- H-Index Web of Science: h= 61 (85 citations/publ)
  Google Scholar: h = 68
- ORCID Profile: http://orcid/org/000-0002-2556-6129

1. Herbert Beall, Bradley J. Howard, John T. Vaughey, "X-Ray Studies of Coal Oxidation", *Energy and Fuels*, **2**, 721 (1988).

2. J. B. Wiley, L. M. Markham, J. T. Vaughey, T. J. McCarthy, M. Sabat, S, -J. Hwu, S. N. Song, J. B. Ketterson, K. R. Poeppelmeier, "A New Layered Copper Oxide: $LaSrCuAlO_5$", *Am. Chem. Soc. Symposium Series* **377**, 305 (1988).

3. J. T. Vaughey, R. S. Shumaker, S. N. Song, J. B. Ketterson, K. R. Poeppelmeier, "$LaSrCuGaO_5$: A New Brownmillerite-Related Copper Oxide", *Mol. Cryst. Liq. Cryst.* **184**, 335 (1990).

4. J. T. Vaughey, J. B. Wiley, K. R. Poeppelmeier, "The Synthesis, Structure and Properties of $LaSrCuGaO_5$", *Z. Anorg. Allg. Chem,.* **598/599**, 327 (1991).

5. J. T. Vaughey, K. R. Poeppelmeier, "Structural Diversity in Oxygen-Deficient Perovskites", *Proceedings of the International Electronics Conference*, National Institute of Standards and Technology Special Publication, **804**, 419 (1991)

6. J. T. Vaughey, J. P. Thiel, E. F. Hasty, D. A. Groenke, Charlotte L. Stern, K. R. Poeppelmeier, B. Dabrowski, D. G. Hinks, A. W. Mitchell, "Synthesis and Structure of a New Family of Superconductors: $LnSr_2Cu_2GaO_7$", *Chemistry of Materials*, **3**, 935 (1991).

7. K. R. Poeppelmeier, J. P. Thiel, J. T. Vaughey, M. T. Anderson, D. A. Groenke, C. L. Stern, B. Dabrowski, D. G. Hinks, A. W. Mitchell, " A New Family of Cuprate Superconductors: Effect on Non-Magnetic Chains and Planes", *Physica C*, **185/189**, 525 (1991).

8. S. M. Wang, J. D. Carpenter, M. V. Deaton, S. -J. Hwu, J. T. Vaughey, K. R. Poeppelmeier, S. N. Song, J. B. Ketterson, "A New Series of Mixed Metal Cuprates in the T' Structure: $Nd_{2-x-y}M_xCe_yCuO_{4-\delta}$ (M=Ca,Mg)" *Proceedings of the Second World Congress on Superconductivity, in Progress* in *High Temperature Superconductivity*, Vol 28, World Scientific Press, 467 (1992).

9. J. T. Vaughey, E. F. Hasty, K. R. Poeppelmeier, "Cation Ordering and Oxygen Vacancies in Mixed Metal Oxide Perovskites" *Solid State Ionics*, **53/56**, 573 (1992).

10. B. Dabrowski, V. Zhang-McCoy, P. Raedelli, A. W. Mitchell, D. G. Hinks, J. T. Vaughey, D. A. Groenke, K. R. Poeppelmeier, "Synthesis and Structure of a New Family of Superconducting Copper Oxides Based on GaO Layers", *Proceedings of the Fifth Annual Conference on Superconductivity and Applications*, **251**, 319 (1992).

11. S. M. Wang, J. D. Carpenter, M. V. Deaton, S. -J. Hwu, R. Sauerbrey, J. T. Vaughey, K. R. Poeppelmeier, S. N. Song, J. B. Ketterson, "A New Series of Mixed Metal Cuprates in the T' Structure: $Nd_{2-x-y}A_xCe_yCuO_{4-\delta}$ (A=Ca,Mg)", *Inorg. Chim. Acta*, **196**, 145 (1992).

12. B. Dabrowski, D. G. Hinks, A. W. Mitchell, P. Raedelli, J. T. Vaughey, D. A. Groenke, K. R. Poeppelmeier, "A New family of Cuprate Superconductors: $GaSr_2Ln_{1-x}CaxCu_2O_7$", *Physica C,* **193**, 63 (1992).

13. Mark T. Anderson, John T. Vaughey, K. R. Poeppelmeier "Structural Similarities among Oxygen Deficient Perovskites" *Chemistry of Materials*, **5**, 151 (1993).

14. J. T. Vaughey, W. T. A. Harrison, A. J. Jacobson "Hydrothermal Synthesis, Structures, and Properties of Two New Potassium Vanadium Phosphates: $K_3(VO)(V_2O_3)(HPO_4)(PO_4)_2$ and $K_3(VO)(HV_2O_3)(HPO_4)(PO_4)_2$" *J. Solid State Chem.*, **110**, 305 (1994).

15. G. W. Tomlins, N. L.Jeon, T. O. Mason, D. A. Groenke, J. T. Vaughey, K. R. Poeppelmeier "High Temperature Electrical Characterization of Gallium Based Layered Cuprates" *J. Solid State Chem.*, **109**, 338 (1994).

16. J. T. Vaughey, William T. A. Harrison, Allan J. Jacobson, David Goshorn, Jack W. Johnson "Synthesis, Structure and Properties of Two New Vanadium (III) Phosphates: $VPO_4{*}H_2O$ and $V_{1.23}(PO_4)(OH)_{0.69}(H_2O)_{0.31}$" *Inorganic Chemistry*. **33**, 2481 (1994).

17. J. T. Vaughey, William T. A. Harrison, Allan J. Jacobson "A New Layered Vanadium Selenium Oxide with a Structure Related to Hexagonal Tungsten Oxide: $NH_4(VO_2)_3(SeO_3)_2$" *Inorganic Chemistry*. **33**, 4370 (1994).

18. William T. A. Harrison, S. C. Lin, J. T. Vaughey, Allan J. Jacobson "Synthesis, Structure and Magnetism of $Ba_2(VO)(PO_4)_{2*}$ H_2O: A New Barium Vanadium Phosphate Hydrate" *J. Solid State Chem*., **113**, 444, (1994).

19. William T. A. Harrison, J. T. Vaughey, Laurie L. Dussack, Theresa Wright, Allan J. Jacobson, Galen Stucky, "Two New Adamite-type Phases, $Co_2(OH)(PO_4)$ and $Zn_2(OH)(PO_4)$: Structure Directing Effects of Organic Additives" *J. Solid State Chem*., **114**, 151, (1995).

20. William T. A. Harrison , J. T. Vaughey, Allan J. Jacobson, David P. Goshorn, Jack W. Johnson, "Two New Barium/Vanadium (IV) Phases: $Ba(VO)_2(SeO_3)(HSeO_3)_2$, the First Barium Vanadium Selenite, and $Ba_8(VO)_6(PO_4)_2(HPO_4)_{11}$, A Compound Built up from Two Types of One Dimensional Chains" *J. Solid State Chem*., **116**, 77, (1995).

21. John F. Brody, Jack Johnson, Jack Vaughey "Vanadyl Phosphates and Organylphosphonates" published in *Inorganic Synthesis – Nonmolecular Solids*, Ed. Donald W. Murphy, Leonard Interrante, **30**, 241, (1995)

22. William T. A. Harrison, Stan Roliard, John T. Vaughey, Lumei Lu, Allan J. Jacobson, "Crystal Structure of the High T_c Superconductor $HoSr_2Cu_{2.7}Mo_{0.3}O_{7.54}$ by Joint Time of Flight Neutron/X-Ray Rietveld Refinement" *J. Solid State Chem*. **119**, 115, (1995).

23. J.-T. Zhao, Z. C. Dong, J. T. Vaughey, J. E. Ostenson, J. D. Corbett "Synthesis, Structure and Properties of Cubic R_3In and R_3InZ Phases (R = Y, La; Z = B, C,N,O). The Effect of Interstitial Z on the Superconductivity of La_3In" *J. Alloys Compounds,* **230**, 1, (1995).

24. William T. A. Harrison, Laurie L. Dussack, John T. Vaughey, Thomas Vogt, Allan J. Jacobson, Galen Stucky, "Synthesis, Crystal Structures, and Properties of New Layered Tungsten (VI) Methylphosphonates: $M(WO_3)PO_3CH_3$ (M = NH_4, Rb, Cs)" *J. Mater. Chem*., **6**, 81, (1996).

25. J. T. Vaughey and J. D Corbett "Synthesis and Structure of $Ca_{14}GaP_{11}$ with the New Hypervalent P_3^{7-} Anion. Matrix Effects within the Family of Isostructural Alkaline Earth Metal Pnictides" *Chemistry of Materials*, **8**, 671 (1995).

26. S. C. Lin, J. T. Vaughey, W. T. A. Harrison, L .L Dussack, Allan J. Jacobson, Jack W. Johnson "Redox Transformations of Simple Vanadium Phosphates: The Synthesis of ε - $VOPO_4$" *Solid State Ionics*, **84**, 219 (1996).

27. J. T. Vaughey and J. D Corbett "Synthesis and Structure of $NaGaSn_2$: A New Zintl Phase with an Open Framework Structure" *J. Am. Chem. Soc.,* **118**, 12098 (1996).

28. J. T. Vaughey and J. D Corbett "Na_5Sn_{13}: A New Zintl Phase with a Complex Network Structure Constructed from Tin Pentagons" *Inorg Chem.,* **36**, 4316 (1997).

29. J. T. Vaughey, Gordon J. Miller, S. Gravelle, E. Alejandro Leon-Escamilla, John D. Corbett "Synthesis, Structure, and Properties of $BaGe_2$: A Study of Tetrahedral Cluster Packing and Other Three-Connected Nets in Zintl Phases" *J. Solid State Chem.*, **133**, 501 (1997).

30. Yair Ein-Eli, W. F. Howard, Jr., Sharon H. Lu, Sanjeer Mukerjee, James McBreen, John T. Vaughey, Michael M. Thackeray, "$LiCu_xMn_{2-x}O_4$ Spinel ($0.1 < x < 0.5$): A New Class of 5V Cathode Materials for Li Batteries. 1. Electrochemical, Structural, and Spectroscopic Studies" *J. Electrochem. Soc.*, **145**, 1238 (1998).

31. Michael M. Thackeray, Y. Shao-Horn, Arthur Kahaian, K. D. Kepler, E. Skinner, J. T. Vaughey, S. A. Hackney "Structural Fatigue in Spinel Electrodes in High Voltage (4V) $Li/LiMn_2O_4$ Cells", *Electrochemical and Solid State Letters*, **1**, 5 (1998).

32. Y. Ein-Eli, W. F. Howard, S. H. Lu, S. Mukerjee, J. McBreen, J. Vaughey, M.M.Thackeray "$LiMn_{2-x}Cu_xO_4$ Spinels - 5V Cathode Materials" in *Materials for Electrochemical Storage and Conversion II - Batteries, Capacitors, and Fuel Cells*, Ed. D. S. Ginley, D. H. Doughty, B. Scrosati, T. Takamura, Z. Zhang, Materials Research Society Symposium Proceedings, **496**, 315 (1998).

33. Y. Ein-Eli, S. Mukerjee, X. Q. Wang, J. McBreen, J. T. Vaughey, M. M. Thackeray "$LiNi_xCu_{0.5-x}Mn_{1.5}O_4$ Spinel Electrodes - Superior High Potential Cathode Materials for Li Batteries I. Electrochemical and Structural Studies" J. *Electrochem. Soc.,* **146**, 908 (1999).

34. K.D. Kepler, J. T. Vaughey, M. M. Thackeray "Copper Tin Anodes for Rechargeble Lithium Batteries: An Example of the Matrix Effect in an Intermetallic System" *J. Power Sources*, **81/82**, 383 (1999).

35. Y. Shao-Horn, S. A. Hackney, A.J. Kahaian, K. D. Kepler, E. Skinner, J. T. Vaughey, M. M. Thackeray "Structural Fatigue in Spinel Electrodes in $Li/Lix[Mn_2]O_4$ Cells" *J. Power Sources*, **81/82**, 496 (1999).

36. C.S. Johnson, S. D. Korte, J. T. Vaughey, M. M. Thackeray, T. E. Bofinger, Y. Shao-Horn, S. A. Hackney "Structural and Electrochemical Analysis of Layered Compounds from Li_2MnO_3"J. *Power Sources,* **81/82**, 491 (1999).

37. L. D. Noailles, C.S. Johnson, J. T. Vaughey, M. M. Thackeray "Lithium Insertion into Hollandite-type TiO_2" Journal *of Power Sources* **81/82**, 259 (1999).

38. M. M. Thackeray, C.S. Johnson, A.J. Kahaian, K.D. Kepler, J. T. Vaughey, Y. Shao-Horn, and S. A. Hackney "Stabilization of Insertion Electrodes for Lithium Batteries", *J. Power Sources*, **81/82**, 60 (1999).

39. M. M. Thackeray, J. T. Vaughey, A.J. Kahaian, K.D. Kepler, and R. Benedek "Intermetallic Insertion Electrodes derived from NiAs, Ni_2In, and Li_2CuSn-type Structures for Lithium-Ion Batteries" *Electrochem. Comm*, **1**, 111 (1999).

40. K.D. Kepler, J. T. Vaughey, M. M. Thackeray "$Li_xCu_6Sn_5$ (0<x<13): An Intermetallic Insertion Electrode for Rechargeable Lithium Batteries" *Electrochemical and Solid State Letters*, **2** 307 (1999).

41. J. T. Vaughey, K. D. Kepler, R. Benedek and M. M. Thackeray "NiAs- vs. Zinc-Blende-Type Intermetallic Insertion Electrodes for Lithium Batteries: Lithium Extraction from Li_2CuSn" *Electrochem Comm.,* **1**, 517 (1999).

42. M. Thackeray, C. S. Johnson, A.J. Kahaian, K. Kepler, J. Vaughey, Y.Shao-Horn, S. Hackney "Composite Electrodes for Lithium Batteries" *ITE Battery Letters*, **1**, 26 (1999).

43. J. T. Vaughey, X. Wang, J. D. Carter, M. Krumpelt "Altering the Equilibrium Condition in Sr-Doped Lanthanum Manganite" *Proceedings of the Sixth International Symposium in Solid Oxide Fuel Cells (SOFC VI)* and t*he 196th Meeting of the Electrochemical Society,* Vol 99-19, 361 (1999).

44. J. T. Vaughey, J. O'Hara, M. M. Thackeray "Intermetallic Insertion Electrodes with a Zinc-Blende Type Structure for Li-Batteries: A Study of Li_x[InSb] (0<x<3)", *Electrochemical and Solid State Letters*, **3**, 13 (2000).

45. J. T. Vaughey, K. Kepler, C. S. Johnson, T. Sarakonsri, R. Benedek, J. O'Hara, S. Hackney, M. Thackeray "Intermetallic Insertion Electrodes for Lithium Batteries" *Proceedings of the 196th Meeting of the Electrochemical Society - Intercalation Compounds for Battery Materials*, Vol 99-24, 280 (2000).

46. M. M. Thackeray, J. T. Vaughey, C.S. Johnson, K. D. Kepler "Intermetallic Insertion Anodes for Lithium Batteries" *ITE Letters*, **2**, 29 (2000).

47. C. S. Johnson, J. T. Vaughey, M. M. Thackeray, T. Sarakonsri, S. Hackney, L. Fransson, K. Edström, J.O. Thomas "Electrochemistry and In-Situ X-Ray Diffraction of InSb in Li Batteries" *Electrochem. Comm.,* **2**, 595 (2000).

48. C.H. Chen, J. T. Vaughey, A.N. Jansen, A. Kahaian, D. Dees, T. Goacher, M. Thackeray "Studies of Mg-Substituted $Li_{4-x}Mg_xTi_5O_{12}$ Spinel Electrodes for Lithium Batteries" *J. Electrochem. Soc.,* **148** A102, (2001).

49. J. T. Vaughey, C.S. Johnson, A. J. Kropf, R. Benedek, M. M. Thackeray, H. Tostmann, T. Sarakonsri, S. Hackney, L. Fransson, K. Edstrom, J. O. Thomas "Structural and Mechanistic Studies of Intermetallic Electrodes", *J. Power Sources*, **97/98** 194 (2001).

50. R.Benedek, J. T. Vaughey, M. Thackeray, L. H. Yang, R. Prasad "First Principle Calculations for Li Insertion into InSb" *J. Power Sources*, **97/98**, 201 (2001).

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12. K. Poeppelmeier, J. T. Vaughey, M.T. Anderson, D. A. Groenke, R. Torecki, B. Dabrowski, D. G. Hinks, A.W. Mitchell, P. Radaelli "New Family of Planar Cuprate Superconductors" 203rd American Chemical Society National Meeting, San Francisco, CA, April 1992.

13. M. Anderson, J. T. Vaughey, K. Poeppelmeier "Structural Similarities among Oxygen Deficient Perovskites" 205th American Chemical Society National Meeting, Denver, CO, March 1993.

Postdoctoral Studies

14. J. T. Vaughey, W. T. A. Harrison, A. J. Jacobson, "Vanadium Selenites: New Layered Compounds Based on the Selenite Anion $[SeO_3]^{2-}$", 1993 Gordon Conference on Zeolitic and Layered Materials, Plymouth NH, June 1993.

15. J. T. Vaughey "New Vanadium Framework Structures based on Selenite and Phosphate Anions", Inorganic Seminar, Rice University, October 1993.

16. J. T. Vaughey "New Vanadium Framework Structures based on Selenite and Phosphate Anions", Inorganic Seminar, University of Houston, October 1993.

17. J. T. Vaughey, W.T.A. Harrison, L. Dussack, Allan J. Jacobson "Synthesis, Structures, and Properties of a New Family of Layered Selenites" 1994 Gordon Conference on Solid State Chemistry, Wolfeboro, NH, July 1994.

18. W.T.A. Harrison, J. T. Vaughey, L. Dussack, D. Goshorn, J. Johnson, Allan J. Jacobson "Synthesis, Structure, and Magnetic Properties of Several New Barium Vanadium Phosphates" 1994 Gordon Conference on Solid State Chemistry, Wolfeboro, NH, July 1994.

19. J. T. Vaughey, John D. Corbett "A New Structure Based on Interpenetrating Helices: $Na[GaSn_2]$" 210th American Chemical Society National Meeting, Chicago, IL, August 1995.

20. J. T. Vaughey "Structural Control in Solid State Chemistry" Inorganic Seminar, University of New Mexico, January 1996.

21. J. T. Vaughey "Structural Control in Solid State Chemistry" Inorganic Seminar, University of Nebraska-Lincoln, January 1996.

22. J. T. Vaughey "Anionic Tin and Germanium: New Building Blocks for Main Group Materials", Inorganic Seminar, University of Texas-Austin, November 1996.

23. J. T. Vaughey "Anionic Tin and Germanium: New Building Blocks for Main Group Materials", Inorganic Seminar, Virginia Commonwealth University, December 1996.

24. J. T. Vaughey "Anionic Tin and Germanium: New Building Blocks for Main Group Materials", Inorganic Seminar, University of Pittsburgh, December 1996.

25. J. T. Vaughey "Anionic Tin and Germanium: New Building Blocks for Main Group Materials", Inorganic Seminar, University of Iowa, January 1997.

26. J. T. Vaughey "Synthesis, Structure, and Properties of a Variety of New Layered Materials", Chemical Technology Division, Argonne National Laboratory, Lemont, IL, January 1997.

27. J. T. Vaughey "Anionic Tin and Germanium: New Building Blocks for Main Group Materials", Inorganic Seminar Brandeis University, January 1997.

28. J. T. Vaughey "Vanadium Phosphate: A Bridge between Chemistry and Engineering", Inorganic Seminar, Union College, February 1997.

29. J. T. Vaughey "Synthesis, Structure, and Properties of a Variety of New Layered Materials", Chemical Technology Division, Argonne National Laboratory, Lemont, IL, January 1997.

30. Michael Klem, Jason Harp, J. T. Vaughey, J. D. Corbett "Polymerizing Clusters in the Solid State: Structure and Bonding in Sr_3Sn_5 and La_3Sn_5" 2000 Gordon Conference on Solid State Chemistry, Colby-Sawyer College, NH, July/August 2000.

Argonne National Laboratory

31. M. M. Thackeray, C.S. Johnson, A. J. Kahaian, K.D. Kepler, J. T. Vaughey, Y.Shao-Horn, S. A. Hackney "Stabilization of Insertion Electrodes for Lithium Batteries" 9th International Meeting on Lithium Batteries, Edinburgh, Scotland, July 1998.

32. L.D. Noailles, C.S. Johnson, J. T. Vaughey, M. M. Thackeray "Lithium Insertion into Hollandite-type TiO_2" 9th International Meeting on Lithium Batteries, Edinburgh, Scotland, July 1998.

33. J. T. Vaughey, K.D. Kepler, D. R. Vissers, M M. Thackeray "Copper Tin Anodes for Rechargeable Lithium Batteries" 9th International Meeting on Lithium Batteries, Edinburgh, Scotland, July 1998.

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35. C.S. Johnson, J. T. Vaughey, M. M. Thackeray, T. E. Bofinger, Y. Shao-Horn, S. A. Hackney "Structural and Electrochemical Analysis of Layered Compounds from $Li_{2-x}Mn_{1-y}M_yO_{3-x/2}$ Electrodes ($0<x<2$, $0<y<0.26$, M = Zr, Ti)", 9th International Meeting on Lithium Batteries, Edinburgh, Scotland July 1998.

36. Y. Shao-Horn, S. A. Hackney, A. J. Kahaian, K. D. Kepler, E. Skinner, J. T. Vaughey, M. M. Thackeray "Structural Fatigue of Spinel Electrodes in 4V $Li/Li_{1+d}Mn_{2-d}O_4$ Cells ($0 < d < 0.1$)" 9th International Meeting on Lithium Batteries, Edinburgh, Scotland July 1998.

37. M. M. Thackeray, K. D. Kepler, J. T. Vaughey, A. J. Kahaian, C.S. Johnson, Y. Shao-Horn, S. A. Hackney "Composite Electrodes for Lithium Batteries" 12th IBA Battery Materials Symposium, Annecy, France, September 1998

38. C. S. Johnson, L.D. Noailles, J. T. Vaughey, and M. M. Thackeray "Microporous Titanium Oxide Anodes for Rechargeable Lithium Batteries" 194th Meeting of the Electrochemical Society, Boston, October 1998.

39. C.S. Johnson, J. T. Vaughey, M. M. Thackeray, T.E. Bofinger, and S.A. Hackney "Layered Lithium-Manganese Oxide Electrodes Derived from Rock Salt $Li_xMn_yO_z$ (x+y=z) Precursors", 194th Meeting of the Electrochemical Society, Boston, October 1998

40. J. T. Vaughey "Intermetallic Anodes for Lithium Batteries", 191st Meeting of the Materials Research Society, Boston, December 1998.

41. Y. Shao-Horn, S.A. Hackney, A.J. Kahaian ,K.D. Kepler, E. Skinner, J. T. Vaughey and M. M. Thackeray "The Stability of Lithium Manganese Oxide Structures in 4V Lithium-ion Cells", 191st Meeting of the Materials Research Society, Boston, December 1998.

42. Christopher S. Johnson, Arthur J. Kropf, Michael M. Thackeray, John T. Vaughey "In Situ Synchrotron Spectroscopy of Lithium Battery Positive Electrode Materials" 191st Meeting of the Materials Research Society, Boston, December 1998.

43. J. T. Vaughey, K. D. Kepler, A. N. Jansen, A. J. Kahaian, C. S. Johnson, K. Amine, D. Vissers, M. M. Thackeray "Electrochemical and Crystallographic Studies of $Li_4Ti_5O_{12}$", 191st Meeting of the Materials Research Society, Boston, December 1998.

44. J. T. Vaughey "New Anode Materials for Secondary Lithium-ion Batteries" Chemistry Department Seminar, University of New Orleans, New Orleans, Feb, 1999.

45. A.J. Kahaian, J. T. Vaughey, K. Kepler, C. Chen, A. Jansen, M. Thackeray. "Synthesis and Characterization of Alternative Anode Materials for Li-Ion Batteries" Third International Symposium on New Materials for Fuel Cell and Modern Battery Systems, Montreal, Canada March 1999.

46. M. M. Thackeray, J. T. Vaughey, K.D. Kepler, A. J. Kahaian "$Li_xCu_6Sn_5$ ($0<x<13$) An Intermetallic Insertion Electrode for Rechargeable Lithium Batteries" Sixteenth International Seminar & Exhibit for Primary and Secondary Batteries, Fort Lauderdale, Fl, March 1999.

47. X. Wang, J. Vaughey, J. Ralph, M. Krumpelt "Cathode Materials for Solid Oxide Fuel Cells", 1999 Joint DOE/EPRI/GRI Fuel Cell Technology Review Conference, August 1999.

48. J. Vaughey, X. Wang, J. Ralph, J. D. Carter, and Mike Krumpelt "Altering the Equilibrium in Sr-Doped Lanthanum Manganite" 6th International Symposium on Solid Oxide Fuel Cells (SOFC-VI), Honolulu, HI October 1999.

49. C.H. Chen, J. Vaughey, A. N. Jansen, A. J. Kahaian, M. M. Thackeray "Electrochemical Studies of Mg-Doped $Li_4Ti_5O_{12}$ Anodes" 1999 Joint International Meetings and the 196th Meeting of the Electrochemical Society, Honolulu, HI, October 1999.

50. T. E. Bofinger, Y. Shao-Horn, B. C. Cornilson, S. Hackney, C. S. Johnson, J. Vaughey, M. M. Thackeray "Synthesis of Li-M-O Spinel Oxides from M_3O_4 (M=Co,Mn) Templates" 1999 Joint International Meetings and the 196th Meeting of the Electrochemical Society, Honolulu, HI, October 1999.

51. J. Vaughey, K. Kepler, C. S. Johnson, T. Sarakonsri, M. Scott, A. Kahaian, S. Hackney, and M. M. Thackeray "Intermetallic Insertion Anodes for Lithium Batteries" 1999 Joint International Meetings and the 196th Meeting of the Electrochemical Society, Honolulu, HI, October 1999.

52. C. S. Johnson, M. M. Thackeray, J. T. Vaughey, K. D. Kepler, A. J. Kahaian, K. Amine "Intermetallic Insertion Electrodes for Li-Ion Batteries" 40th Battery Symposium, Kyoto, Japan, November 1999.

53. X. Wang, J. Vaughey, J. Ralph, M. Krumpelt "New Materials to Enhance the Efficiency of Solid Oxide Fuel Cells" Material Solutions, Conference Solutions International Meeting, Cincinnati, OH, November 1999.

54. M. M. Thackeray, J. T. Vaughey, C. S. Johnson, K. D. Kepler "Intermetallic Insertion Anodes for Lithium Batteries" 13th International Battery Association Materials Symposium, Marrakesh, Morocco, November 1999.

55. J. Vaughey "A New Class of Negative Electrodes for Lithium Batteries" CMT Divisional Seminar, Lemont, IL, April 2000.

56. J. Ralph, J. T. Vaughey, M. Krumpelt "Medium Temperature Cathode Materials for Solid Oxide Fuel Cells" 2000 Fuel Cell Seminar, Portland OR, August 2000.

57. R. Benedek, J. T. Vaughey, M. Thackeray, L. H. Yang, R. Prasad "Intermetallic Anode Materials for Lithium Batteries" 102nd Annual Meeting of the American Ceramics Society. St Louis MO, April 2000.

58. A.J. Kropf, C. Johnson, M. M. Thackeray, J. T. Vaughey, H. Tostmann "In-Situ XAFS of Intermetallic Insertion Electrodes for Lithium Batteries - A Study of Li_x[InSb]" 10th Users Meeting for the Advanced Photon Source, Argonne National Laboratory, May 2000.

59. Y. Shao-Horn, S. A. Hackney, C. S. Johnson, A. J. Kahaian, K. Kepler, E. Skinner, J. T. Vaughey, M. Thackeray "Stability of Spinel, Orthorhombic, and Layered Lithium Manganese Oxides" International Battery Association Symposium - IBA2000, Argonne National Laboratory, May 2000.

60. J. T. Vaughey, C.S. Johnson, B. Roy, M. M. Thackeray, L. Fransson, K. Edstrom, J. Thomas "Structural and Mechanistic Studies of Intermetallic Electrodes" IMLB10 – the Tenth International Meeting on Lithium Batteries The Electrochemical Society, Centro Volta-Como, Italy May/June 2000.

61. C.S. Johnson, J. T. Vaughey, D.W. Dees, A.N. Jansen, M. M. Thackeray, T. Sarakonsri, S.A. Hackney "Electrochemistry and Impedance Analysis of Intermetallic Electrodes for Lithium-Ion Batteries" IMLB10 – the Tenth International Meeting on Lithium Batteries The Electrochemical Society, Centro Volta-Como, Italy May/June 2000.

62. J. T. Vaughey, C. S. Johnson, M. Thackeray, H. Tostmann, J. Kropf, T. Sarakonsri, S. Hackney "A New Class of Intermetallic Electrodes for Lithium-Ion Batteries" 2000 Gordon Conference on Solid State Chemistry, Colby-Sawyer College, NH, July/August 2000.

63. J. T. Vaughey, C. S. Johnson, M. Thackeray, H. Tostmann, J. Kropf, T. Sarakonsri, S. Hackney "*In-Situ* XRD and Mechanistic Studies of InSb Electrodes for Lithium-Ion Batteries" 198th Meeting of the Electrochemical Society, Phoenix, AZ, October 2000.

64. C.S. Johnson, J. Vaughey, M. Thackeray "Cycling Performance of Stabilized Alpha Manganese Dioxide Electrode Materials" 198th Meeting of the Electrochemical Society, Phoenix, AZ, October 2000.

65. M. M. Thackeray, J. T. Vaughey, C. S. Johnson "Recent Developments in Anode and Cathode Materials for Lithium-Ion Electrochemical Cells" Fall Materials Research Meeting, Boston, MA, December 2000.

66. M. M. Thackeray, J. T. Vaughey, C. S. Johnson, R. Benedek, L. Fransson, K. Edstrom, J. O. Thomas "Intermetallic Electrodes for Lithium Batteries: The Significance of Face Centered Cubic Structures " 18th Annual International Seminar and Exhibit on Primary and Secondary Batteries, Fort Lauderdale, FL, USA March 2001.

67. M. M. Thackeray, J. T. Vaughey, C. S. Johnson "Recent Advances in Electrode Materials for Lithium Batteries", 221st Meeting of the American Chemical Society, San Diego CA April 2001.

68. R. Benedek, J. T. Vaughey, M. M. Thackeray, R. Prasad "Modeling and Design of Intermetallic Electrodes for Lithium Batteries" 103rd Meeting of the American Ceramics Society, Indianapolis, IN April 2001.

69. J. M. Ralph, J. T. Vaughey, M. Krumpelt "Evaluation of Potential Cathode Materials for SOFC's Operating between 500-800 ºC" 7th International Symposium on Solid Oxide Fuel Cells (SOFC-VII), Tsukuba, Japan, June 2001.

70. J. Vaughey, C.S. Johnson, L. Fransson, J. Kropf, H. Tostmann, R. Benedek, K. Edstrom, J. O. Thomas, M. M. Thackeray "Lithium Insertion Reactions in Intermetallic Electrodes" International Conference on Materials for Advanced Technologies (ICMAT 2001), Materials Research Society (Singapore), July 2001.

71. L. Fransson, K. Edstrom, J.O. Thomas, J. T. Vaughey, M. M. Thackeray "*In-situ* XRD Studies of Phase Transitions in Lithiated Intermetallic Anodes", 200th Meeting of the Electrochemical Society, San Francisco, CA September 2001.

72. T. Sarakonsri, S. Hackney, C. S. Johnson, J. T. Vaughey, M. Thackeray "Diffusional Transformations of InSb Electrodes in Lithium Cells", 200th Meeting of the Electrochemical Society, San Francisco, CA September 2001.

73. A. J. Kropf, H. Tostmann, C. S. Johnson, J. T. Vaughey, M. M. Thackeray "An In-Situ X-Ray Absorption Study of InSb Electrodes in Lithium Batteries" 200th Meeting of the Electrochemical Society, San Francisco, CA September 2001.

74. C. Johnson, A. J. Kropf, H. Tostmann, J. Vaughey, M. Thackeray "Analysis of InSb Electrode Phase Conversion by *In-Situ* X-Ray Absorption Spectroscopy" 11th APS Users Meeting, Argonne National Laboratory, Lemont, IL, September 2001.

75. J. T. Vaughey, L. Fransson, K. Edström, H. Swinger, C. Johnson, M. Thackeray "Alternative Anode Materials for Lithium Batteries" IMLB11 – the Eleventh International Meeting on Lithium Batteries, Monterey, CA June 2002.

76. Michael M. Thackeray, J. T. Vaughey, C. S. Johnson, R. Benedek, L. M. L. Fransson, K. Edström "Structural Considerations of Intermetallic Electrodes for Lithium Batteries" IMLB11 – the Eleventh International Meeting on Lithium Batteries, Monterey, CA June 2002.

77. C. S. Johnson, J.S. Kim, J. T. Vaughey, A. J. Kropf, M. Thackeray "Structural and Electrochemical Evaluation of $(1-x)Li_2TiO_3 \bullet x\ Li(Mn_{0.5}Ni_{0.5})O_2$ as an Electrode Materials for Lithium Batteries" IMLB11 – the Eleventh International Meeting on Lithium Batteries, Monterey, CA June 2002.

78. L. Fransson, K. Edstrom, J. T. Vaughey, M. Thackeray "Phase Transformation is Lithiated MnSb and Mn_2Sb" IMLB11 - Eleventh International Meeting on Lithium Batteries, Monterey, CA June 2002.

79. C. S. Johnson, A. J. Kropf, J. T. Vaughey, and M. M. Thackeray, "Structural Characterization of Anode and Cathode Materials for Lithium Batteries", International Workshop on the Industrial Applications of Synchrotron Radiation, Lemont, IL, September 2002.

80. L. Fransson, K. Edstrom, J. T. Vaughey, M. Thackeray "Phase Transitions in Lithiated Intermetallic Anodes for Lithium Batteries – *In-Situ* X-Ray Diffraction Studies" 202nd Meeting of the Electrochemical Society, Salt Lake City, UT October 2002.

81. J.S. Kim, C. S. Johnson, J. T. Vaughey, A. J. Kropf, M. Thackeray "Electrochemical

Evaluation of (1-x) Li_2TiO_3 • x $Li(Mn_{0.5}Ni_{0.5})O_2$ ($0<x<0.31$) Electrodes for Lithium Batteries" 202nd Meeting of the Electrochemical Society, Salt Lake City, UT October 2002.

82. J. T. Vaughey, J.S. Kim, C. S. Johnson, M. M. Thackeray "Elevated Temperature Performance of $LiMn_{2-x}M_xO_4$ Electrodes (M = Mg, Al, Zn) as a Function of Tetrahedral-site Occupancy" 202nd Meeting of the Electrochemical Society, Salt Lake City, UT October 2002.

83. C.S. Johnson, J.S. Kim, A.J. Kropf, A. J. Kahaian, J. T. Vaughey, L. Fransson, K. Edstrom, M. M. Thackeray "Redox Reactions of Mixed Metal Layered Oxide Cathodes: A Study of $Li_x[Mn_{0.5}Ni_{0.5}]O_2$ ($0<x<2$)" International Battery Association- Hawaii Battery Conference 2003 Meeting, Waikoloa, HI, January 2003.

84. K. Edström, M. Herstedt, J. T. Vaughey, M. M. Thackeray "Are Intermetallic Anodes for Li-Ion Batteries Safer?" International Battery Association- Hawaii Battery Conference 2003 Meeting, Waikoloa, HI, January 2003.

85. J. M. Ralph, C. C. Rossignol, J. T. Vaughey "The Role of A-site Deficiency in the Performance of Sr-Doped Lanthanum Ferrite Cathodes for SOFC's" 105th Annual Meeting and Exposition of the American Ceramics Society, Nashville, TN, April 2003.

86. A. J. Kropf, C. S. Johnson, J. T. Vaughey, M. M. Thackeray "Metal Oxide Electrode Multi-Electron Transfer Processes" 12th Users Meeting for the Advanced Photon Source, Lemont, IL, April 2003

87. J. S. Kim, J. T. Vaughey, C. S. Johnson, M. M. Thackeray "Stabilization of $LiMn_2O_4$ Spinel Electrodes for Lithium Batteries" International Conference on Polymer Batteries and Fuel Cells, Jeju Island, Korea, June 2003

88. J. T. Vaughey, C.S. Johnson, X. Qian, M. M. Thackeray "Spinel-Spinel Electrode Couples for Lithium-ion Batteries" 14th International Conference on Solid State Ionics, Monterey, CA, June 2003.

89. A. Jeremy Kropf, C. S. Johnson, J. T. Vaughey, M. M. Thackeray "XAFS Analysis of Layered $LiMn_{0.5}Ni_{0.5}O_2$ ($0<x<2$) Electrodes for Lithium Batteries", XAFS XII: The 12th International Conference on X-Ray Absorption Fine Structure Spectroscopy, Malmö, Sweden, June 2003.

90. A. Jeremy Kropf, C. S. Johnson, J. T. Vaughey, M. M. Thackeray "In-Situ X-Ray Absorption Spectroscopy of Electrochemically Induced Phase Changes in Lithium-Doped InSb", XAFS XII: The 12th International Conference on X-ray Absorption Fine Structure Spectroscopy, Malmö, Sweden, June 2003.

91. C. Rossignol, J. M. Ralph, J.-M. Bae, J. T. Vaughey "$Ln_{1-x}Sr_xCoO_3$ (Ln=Gd, Pr) as a Cathode Material for Intermediate Temperature Solid Oxide Fuel Cells", 14th International Conference on Solid State Ionics, Monterey, CA, June 2003.

92. Michael M. Thackeray, John T. Vaughey, Christopher S. Johnson, Jeom-Soo Kim "Limitations of Electrode Materials for Lithium Batteries", LIBD-2003: Lithium Battery

Discussion on Electrode Materials, Bordeaux-Arachon, France, September 2003.

93. Christopher S. Johnson, Jeom-Soo Kim, John T. Vaughey, Daniel Abraham, Nancy Dietz, Walter Zeltner, Marc A. Anderson, Michael M. Thackeray "Stabilized Spinel and Layered Electrodes for Li-Ion Cells" LIBD-2003: Lithium Battery Discussion on Electrode Materials, Bordeaux-Arachon, France, September 2003.

94. J. T. Vaughey, C. S. Johnson, H. A. Swinger, J. O'Hara, M. M. Thackeray "Electrochemical Studies of Intermetallic Phases" 226th American Chemical Society National Meeting, New York City, NY, September 2003.

95. J. S. Kim, J. T. Vaughey, C. S. Johnson, M. M. Thackeray "Stabilization of $LiMn_2O_4$ Spinel Electrodes for Lithium Batteries" 204th Meeting of the Electrochemical Society, Orlando, FL, October 2003

96. M. Hudson, J. T. Vaughey "New Approaches to High Power Medical Batteries" National Biomedical Research Conference for Minority Students, San Diego, CA, October 2003.

97. J. Ralph, C. Rossignol, J. T. Vaughey "A Neutron Diffraction Study of Sr-Doped Lanthanum Ferrite Cathodes for SOFCs" 55th Annual Pacific Coast Regional & Basic Science Fall Meeting, Oakland, CA, October 2003.

98. Christopher S. Johnson, John T. Vaughey, A. J. Kropf, X. Qian, Roy Benedek, Michael M. Thackeray "High Voltage $Li[(Ni_{0.5-x}Co_x)Mn_{1.5}]O_4$ ($0<x<0.5$) Spinel Oxide Cathodes for Lithium Batteries", International Battery Association Battery and Fuel Cell Materials Symposium, Graz, Austria, April 2004.

99. Michael M. Thackeray, John T. Vaughey, C.S. Johnson, A. J. Kropf, R. Benedek, L. M. L. Fransson, K. Edstrom "Alternative Anode Materials to Carbon for Lithium-Ion Batteries" International Battery Association Battery and Fuel Cell Materials Symposium, Graz, Austria, April 2004.

100. J. -S, Kim, C. S. Johnson, J. T. Vaughey, M. M. Thackeray "Preconditioned Layered Electrodes for Lithium Batteries" International Battery Association Battery and Fuel Cell Materials Symposium, Graz, Austria, April 2004.

101. C. S. Johnson, T. Sarakonsri, S. A. Hackney, J. T. Vaughey, N. Li, M. M. Thackeray "Synthesis and Electrochemical Properties of Nanoscopic Intermetallic Compounds", International Battery Association Battery and Fuel Cell Materials Symposium, Graz, Austria, April 2004.

102. M. M. Thackeray, C. S. Johnson, J. S. Kim, J. T. Vaughey, S. A. Hackney, W. Yoon, C. P. Grey "Stabilization of Layered Electrodes for Lithium Batteries", International Battery Association Battery and Fuel Cell Materials Symposium, Graz, Austria, April 2004.

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104. M. M. Thackeray, C. S. Johnson, J. S. Kim, J. T. Vaughey "Stabilization of Layered and Spinel Electrodes for Lithium Batteries", IMLB12 – the Twelfth International Meeting on Lithium Batteries, Nara, Japan, June 2004.

105. C.S. Johnson, K. Lauzze, J.S. Kim, J. T. Vaughey, S.A. Hackney, K. A. Walz, W. A. Zeltner, M.A. Anderson, M. M. Thackeray "Metal –Oxide Coated $LiMn_2O_4$ Spinel Electrodes for Lithium Battery Applications" IMLB12 – the Twelfth International Meeting on Lithium Batteries, Nara, Japan, June 2004.

106. T. S. Sarakonsri, C. S. Johnson, J. T. Vaughey, N. Li, S. A. Hackney, M. M. Thackeray "Low Temperature Synthesis of Intermetallics and Composite Electrodes for Lithium Batteries", IMLB12 – the Twelfth International Meeting on Lithium Batteries, Nara, Japan, June 2004.

107. J. S. Kim, C. S. Johnson, J. T. Vaughey, S. A. Hackney, W. Yoon, C. P. Grey, M. M. Thackeray "Electrochemical and Structural Properties of x Li_2MO_3 • (1-x)$LiMn_{0.5}Ni_{0.5}O_2$ Electrodes for Lithium Batteries (M= Ti, Mn, $0<x<0.3$)", IMLB12 – the Twelfth International Meeting on Lithium Batteries, Nara, Japan, June 2004.

108. C.S. Johnson, K. Lauzze, J.-S. Kim, J. T. Vaughey, S. A. Hackney, K. A. Walz, W. A. Zeltner, M. A. Anderson, M. M. Thackeray, W. Yoon,.C. P. Grey, T. Sarakonsri, N. Li, R. Benedek, R. Prasad, A. J. Kropf "Chemistry of Advanced Lithium Batteries" IMLB12 – the Twelfth International Meeting on Lithium Batteries, Nara, Japan, June 2004.

109. M. M. Thackeray, C. S. Johnson, J. S. Kim, J. T. Vaughey "Stabilization of Layered and Spinel Electrodes for Lithium Batteries", Gordon Conference on Solid State Chemistry, New London, NH, July 2004.

110. J. T. Vaughey, C. D. May E. Sorensen, H. K. Izumi, K. R. Poeppelmeier "New Silver-Based Cathodes for Medical Batteries" Gordon Conference on Solid State Chemistry, New London, NH, July 2004.

111. C. S. Johnson, J. -S. Kim, J. T. Vaughey, S.A. Hackney, W. Yoon, C. P. Grey, M. M. Thackeray "Electrochemical and Structural Properties of (x)$Li_2M'O_3$•(1-x)$LiMn_{0.5}Ni_{0.5}O_2$ Electrodes for Lithium-ion Batteries (M'=Ti, Mn, $0 < x < 0.3$)" Gordon Conference on Bioelectrochemistry, New London, CT, July 2004.

112. E. Sorensen, S. Barry, K. R. Poeppelmeier, J. T. Vaughey "Three-Dimensionally Ordered Macroporous $Li_4Ti_5O_{12}$" Gordon Conference on Solid State Chemistry, New London, NH, July 2004.

113. M. M. Thackeray, C. S. Johnson, N. Li, J. T. Vaughey, S-H. Kang, K. Amine, S. A. Hackney "Recent Advances in Manganese–based Composite Cathodes for Li-Ion Batteries" The 22nd International Battery Seminar and Exhibit for Primary & Secondary Batteries, Fort Lauderdale, FL, March 2005.

114. M. M. Thackeray, C. S. Johnson, N. Li, J. T. Vaughey, S-H. Kang, M. Balasubramanian, S. A. Hackney "Layered-Spinel Composite Cathodes for Li-Ion Batteries" Lithium-ion Battery

Discussion Group (LIBD-3) – Electrode Materials, Arachon, France, May 2005.

115. C. S. Johnson, M. Balasubramanian, S. Odeen, C. Lefief, N. Li, J. T. Vaughey, M. M. Thackeray, S. Hackney "Composite-Structured Mn-Based Electrodes for Li-Ion Batteries" 56th Annual Meeting of the International Society of Electrochemistry, Busan, South Korea, May 2005.

116. C.S. Johnson, S. Kang, J. Kim, N. Li, J. T. Vaughey, K. Amine, M. Thackeray "Science and Technology of Layered–Layered Composite Cathodes for Li-Ion Batteries" Second International Conference on Polymer Batteries and Fuel Cells (PBFC-2), Las Vegas, NV, USA, June 2005.

117. Il-Seok Kim, O. Auciello, J. T. Vaughey "Thin Film Cu_6Sn_5 Electrodes Prepared by RF Sputtering for Li-ion Batteries" 208th Meeting of the Electrochemical Society, Los Angeles, CA, USA, October 2005.

118. C. S. Johnson, S. Odeen, J. T. Vaughey, M. M. Thackeray, J. Bŕeger, C. P. Grey "Electrochemical Analysis and Characterization of Layered-Spinel 'Composite' Electrodes for Li-Batteries" 208th Meeting of the Electrochemical Society, Los Angeles, CA, USA, October 2005.

119. J. T. Vaughey, Christopher Johnson, M. M. Thackeray "Pre-lithiation Reactions of Lithium-Ion Battery Electrodes" 208th Meeting of the Electrochemical Society, Los Angeles, CA, USA, October 2005.

120. Il-Seok Kim, J. T. Vaughey, J. Elam, M. Pellin, J. A. Carlisle, O. Auciello "New Cu_6Sn_5 Thin Film Electrodes for High Performance Thin Film Batteries: Synthesis and Characterization" 205th Meeting of the Materials Research Society, Boston, MA, November 2005.

121. Sun-Ho Kang, N. Li, C. S. Johnson, J. T. Vaughey, K. Amine, M. M. Thackeray "The Effects of Acid Treatment on the Electrochemical Properties of x $Li_2MnO_3 \bullet (1-x)\ LiMO_2$ Electrodes (M=Mn, Ni, Co) in Lithium Cells" International Battery Association – Hawaii Battery Conference, Waikoloa, HI, January 2006.

122. Rebecca Ward, J. T. Vaughey, M. M. Thackeray "Olivine Composite Cathodes for Improved Lithium-Ion Battery Performance" American Association for the Advancement of Science Annual Meeting, St. Louis, MO, February 2006.

123. K. R. Poeppelmeier, E. Sorensen, H. Izumi, J. T. Vaughey, T. Albrecht and C. L. Stern "$Ag_4V_2O_6F_2$: An Electrochemically Active and High Silver Density Phase" 209th Meeting of the Electrochemical Society, Denver, CO, May 2006.

124. M. M. Thackeray, J. T. Vaughey, C. S. Johnson "Electrochemical Studies on Pre-lithiated Intermetallic Anodes", IMLB13 – the Thirteenth International Meeting on Lithium Batteries, Biarritz, France, June 2006.

125. M. M. Thackeray, S.-H. Kang, C. S. Johnson, J. T. Vaughey, K. Amine "Preconditioned x

Li_2MnO_3 • (1-x) $LiMO_2$ (M = Mn, Ni, Co) for Lithium-ion Cells" IMLB13 – the Thirteenth International Meeting on Lithium Batteries, Biarritz, France, June 2006.

126. J. T. Vaughey, A. R. Armstrong, M. Holzaphel, P. Novak, C.S. Johnson, S. –H. Kang, M. M. Thackeray, P. G. Bruce "Structural Reorganization in Lithium-Rich Lithium-Ion Battery Cathode Materials" 2006 American Conference on Neutron Scattering, St. Charles, IL, USA, June 2006.

127. J. T. Vaughey "The Structural Design of Lithium-Ion Battery Electrodes" 2006 Gordon Conference on Solid State Chemistry, New London, NH, July 2006.

128. M. Thackeray, S. Kang, C. S. Johnson, J. Vaughey, S. Hackney "The Structural Complexity of Lithium Rich $Li_{1+x}(Mn_{0.5}Ni_{0.5})_{1-x}O_2$ and $Li_{1+x}(Mn_{0.33}Co_{0.33}Ni_{0.33})_{1-x}O_2$ Electrodes for Lithium Batteries" 210th Meeting of the Electrochemical Society, Cancun, Mexico, October 2006.

129. C.S. Johnson, S. Odeen, J. T. Vaughey, S. H. Kang, M. M. Thackeray, S. A. Hackney, J. Bréger, C.P. Grey "Electrochemical Analysis and Characterization of Layered Spinel "Composite" Electrodes for Lithium-Ion Batteries" 210th Meeting of the Electrochemical Society, Cancun, Mexico, October 2006.

130. J. T. Vaughey "Lithium-Ion Battery Anodes" Chemical Engineering Division Seminar, Argonne National Laboratory, Lemont, IL, March 2007.

131. C. Johnson, N. Li, C. Lefief, J. Kim, A. J. Kropf, J. T. Vaughey, M. M. Thackeray "Anomalous Capacity and Cycling Stability of x Li_2MnO_3 - (1-x) $LiMO_2$ Electrodes (M=Mn, Ni, Co) in Lithium Batteries at 50 ºC" 211th Meeting of the Electrochemical Society, Chicago, IL, USA, May 2007.

132. J. T. Vaughey, J. O'Hara, M. M. Thackeray "Electrochemical Studies of Substituted $Cu_{6-x}M_xSn_5$ (M = Co, Ni, Zn) Alloys", 211th Meeting of the Electrochemical Society, Chicago, IL, USA, May 2007.

133. M. M. Thackeray, R. Benedek, C. S. Johnson, S.-H. Kang, J. T. Vaughey "The Structural Design of Anode and Cathode Materials for Lithium Batteries" 58th Annual Meeting of International Society of Electrochemistry, Banff, AB, Canada, September 2007.

134. Gregory Becht, Robin Lee Britt, Cassandra Eagle, J. T. Vaughey, Shiou-Jyh Hwu "A Li^+-Ion Exchanged Open-Framework Fe[III] Phosphate, $Li_9Fe_7[PO_4]_{10}$, Showing Improved Capacity as An Anode" Southeastern Regional Meeting of the American Chemical Society, Greenville, SC, USA, October 2007.

135. M. M. Thackeray, C. S. Johnson, S.-H. Kang, J. T. Vaughey "The Need for New Lithium-Ion Battery Electrode Materials" 25th International Battery Seminar and Exhibition, Fort Lauderdale, FL, March 2008.

136. J. T. Vaughey, M. M. Thackeray "Intermetallic Negative Electrode Materials" 14th International Meeting on Lithium Batteries (IMLB), Tianjin, China, June 2008.

137. J. T. Vaughey, C. S. Johnson, S.-H. Kang, M. M. Thackeray "High Capacity Manganese Based Electrodes for Lithium-Ion Batteries" 14th International Meeting on Lithium Batteries (IMLB), Tianjin, China, June 2008.

138. R. Benedek, J. T. Vaughey, M. M. Thackeray, A. van de Walle "Free Energy for Acid Promoted Reactions of Lithium-Ion Battery Cathodes: $LiCoO_2$" 14th International Meeting on Lithium Batteries (IMLB), Tianjin, China, June 2008.

139. C. M. Lopez, J. T. Vaughey, D. Dees "Systematic Investigation of Morphological Transitions on Lithium Metal Anodes" Argonne National Laboratory Postdoctoral Research Symposium, Lemont, IL, September 2008.

140. L. Trahey, J. T. Vaughey, H. Kung, M. Thackeray "Microstructured Intermetallic Anodes for Lithium-Ion Batteries" Argonne National Laboratory Postdoctoral Research Symposium, Lemont, IL, September 2008.

141. J. T. Vaughey, A. N. Jansen, D. Dees, M. Thackeray "Variable Temperature Rate Studies of Anode Materials" 1st International Conference on Advanced Lithium-ion Batteries for Automotive Applications, Lemont, IL September 2008.

142. L. Trahey, J. T. Vaughey, H. Kung, M. Thackeray "Electrodeposited Microporous Alloys for Battery Applications" 1st International Conference on Advanced Lithium-ion Batteries for Automotive Applications, Lemont, IL September 2008.

143. M. M. Thackeray, R. Benedek, C. S. Johnson, S. Kang, V. Pol, L. Trahey, J. T. Vaughey "Designing Structurally-Integrated Electrodes for Li-Ion Batteries" 1st International Conference on Advanced Lithium-ion Batteries for Automotive Applications, Lemont, IL September 2008.

144. C. M. Lopez, J. T. Vaughey, D. Dees "Systematic Investigation of Morphological Transitions on Lithium Metal Anodes" 1st International Conference on Advanced Lithium-ion Batteries for Automotive Applications, Lemont, IL September 2008.

145. L. Trahey, J. T. Vaughey, H. Kung, M. M. Thackeray "Electrodeposition and Testing of Microporous Copper-Tin Anodes for Lithium-Ion Batteries" 214th Meeting of the Electrochemical Society and the 2008 Pacific Rim Meeting on Electrochemical and Solid-State Science, Honolulu, HI October 2008.

146. Gregory A. Becht, John T. Vaughey, Robin L. Britt, Cassandra T. Eagle, Shiou-Jyh Hwu "Ion-Exchange and Subsequent Li-Insertion Chemistry of a New Family of Iron Phosphate Compounds Exhibiting Channeled Structures" 211th Meeting of the Materials Research Society, Boston, MA, November 2008.

147. J. T. Vaughey, C. S. Johnson, S.-H. Kang, M. M. Thackeray "High Capacity Manganese Based Electrodes for Lithium-Ion Batteries" Advanced Materials Research Institute, University of New Orleans, February 2009.

148. Dongwon Shin, Christopher Wolverton, J. T. Vaughey, M. M. Thackeray "First-Principles

Study of $LaSn_3$ as an Anode for Lithium-ion Batteries" American Physical Society Meeting, Pittsburgh, PA, March 2009.

149. L. Trahey, H. Kung, M. M. Thackeray, J. Vaughey "Electrodeposited, High Surface-Area Intermetallic Anodes for Lithium-ion Batteries" Northwestern Initiative for Sustainability and Energy Symposium, Evanston, IL, March 2009.

150. L. Trahey, J. T. Vaughey, H. Kung, M. M. Thackeray "Microporous vs. Planar Intermetallic Anodes for Lithium–Ion Batteries" 212th Meeting of the Materials Research Society, San Francisco, CA, April 2009.

151. C. Lopez, J. T. Vaughey and D. Dees "Morphology-Performance Relationships in Metallic Lithium Anodes" 215th Meeting of the Electrochemical Society, San Francisco, CA, May 2009.

152. Lynn Trahey, J. T. Vaughey, H. Kung, M. M. Thackeray "Better Anodes for Lithium-Ion Batteries" 2nd Annual Argonne Postdoctoral Research Symposium, Argonne National Laboratory, Lemont, IL, September 2009.

153. Lynn Trahey, J. T. Vaughey, Michael M. Thackeray "Composite Intermetallic Anodes with 3-D Architectures made by Electrodeposition" 216th Meeting of the Electrochemical Society, Vienna, Austria, October 2009.

154. Sun-Ho Kang, Carmen M. Lopez-Rivera, John Vaughey, Dongwon Shin, Christopher Wolverton, Michael M. Thackeray "Improved Rate Capability of High-Capacity (x) Li_2MnO_3 • (1-x)$LiMO_2$ Electrodes by Li-Ni-PO4 Surface Treatment" 216th Meeting of the Electrochemical Society, Vienna, Austria, October 2009.

155. J. T. Vaughey, Dongwon Shin, Christopher Wolverton, Michael M. Thackeray "$AuCu_3$-Type Intermetallic Negative Electrode Materials for Lithium-Ion Batteries" 216th Meeting of the Electrochemical Society, Vienna, Austria, October 2009.

156. M. Thackeray, C. Johnson, S. Kang, V. Pol, L. Trahey, J. Vaughey, H. Kung, D. Shin, C. Wolverton, L. Hardwick, P. G. Bruce "Designing Advanced Anode and Cathode Materials for Lithium-Ion Batteries" 213th Meeting of the Materials Research Society, Boston, MA. November 2009.

157. J. T. Vaughey, C. Lopez, D. Dees "Recent Advances in Understanding Lithium Metal Anodes" Advanced Materials Research Institute, University of New Orleans, February 2010.

158. Michael M. Thackeray, Mahalingam Balasubramanian, Christopher S. Johnson, Sun-Ho Kang, Swati Pol, Vilas Pol, Lynn Trahey, John T. Vaughey, Dongwon Shin and Chris Wolverton "Advances in the Design of Anode and Cathode Materials for Lithium Batteries" The 27th International Battery Seminar & Exhibit for Primary & Secondary Batteries, Fort Lauderdale, FL, March 2010

159. Lynn Trahey, J. T. Vaughey, Harold H. Kung, Michael M. Thackeray "A Resistance Study on

Electrodeposited Intermetallic Anodes for Li-Ion Batteries" 239th Meeting of the American Chemical Society, San Francisco, CA, March 2010.

160. L. Trahey, C. S. Johnson, J. T. Vaughey, N. Karan, M. Balasubramanian, S.–H. Kang, M. M. Thackeray **"**Electrocatalysts for Li-Air Batteries" Symposium on Electrochemical Energy Storage Beyond Lithium-Ion: Computational Perspectives, Argonne National Laboratory, Lemont, IL, May 2010.

161. L. Trahey, C. S. Johnson, M. Balasubramanian, Sun-Ho Kang, J. T. Vaughey, S. V. Pol, M. M. Thackeray "Electrocatalyst Design Concepts for Li/Oxygen Cells: A Study of Li_5FeO_4" 15th International Meeting on Lithium Batteries (IMLB), Montreal, Canada, June 2010.

162. M. M. Thackeray, M. Balasubramanian, R. Benedek, C. S. Johnson, S.-H. Kang, V. G. Pol, S. V. Pol, L. Trahey, J. T. Vaughey "Designing Anode and Cathode Materials to Counter the Performance Limitations of Li-Ion Batteries" 15th International Meeting on Lithium Batteries (IMLB), Montreal, Canada, June 2010.

163. Lynn Trahey, John T. Vaughey, Harold H. Kung, Michael M. Thackeray "Porous Copper Current Collectors for Advanced Anode Architectures" 15th International Meeting on Lithium Batteries (IMLB), Montreal, Canada, June 2010.

164. J. T. Vaughey, C. M. Lopez, L. Trahey, D. W. Dees, M. M. Thackeray "Lithium and Lithium-Ion Battery Anode Materials" Gordon Conference on Solid State Chemistry, New London, NH, August 2010.

165. Lynn Trahey, John T. Vaughey, Harold H. Kung, Michael M. Thackeray "Porous Copper Current Collectors for Advanced Anode Architectures" Gordon Conference on Electrodeposition, New London, NH, August 2010.

166. John T. Vaughey "Lithium-ion Batteries: A Materials Chemistry Perspective" Departmental Colloquium, Department of Chemistry, Clemson University, Clemson, SC, September 2010.

167. Lynn Trahey, John T. Vaughey, Harold H. Kung, Michael M. Thackeray "Porous Copper Current Collectors for Advanced Anode Architectures" NEDO-Argonne Meeting on Lithium-Ion Batteries, Lemont, IL, October 2010.

168. J. T. Vaughey, C. M. Lopez, D. W. Dees "Morphological Evolution of Lithium Metal Anodes on Cycling" NEDO-Argonne Meeting on Lithium-Ion Batteries, Lemont, IL, October 2010.

169. L. Trahey, C. S. Johnson, J. T. Vaughey, N. Karan, M. Balasubramanian, S.–H. Kang, M. M. Thackeray **"**Electrocatalysts for Li-Air Batteries" NEDO-Argonne Meeting on Lithium-Ion Batteries, Lemont, IL, October 2010.

170. L. Trahey, N. Karan, M. Chan, K. C. Lau, C. S. Johnson, J. T Vaughey, Y. Ren, J. Greely, L. Curtiss, M. Balasubramanian, M. M. Thackeray "Moving Away from Conventional Lithium-Ion Battery Electrodes - Recent Materials Developments at Argonne National Laboratory" Scalable Energy Storage and Beyond Li-Ion: Materials Perspectives, Oak Ridge

National Laboratory, Oak Ridge, TN, October 2010.

171. L. Trahey, C. S. Johnson, J. T. Vaughey, N. Karan, M. Balasubramanian, S.–H. Kang, M. M. Thackeray **"**Electrocatalysts for Li-Air Batteries" Future State Seminar on Energy Storage, Lemont, IL, November 2010.

172. J. T. Vaughey "Primary Lithium Batteries for Medical Applications" Advanced Materials Research Institute, University of New Orleans, March 2011.

173. Lynn Trahey, Naba K. Karan, Christopher S. Johnson, John T. Vaughey, Mali Balasubramanian, Michael M. Thackeray "Electrocatalysts and Air-Electrodes for Li-Air Batteries" 218th Meeting of the Electrochemical Society, Montreal, Quebec, Canada, March 2011.

174. Lynn Trahey, John T. Vaughey, Michael M. Thackeray "Porous Sn-based Electrode / Electrolyte Systems for Li-Ion Batteries" 216th Meeting of the Materials Research Society, San Francisco, CA, April 2011.

175. Fikile Brushett, Andrew Jansen, John Vaughey, Zhengcheng Zhang, Fulya Dogan "Exploratory Research of Non-aqueous Flow Batteries for Renewable Energy Storage" Polymer Batteries and Fuel Cells-5 (PBFC5), Lemont, IL, July 2011.

176. J. T. Vaughey, D. J. Schroeder, S. Neuhold, C. M. Lopez "Lithium Metal Anodes" Polymer Batteries and Fuel Cells-5 (PBFC5), Lemont, IL, July 2011.

177. J. T. Vaughey, D. J. Schroeder, S. Neuhold, C. M. Lopez "BATT-ILIRP: A New Program to Study Lithium Metal Anodes" POD Seminar Series, Office of Basic Energy Sciences, Germantown, MD, July 2011.

178. J. Mawdsley, J. D. Carter, S.Niyogi, X. Wang, J. T. Vaughey, R. Koc, "Aluminum Bipolar Plates with Composite Coatings for Proton Exchange Membrane Fuel Cells" 242nd Meeting of the American Chemical Society, Denver, CO, August 2011.

179. Fikile Brushett, Andrew Jansen, Jack Vaughey, Zhengcheng Zhang, Fulya Dogan "Exploratory Research of Non-Aqueous Flow Batteries for Renewable Energy Storage" 219th Meeting of the Electrochemical Society, Boston, MA, October 2011.

180. Fulya Dogan, Lynn Trahey, Michael M. Thackeray, John T. Vaughey "Three-Dimensional Anode Architectures and Materials" 219th Meeting of the Electrochemical Society, Boston, MA, October 2011.

181. Baris Key, David J. Schroeder, Brian Ingram, John Vaughey "Synthesis and Characterization of Lithium-ion Conducting Ceramics for Lithium Metal Batteries" 219th Meeting of the Electrochemical Society, Boston, MA, October 2011.

182. Xianghui Xiao, Fikile Brushett, Susanna Neuhold, Lynn Trahey, John Vaughey "High-Energy X-Ray Tomography on 3D Microporous Composite Anode of Lithium-Ion Batteries" Materials Science and Technology 2011, Columbus, OH, October 2011.

183. Baris Key, David J. Schroeder, Brian Ingram, John Vaughey "Solution-Based Synthesis and Characterization of Lithium-ion Conducting Ceramics" 7th International Symposium on Inorganic Phosphate Materials, Lemont, IL, November 2011.

184. Michael M. Thackeray, Mahalingam Balasubramanian, Tony Burrell, Maria Chan, Jason Croy, Larry Curtiss, Jeff Greeley, Chris Johnson, Sun-Ho Kang, K-C. Lau, Naba Karan, Donghan Kim, Jun Lu, Yang Ren, Lynn Trahey, John Vaughey "Recent Advances in Manganese- and Iron-Based Electrodes for Lithium Batteries" IBA-Pacific Power Sources Symposium, Kona, Hawaii, January 2012.

185. S. Neuhold, D. Schroeder, J. T. Vaughey "Silane-based Coatings for Lithium Metal Anodes" Gordon Conference on Battery Materials, Ventura, CA, March 2012.

186. C. M. Lopez, J. T. Vaughey, D. W. Dees "Morphologically Dynamic Electrodes: Metallic Lithium and the Effect of Morphology on its Electrochemical Response" Powering Our Future 2012, Palacio Villasuso, Vitoria-Gasteiz, Spain, March 2012.

187. J. Vaughey "Lithium Metal Anodes" Lithium-Air Battery Discussion Group, Lemont, IL, March 2012.

188. L. Trahey, F. Brushett, B. Blaiszik, V. Rose, R. Winarski, X. Xiao, C. Johnson, J. Vaughey, and M. Thackeray "Synchrotron Tomography of Porous Lithium-Ion Battery Anodes" 221st Meeting of the Electrochemical Society, Seattle, WA, May 2012.

189. B. J. Ingram, D. Schroeder, S. Neuhold, A. Hubaud, B. Key, J. Vaughey" New Protection Strategies for Lithium Metal"Beyond Lithium V, Berkeley, CA, June 2012.

190. Fikile R. Brushett, John T. Vaughey, Andrew N. Jansen "An All-Organic Lithium-Ion Redox Flow Battery" Chemical Sciences and Engineering Divisional Seminar, Argonne National Laboratory, Lemont, IL, June 2012.

191. L. T. Trahey, T. Feckler, F. Brushett, M. Slater, C. S. Johnson, J. T. Vaughey, M. M. Thackeray "Electrodeposited Tin Electrodes for Electrochemical Energy Storage" Gordon Conference on Electrodeposition, Biddeford, ME, July 2012.

192. B. Key, F. Dogan, D. Schroeder, A. Hubaud, B. Ingram, J. Vaughey "Solution Based Synthesis and Characterization of Lithium-Ion Conducting Ceramics for Lithium Metal Batteries", 54th Annual Rocky Mountain Conference on Magnetic Resonance, Copper Mountain, CO, July 2012.

193. Fikile R. Brushett, Lu Zhang, John T. Vaughey, Andrew N. Jansen "Redox-active Organic Molecules for Non-Aqueous Flow Batteries" 222nd Meeting of the Electrochemical Society, Honolulu, HI, October 2012.

194. Fikile R. Brushett, Lu Zhang, John T. Vaughey, Andrew N. Jansen "Redox-Active Organic Molecules for Non-Aqueous Flow Batteries" AIChE Annual Meeting, Pittsburgh, PA, October 2012.

195. C.S. Johnson, J. T. Vaughey "Twenty Years of Battery Research with Mike Thackerayat Argonne" IBA2013 ThackeraySymposium, Barcelona, Spain, March 2013.

196. J. Vaughey, B. Key, D. Schroeder, A. Hubaud, B. Ingram, K. Gallagher, F. Dogan "Understanding the Formation of Ceramic Lithium-Ion Conductors" IBA2013, Barcelona, Spain, March 2013.

197. J. Vaughey, B. Key, D. Schroeder, A. Hubaud, B. Ingram, K. Gallagher, F. Dogan "Understanding the Formation of Solid Lithium-Ion Conductors" ITN Energy Systems, Littleton, Colorado, June 2013.

198. J. Vaughey, B. Key, D. Schroeder, A. Hubaud, B. Ingram, K. Gallagher, F. Dogan "Understanding the Formation of Solid Lithium-Ion Conductors" Beyond Lithium VI, Boulder, Colorado, June 2013.

199. A. A. Hubaud, B. J. Ingram, D. J. Schroeder, B. Key, F. Dogan, J. T. Vaughey "Protection of a Lithium Metal Anode with a Conductive Solid Ceramic Electrolyte", Beyond Lithium VI, Boulder, Colorado, June 2013.

200. Lynn Trahey, Fikile R. Brushett, Zhenzhen Yang, Xianghui Xiao, Michael M. Thackeray, John T. Vaughey "Microbalance and Microtomographic Analysis of Rechargeable Battery Electrodes", SEM 2013 Annual Conference & Exposition on Experimental and Applied Mechanics, Lombard, IL, June 2013.

201. A. K. Burrell, A. Abouimrane, D. Abraham, K. Amine, M. Balasubramanian, J. Bareno Garcia-Ontiveros, I. Belharouak, R. Benedek, I. Bloom, Z. Chen, D. Dees, K. Gallagher, H. Iddir, B. Ingram, C. Johnson, W. Lu, D. Miller, Y. Qin, Y. Ren, M. Thackeray, L. Trahey, J. Vaughey "Addressing the Voltage Fade Issue with Li-Mn Rich Oxide Cathode Materials" Lithium-Ion Battery Discussion Group (LIBD-6), Arcachon, France, June 2013.

202. A. A. Hubaud, B. J. Ingram, D. J. Schroeder, B. Key, F. Dogan, J. T. Vaughey "Protection of a Lithium Metal Anode with a Conductive Solid Ceramic Electrolyte", 6th International Conference on Advanced Lithium Batteries for Automobile Applications, Lemont, IL, September 2013.

203. M. D. Donakowski, A. Gorne, J. T. Vaughey, K.R. Poeppelmeier "Electrochemical Analyses and Comparison of the Double Wolframite $AgNa(VO_2F_2)_2$ in Lithium and Sodium-ion Batteries" 246th Meeting of the American Chemical Society, Indianapolis, IN, Sept 2013.

204. J. T. Vaughey, F. R. Brushett, A. N. Jansen "Grid Facing Storage Efforts at Argonne National Laboratory" Edison Electric Institute's Fall 2013 Transmission, Distribution, and Metering Conference, Charleston, SC, October 2013.

205. B. Key, F. Dogan. J. Croy, M. Slater, M. Balasubramanian, Y. Ren, C. S. Johnson, J. Vaughey "Solid State NMR Studies of Li-Rich NMC Cathodes: Investigating Structure Change and Its Effect on Voltage Fade Phenomenon" 224th Meeting of the Electrochemical Society, San Francisco, CA October 2013.

206. F. Dogan, D. Sanjeewa, L. Trahey, J. Vaughey "Three-Dimensional Silicon Anode Architectures via Electrodeposition on Copper Foam Current Collectors" 224th Meeting of the Electrochemical Society, San Francisco, CA October 2013.

207. L. Zhang, J. Vaughey, A. K. Burrell "Redox Active Molecular Engineering for Energy Storage" 224th Meeting of the Electrochemical Society, San Francisco, CA October 2013.

208. A. K. Burrell, J. T. Vaughey, D. Proffit, N. Sa, B. Key, C. Liao, K. Poeppelmeier, L. Fuoco, J. Incorvati, B. J. Ingram, A. Lipson, G. Ceder, M. Rasul, D. Prendergast, S. Wan, F. Thoele, P. Fenter, X. Feng, T. Fister, J. Cabana, C. Kim, K. Persson, M. Liao "Recent Developments in the Search for New Multivalent Cathodes" IBA2014, Brisbane, Australia, March 2014.

209. D. Proffit, A. Lipson, B. Ingram, J. Vaughey 'Searching for New Cathode Materials for Multivalent Batteries' Gordon Conference on Batteries, Ventura, CA, March 2014.

210. A. Hubaud, D. Schroeder, B.J. Ingram, J. Vaughey "Thin Film Ceramic Electrolytes" Gordon Conference on Batteries, Ventura, CA, March 2014.

211. L. Zhang, J. Huang, J. Vaughey, A. K. Burrell "Organic Redox-Active Molecules for NRF" 225th Meeting of the Electrochemical Society, Orlando, FL, May 2014.

212. D. Proffit, A. Lipson, B.J. Ingram, A.K. Burrell, J. T. Vaughey "Development of Oxide-based Cathode Materials for Magnesium Batteries" Beyond Lithium-ion VII, Lemont, IL, June 2014

213. F. Dogan, D. Proffit, A. Hubaud, D. J. Schroeder, B. Key, J. T. Vaughey "Materials Development for Energy Storage Applications" Gordon Conference on Solid State Chemistry, New London, NH, July 2014.

214. B. J. Ingram, M. Hopper, J. Vaughey, J. Eastman, P. Fuoss "Investigating the Role of Defect Concentrations and Transport on Solid Oxide Fuel Cell and Battery Performances" International Symposium on Defects, Transport, and Related Phenomena, Materials Science & Technology 2014, Pittsburgh, PA, October 2014.

215. C. Liao, B. Key, N. Sa, A. K. Burrell, Z. Zhang, and J. T. Vaughey "Development of Non-Aqueous Electrolytes for Multivalent Batteries" 226th Meeting of the Electrochemical Society, Cancun, Mexico, October 2014.

216. L. Su, F. Brushett, M. Ferrandon, J. Vaughey "Identification of Advanced Electrolytes for Non-Aqueous Redox Flow Batteries via a High-Throughput Screening Technique" AIChE Annual Meeting, Atlanta, GA, November 2014.

217. Danielle Proffit, Albert Lipson, Baofei Pan, Sang-Don Han, Timothy Fister, Zhenxing Feng, Baris Key
Brian Ingram, Anthony Burrell, and John Vaughey "Side Reactions and Intercalation Electrode Materials for Multivalent Batteries" Materials Research Society Meeting, San Francisco, CA, April 2015.

218. Hao Wang, Danielle Proffit, C. J. Kim, P. Senguttuvan, V. Duffort, L. F. Nazar, Jordi Cabana, A.K. Burrell, J. T. Vaughey, Baris Key "^{25}Mg NMR Studies of Mg-ion Battery Materials" The 56th Experimental Nuclear Magnetic Resonance Conference (ENC-2015), Pacific Grove, CA, April 2015.

219. A.A. Hubaud, D. J. Schroeder, Z. Yang, F. Dogan, and J. T. Vaughey "Interfacial Study of the Role of SiO_2 on Si Anodes Using Electrochemical Quartz Crystal Microbalance" 227th Meeting of the Electrochemical Society, Chicago, IL May 2015.

220. C. God, A.K. Burrell, B. Ingram, K. Kapper, C. Lenardt, S. Koller, J. T. Vaughey "Alternatives for Magnesium Metal Anodes - Intercalation Materials as Negative Electrodes for Rechargeable Magnesium-Ion Batteries" 227th Meeting of the Electrochemical Society, Chicago, IL May 2015.

221. D. L. Proffit, C. Kim, P. Senguttuvan, V. Duffort, L. F. Nazar, J. Cabana, A. K. Burrell, J. T. Vaughey, and B. Key "^{25}Mg NMR Studies of Mg-Ion Battery Materials" 227th Meeting of the Electrochemical Society, Chicago, IL May 2015.

222. N. Sa, D. L. Proffit, J. T. Vaughey, A. L. Lipson, C. Liao, B. J. Ingram, Y. Ren, A. K. Burrell "Electrolyte Development for Magnesium Ion Batteries" 227th Meeting of the Electrochemical Society, Chicago, IL May 2015.

223. A. A. Hubaud, D. J. Schroeder, B. J. Ingram, J. Vaughey "Development of Solid Electrolyte Membranes" 20th International Conference on Solid State Ionics, Keystone, CO, June 2015.

224. F. Dogan, A. A. Hubaud, Zhen Zhen Yang, D. L. Proffit, D. J. Schroeder, J. Vaughey "Reactions at Silicon Electrode Surfaces" 20th International Conference on Solid State Ionics, Keystone, CO, June 2015.

225. D. L. Proffit, Albert Lipson, Baofei Pan, B. J. Ingram, Miao Liu, Anubhav Jain, Kristin Persson, J. Vaughey "New Intercalation Cathodes for Ca-Ion Batteries" 20th International Conference on Solid State Ionics, Keystone, CO, June 2015.

226. H. Wang, N. Sa, A.K. Burrell, J. T. Vaughey, and B. Key "Solvation and Desolvation Phenomenon and in Situ NMR Studies on the Stripping/Platting of Magnesium Metal in Magnesium Batteries" 228th Meeting of the Electrochemical Society, Phoenix, AZ, October 2015.

227. Albert L. Lipson, Danielle L. Proffit, Baofei Pan, Saul Lapidus, Chen Liao, Anthony K. Burrell, John T. Vaughey, Brian J. Ingram "Progress Towards a Rechargeable Multivalent Battery" 228th Meeting of the Electrochemical Society, Phoenix, AZ, October 2015.

228. J. Vaughey, F. Dogan, A. Hubaud, D. Schroeder "Side Reactions and Cycling Efficiency with Silicon Electrode Surfaces" 228th Meeting of the Electrochemical Society, Phoenix, AZ, October 2015.

229. H. Wang, N. Sa, D. L. Proffit, P. Senguttuvan, C. Kim, J. Cabana, K. Poeppelmeier, T. L.

Kinnibrugh, K. W. Chapman, A. K. Burrell, J. T. Vaughey, and B. Key "^{25}Mg NMR Studies of Mg-Ion Battery Materials" 228th Meeting of the Electrochemical Society, Phoenix, AZ, October 2015.

230. N. Sa, A. K. Burrell, T. L. Kinnibrugh, H. Wang, B. Key, K. W. Chapman, J. T. Vaughey, D. L. Proffit, P. J. Chupas, and T. Fister "A Study of Mg Intercalation Mechanism of a Prospective Mg Full Cell Design" 228th Meeting of the Electrochemical Society, Phoenix, AZ, October 2015.

231. Fikile R. Brushett1, Lu Zhang, John T. Vaughey, Andrew N. Jansen "Energy Storage in Redox-Active Organic Molecules" AIChE Annual Meeting, Salt Lake City, UT, November 2015.

232. Fulya Dogan, J. - S. Park, J. Croy, B. Key, J. T. Vaughey "Investigation of Aluminum Environments in Al_2O_3 coated cathodes: The Effect of Cathode Composition on Electrochemical Performance and Aluminum Local Environments" Gordon Conference on Batteries, Ventura, CA, February 2016.

233. Chen Liao, Baofei Pan, Zhengcheng Zhang, John T. Vaughey, Anthony K. Burrell "Organic Cathodes for Magnesium Ion Batteries" Gordon Conference on Batteries, Ventura, CA, February 2016.

234. Albert L. Lipson, Soojeong Kim, Danielle L. Proffit, Baofei Pan, Saul H. Lapidus, Chen Liao, Niya Sa, Timothy T. Fister, Anthony K. Burrell, John T. Vaughey, Brian J. Ingram "Demonstrating that Prussian Blue Analogues can Intercalate Mg, Ca, and Zn" Gordon Conference on Batteries, Ventura, CA, February 2016.

235. A. Hubaud, F. Dogan, C. Pebbles, C. Liao, J. Vaughey "Interfacial Stability of Ni-rich Layered Oxide Cathodes" IBA2016, Nantes, France, March 2016.

236. Chen Liao, Baofei Pan, John T Vaughey, Anthony Burrell "Progress towards Lewis Acid Free and Anodically Stable Mg-Ion Electrolytes" Materials Research Society, Phoenix AZ, March 2016.

237. C. Peebles, F. Dogan, A. A. Hubaud, J. T. Vaughey, C. Liao "Organosilane Coatings for Ni-Rich High-Voltage Lithium-ion Batteries" 229th Meeting of the Electrochemical Society, San Diego, CA June 2016.

238. B. Pan, J. T. Vaughey, Z. Zhang, A. K. Burrell, C. Liao "Redox-Active Organic Molecules as High- Performance Cathode Material for Non-Aqueous Rechargeable Magnesium-Ion Batteries" 229th Meeting of the Electrochemical Society, San Diego, CA June 2016.

239. J. Vaughey "Role of the Transition Metal in Intermetallic Anodes" 18th International Meeting on Lithium Batteries, Chicago, IL, USA, June 2016.

240. B. Pan, J. T. Vaughey, Z. Zhang, A. K. Burrell, C. Liao "Exploring Reliable Organic Cathode Materials for High-Performance Mg-Ion Batteries" 18th International Meeting on Lithium Batteries, Chicago, IL, USA, June 2016.

241. C. Peebles, M. He, F. Dogan, A. A. Hubaud, J. T. Vaughey, C. Liao "Organosilane Cathode Coatings for High-Voltage Lithium-Ion Batteries" 18th International Meeting on Lithium Batteries, Chicago, IL, USA, June 2016.

242. T. T. Fister, S. D. Han, S. Kim, J. T. Vaughey, A. A. Hubaud, P. Fenter, J. Esbenshade, K. E. Lundberg, A. A. Gewirth "Kinetics of Alloying and Deposition in Multivalent Battery Anodes Using Real-Time X-Ray Diffraction" 18th International Meeting on Lithium Batteries, Chicago, IL, USA, June 2016.

243. J. Vaughey "New Cathode Materials for Beyond Lithium-Ion Energy Storage" Inorganic Chemistry Seminar, Purdue University, West Lafayette, IN, September 2016.

244. F. Dogan, J. T. Vaughey, H. Iddir, B. Key "Direct Observation of Lattice Aluminum Environments in Li-Ion Cathodes NCA and Al-Doped NMC Via ^{27}Al MAS NMR Spectroscopy" Pacific Rim Meeting of the Electrochemical Societies, Honolulu, HI, October 2016.

245. B. Key, J. T. Vaughey, H. Wang, N. Sa, J. Incorvati, R. Bayliss, J. Cabana, K. Poeppelmeier, A. Burrell "Understanding Magnesiation Mechanism and Cation Dynamics in Transition Metal Oxides for Magnesium-Ion Batteries" Pacific Rim Meeting of the Electrochemical Societies, Honolulu, HI, October 2016.

246. C. Liao, B. Pan, J. T. Vaughey, Z. Zhang, and A. Burrell "Organic Cathodes for Energy Storage Systems" Pacific Rim Meeting of the Electrochemical Societies, Honolulu, HI, October 2016.

247. H. Wang, B. Key, N. Sa, M. He, J. T. Vaughey, L. F. Nazar, M. Balasubramanian, K. G. Gallagher "NMR Perspective of Speciation Process in Lithium Sulfur Batteries" Pacific Rim Meeting of the Electrochemical Societies, Honolulu, HI, October 2016.

248. S. D. Han, P. Senguttuvan, S. Kim, A. L. Lipson, S. Tepavcevic, B. J. Ingram, T. T. Fister, C. Johnson, J. T. Vaughey "Case Studies on Non-Aqueous Zn Ion Systems to Develop Multivalent Ion Batteries" Pacific Rim Meeting of the Electrochemical Societies, Honolulu, HI, October 2016.

249. N. Sa, H. Wang, B. Key, S. M. Brombosz, A. Burrell, and J. T. Vaughey "A Simple Approach of Electrolyte Development for Magnesium Ion Battery" Pacific Rim Meeting of the Electrochemical Societies, Honolulu, HI, October 2016.

250. R. Osborn, M. Krogstad, S. Rosenkranz, P. Zapol, A. Ngo, J. Vaughey, J. Ruff "Sublattice Melting in $Na_x[V_2O_5]$" APS Users Meeting, Lemont, IL, March 2017.

251. R. Osborn, M. Krogstad, S. Rosenkranz, P. Zapol, A. Ngo, J. Vaughey, J. Ruff "Sublattice Melting in $Na_x[V_2O_5]$" American Physical Society Meeting, New Orleans, LA, March 2017.

252. J. T. Vaughey "Designing Multivalent Cathode Materials" Chemistry Seminar, National Renewable Energy Laboratory, Golden, CO, April 2017.

253. Binghong Han, F. Dogan, J. Vaughey "Characterization of Al_2O_3 Coatings on Lithium-Ion Cathodes - Effect of Cathode Composition and Annealing Temperature" Materials Research Society, Phoenix, AZ April 2017.

254. B. Pan, Z. Feng, N. Sa, S. D. Han, Q. Ma, P. Fenter, J. Vaughey, C. Liao "Advanced Hybrid Battery with a Magnesium Metal Anode and a $LiMn_2O_4$ Spinel Cathode" 2017 APS/CNM Users Meeting, Lemont, IL May 2017.

255. Binghong Han, F. Dogan, J. Vaughey "Effects of Sintering Temperature and Cathode Composition on Al_2O_3 Coatings of Lithium-Ion Cathodes" 231st Meeting of the Electrochemical Society, New Orleans, LA, May 2017.

256. H. Wang, N. Sa, M. He, J. T. Vaughey, L. F. Nazar, M. Balasubramanian, B. Key, and K. G. Gallagher "An NMR Perspective on the Speciation Process in Lithium Sulfur Batteries" 231st Meeting of the Electrochemical Society, New Orleans, LA, May 2017.

257. L. Pereira, K. Hawthorne, J. Vaughey "Membrane Evaluation for Vanadium Redox (VRB) Flow Batteries" SULI Program Review, Lemont, IL, August 2017.

258. A. Wustrow, J. T. Incorvati, J. Hancock, J. T. Vaughey, K. Poeppelmeier "Developing Synthetic Routes to Magnesium Battery Cathodes" 232nd Meeting of the Electrochemical Society, National Harbor, MD, October 2017.

259. J. T. Vaughey, B. Key, D. L. Proffit, N. Sa, B. J. Ingram, A. L. Lipson, K. Poeppelmeier, J. T. Incorvati "Designing New Magnesium-Based Cathode Materials" 232nd Meeting of the Electrochemical Society, National Harbor, MD, October 2017.

260. N. Sa, Y. Ren, A. Burrell, J. T. Vaughey "Electrolyte and Cathode Compatibility for Rechargeable Mg Ion Batteries", 232nd Meeting of the Electrochemical Society, National Harbor, MD, October 2017.

261. S. D. Han, P. Senguttuvan, S. Tepavcevic, N. N. Rajput, X. Qu, S. Kim, H. D. Yoo, A. L. Lipson, H. Wang, P. J. Phillips, R. F. Klie, B. Key, B. J. Ingram, J. Cabana, T. T. Fister, K. A. Persson, N. M. Markovic, C. Johnson, A. K. Burrell, J. T. Vaughey "Case Studies on Nonaqueous Zn^{2+} Ion Chemistry with a Reversible Intercalation Cathodes for the Development of Multivalent Metal Batteries" 232ndt Meeting of the Electrochemical Society, National Harbor, MD, October 2017.

262. S. Kim, S. D. Han, S. Tepavcevic, J. T. Vaughey, P. Fenter, and T. T. Fister "Study of the Zn Insertion into Nanostructured δ-MnO_2 in Non-Aqueous Metal Batteries Using in-Situ X-Ray Absorption Spectroscopy" 232nd Meeting of the Electrochemical Society, National Harbor, MD, October 2017.

263. Binghong Han, Baris Key, Saul H. Lapidus, Juan C. Garcia, Hakim Iddir, John T. Vaughey, Fulya Dogan "Compositional Effect on Al_2O_3 Coatings of Lithium-ion Cathodes" Tenth Annual Meeting on Advanced Batteries for Automotive Applications (ABAA-10), Oak

Brook, IL, October 2017.

264. Allison Wustrow, Jared Incorvati, J. T. Vaughey, K. R. Poeppelmeier "Synthesis and Intercalation Chemistry of Molybdenum Fluorobronzes" Solid State Chemistry Symposium in Honor of Prof Yukata Ueda, Nagoya, Japan, October 2017.

265. J. Vaughey, B. Key, N. Sa, F. Dogan, S.D. Han, D.L. Proffit "Cathodes for Beyond-Lithium-Ion Energy Storage" Advanced Materials Research Institute, New Orleans, LA, February 2018.

266. B. Ingram, B, Key, J. Vaughey, J. Connell, P.P. Lopes, T.F. Fister, S. Kim, P. Canepa; G. Gautam, H.D. Yoo, R. Bayliss, J. Cabana "Pathway to High Energy Density Multivalent Battery Cathodes" 255th Meeting of the American Chemical Society, New Orleans, LA, March 2018.

267. S. Lapidus, R. Bayliss, B, Key, G. Ceder, J. Vaughey, J. Cabana "Magnesium and Mobility: Utilizing X-rays and Neutrons to Investigate Mg Mobility in Spinel Oxides" 255th Meeting of the American Chemical Society, New Orleans, LA, March 2018.

268. Binghong Han, Baris Key, Saul H. Lapidus, Juan C. Garcia, Hakim Iddir, John T. Vaughey, Fulya Dogan "Study of Cathode Compositional Effects on Al_2O_3 Coatings in Lithium-ion Batteries" Materials Research Society, Phoenix, AZ, April 2018.

269. Binghong Han, Baris Key, Saul Lapidus, Juan Garcia, Hakim Iddir, John T Vaughey, Fulya Dogan "Investigation of Al_2O_3 Wet-Chemical Coatings on Cathode Materials of Lithium-Ion Batteries" 233rd Meeting of the Electrochemical Society, Seattle, WA, May 2018.

270. J. Garcia, B. Han, B. Key, J. T. Vaughey, F. Dogan, H. Iddir "Transition Metal Segregation and Phase Transformations on the Surfaces of Layered $Li(Ni_{1-x-y}Mn_xCo_y)O_2$ (NMC) Cathode Materials for Li-Ion Batteries" 233rd Meeting of the Electrochemical Society, Seattle, WA, May 2018.

271. Binghong Han, Baris Key, John T Vaughey, Fulya Dogan "Understanding the Role of Aluminum in Positive Electrode Material Structures" 233rd Meeting of the Electrochemical Society, Seattle, WA, May 2018

272. K. L. Hawthorne, J. T. Vaughey, B. Han, S. J. Kim, T. T. Fister "Cathode Coatings for Magnesium-Ion Batteries" 233rd Meeting of the Electrochemical Society, Seattle, WA, May 2018

273. John T Vaughey, Krista L Hawthorne, Danielle L Proffit, Ka-Cheong Lau, Soojeong Kim, Chen Liao, Baris Key, Timothy T Fister "Magnesium-Ion Cathode Materials" 233rd Meeting of the Electrochemical Society, Seattle, WA, May 2018

274. L. Pereira, J. -J. Zhang, L. Zhang, K. L. Hawthorne, J. T. Vaughey "Electrochemical Performance of TEMPO-based Electrolytes for Redox Flow Battery Applications" SULI Program Review, Lemont, IL, August 2018.

275. N. Sa, B. Basanty, Y. Ren, J. T. Vaughey "Electrolyte Additives for Rechargeable Magnesium Battery Design" 256th National Meeting the American Chemical Society, Boston, MA, August 2018.

276. B. H. Han, B. Key, S. Lapidus, J. Garcia, H. Iddir, J. Vaughey, F. Dogan "Interfacial Characterizations on Alumina Coated Cathode Materials for Lithium-ion Batteries" 256th National Meeting the American Chemical Society, Boston, MA, August 2018.

277. J. Vaughey, N. Sa, K. Hawthorne, D. Proffit, B. Ingram, B. Key, B.J. Kwon "Next Generation Cathodes for Mg-Ion Systems" Materials Research Society Annual Meeting, Phoenix, AZ, April 2019.

278. J. Cabana, H. D. Yoo, B, Key, J. Vaughey, T.F. Fister, R. Bayliss "Measuring and Defining Electrochemical Reactions of Transition Metal Oxides in Mg-Electrolytes" Materials Research Society Annual Meeting, Phoenix, AZ, April 2019

279. J. Vaughey, A. Montoya "Direct Recycling of Lithium-Ion Batteries" Advanced Materials Division Seminar, June 2019.

280. J. Hancock, J. Vaughey, K. R. Poeppelmeier "Ion Exchange as a Route to Magnesium Containing Calcium Ferrite Structured Materials" North American Solid State Chemistry Conference, Golden CO, July 2019.

281. J. Vaughey "Direct Recycling of Lithium-Ion Batteries" NaatBatt Lithium-Ion Battery Recycling Workshop, Buffalo, NY, July 2019.

282. John T. Vaughey, Baris Key, Binghong Han, Fulya Dogan, Saul Lapidus, Chen Liao "In-Situ Formation of Surface Coatings on Silicon Anodes" 236th Meeting of the Electrochemical Society, Atlanta, GA, October 2019.

283. Anthony Montoya, J. Vaughey "Relithiation of Cathode Materials for the Recycling of Lithium-Ion Batteries" 236th Meeting of the Electrochemical Society, Atlanta, GA, October 2019.

284. Bob Jin Kwon, Krista L Hawthorne, Ka-Cheong Lau, Soojeong Kim, Yimin Wu, Timothy T Fister, Chen Liao, Robert F Klie, Saul Lapidus, Baris Key, John T. Vaughey "$MgCr_{2-X}V_xO_4$ High Voltage Spinel Oxide Cathodes for Mg-Ion Batteries" 236th Meeting of the Electrochemical Society, Atlanta, GA, October 2019.

285. Binghong Han, Chen Liao, Fulya Dogan, Stephen E. Trask, Saul Lapidus, John T. Vaughey, Baris Key "Stabilizing Silicon Anode Chemistry for Long Cycle and Calendar Life Electrodes" 236th Meeting of the Electrochemical Society, Atlanta, GA, October 2019.

286. J. Vaughey, A. Montoya, L. Pan, A. Lipson, Y. Wang, F. Dogan, J. Coyle, J. Durham, S. Dai, E. Dahl, Z. Chen "An Overview of Direct Recycling Recycled Lithium-Ion Battery Materials" Lithium-Ion Battery Recycling (ReCell) Industry Day, Argonne National Laboratory, Lemont, IL, November 2019

287. Sanghyeon Kim, Liang Yin, Myeong Hwan Lee, Prakash Parajuli, Timothy T. Fister, Bob Jin Kwon, Haesun Park, Peter Zapol, Robert F. Klie, Kisuk Kang, Saul H. Lapidus, John T. Vaughey "Polyanionic Phosphate Cathodes for Rechargeable Ca-ion Batteries" Gordon Research Conference – Batteries, Ventura, CA, February 2020.

288. Xiang Li, B. Key, F. Dogan, Stephen Trask, J.A. Gilbert, J. T. Vaughey "Ex-Situ NMR Studies on Zintl Phases Formation of Si Anodes" 61st Experimental Nuclear Magnetic Resonance Conference, Baltimore, MD, March 2020.

289. Anthony Montoya, J. T. Vaughey "Reuse of Lithium-ion Battery Cathodes via Direct Recycling Methods" 2020 Argonne Postdoctoral Research and Career Symposium, Lemont, IL, Nov 2020.

290. Fulya Dogan, Binghong Han, Yunya Zhang, J. Vaughey, Baris Key "Structure-Activity Relationships in Lithium-ion Batteries: Solid State NMR Characterization of Lithium-ion Cathodes and Anodes" 13th Annual AICHE Midwest Regional Conference, Virtual, Mar 2021.

291. Anthony Montoya, J. Vaughey "Restoring Relevance to Old Battery Chemistry via Direct Cathode Upcycling" 237th Meeting of the Materials Research Society, Virtual, April 2021.

292. J. Vaughey, Sanghyeon Kim, L. Yin, P. Parajuli, Noel Leon, Bob Jin Kwon, Kenneth R. Poeppelmeier, Brian J. Ingram, Saul Lapidus, Baris Key, Robert Klie, Haesun Park, Peter Zapol, Chen Liao "Ca-Ion Materials: A Next Generation MV Energy Storage System" 239th Meeting of the Electrochemical Society, Virtual, May 2021.

293. Maxwell C Schulze, Marco-Tulio Rodrigues, Josey McBrayer, Ira Bloom, Andrew M Colclasure, Gabriel Veith, Nathan R Neale, Daniel P Abraham, John T Vaughey, Anthony Burrell, Christopher S Johnson "Developing a Short Timeframe Testing Protocol for Determining the Calendar Aging Rates of New Battery Materials" 239th Meeting of the Electrochemical Society, Virtual, May 2021.

294. P. Parajuli, Bob-Jin Kwon, Sanghyeon Kim, Baris Key, John Vaughey, Robert Klie "Atomic-scale Insights of Cation Diffusion into Multivalent Battery Cathodes" Microscopy and Microanalysis, Virtual, August 2021.

295. Ritesh Uppuluri, Saul Lapidus, Fulya Dogan, John T. Vaughey, Baris Key "Screening Multivalent Electrolyte Salt Additives for Stabilizing Silicon Anodes for Lithium-Ion Batteries" 240th Meeting of the Electrochemical Society, Virtual, October 2021.

296. J. T. Vaughey, B. Key, F. Dogan, B. Han, X. Liu, R. Uppuluri, C. Liao, S. Lapidus, Y. Zhang, H. Liu, N. Sa "Applications of Zintl Chemistry to Energy Storage" Gordon Research Conference on Solid State Chemistry, New London NH, July 2022.

297. J. T. Vaughey "Solid State Chemistry Careers" Gordon Research Seminar on Solid State Chemistry, New London NH, July 2022.

298. J. T. Vaughey "Careers at National Labs" Gordon Research Conference on Solid State

Chemistry, New London NH, July 2022.

299. J. T. Vaughey, B. Key, B. Ingram, I. D. Johnson, S. Kim, S. Lapidus, R. Uppuluri, B. J. Kwon "Materials Design and Discovery for Next Generation Energy Storage Materials" American Chemical Society Meeting, Indianapolis IN, Mar 2023.

300. J. T. Vaughey, B. Key, F. Dogan,B. Han, Y. Zhang, R. Uppuluri "In-situ Formation on Interfacial Silicides" American Chemical Society Meeting, Indianapolis IN, Mar 2023.

PRESENTATIONS (PROGRAM REVIEWS and WORKSHOPS)

301. J. T. Vaughey "Lithium Storage in Intermetallic Compounds" 3M Program Review, St Paul, MN, May 1997.

302. J. T. Vaughey, K. D. Kepler "Lithium Storage in Intermetallic Compounds" 3M Program Review, St. Paul, MN, July 1997.

303. J. T. Vaughey, K. Kepler "Progress Report on Lithium Storage in Intermetallic Compounds" 3M Program Review, St. Paul, MN, January 1998.

304. J. T. Vaughey "A Review of the Structural Chemistry of Silver Based Primary Battery Materials" Guidant Program Review, St Paul, MN. January 1998.

305. J. T. Vaughey, K. Kepler, A. N. Jansen, D. Dees, A. J. Kahaian, M. M. Thackeray, G. L. Henriksen "Teardown Analysis of WGL Cells and Initial Characterization of SVO Electrodes" Guidant Program Review, St Paul MN, October 1998.

306. J. Vaughey, A. Kahaian, M. Thackeray "New Materials and Advancements" Guidant Program Review, St Paul, MN. December 1998.

307. M. Thackeray, J. Vaughey, A. Kahaian, M. Scott "New Primary Battery Materials and an SVO Overview" Guidant Program Review." St Paul, MN, February 1999.

308. J. T. Vaughey, A. J. Kahaian, Michael M. Thackeray, Dennis Dees "Primary Battery Material Studies" Guidant Program Review St Paul, MN, May 1999.

309. D. Dees, J. Vaughey, M. Thackeray "Models for Primary Battery Material Studies" Guidant Program Review St Paul, MN, September 1999.

310. K. Kepler, J. Vaughey, M. Thackeray "Diffraction Studies of Layered Vanadate Cathodes" 3M Program Review, St Paul, MN, January 2000.

311. M. Thackeray, J. Vaughey "Materials Program Overview" Guidant Program Review, St Paul, MN February 2000.

312. C.S. Johnson, J. T. Vaughey, M. Thackeray "Cycling Performance of Intermetallic Insertion Electrodes in Lithium Batteries" Fourth Chicago Battery Workshop, Illinois Institute of

Technology, Chicago, IL April 2000.

313. J. Vaughey, C. S. Johnson, M. Thackeray ""PolyStor ATP Update: Intermetallic Anodes" Polystor Program Review, Livermore, CA, July 2000.

314. J. Vaughey "New Negative Electrodes for Lithium-Ion Batteries" University of Chicago - Chemical Engineering Division Review, Lemont, IL, September 2000.

315. M. M. Thackeray, J. T. Vaughey, C. S. Johnson "Intermetallic Negative Electrodes for Lithium Batteries" Department of Energy and Department of Defense Workshop on Interfaces, Phenomena, and Nanostructures in Lithium Batteries, Argonne National Laboratory, Lemont, IL, December 2000.

316. J. Vaughey, J.-S. Kim, M. M. Thackeray "PolyStor ATP Update: Intermetallic Anodes" Polystor Program Review, Livermore, CA, September 2001.

317. J. T. Vaughey, C. S. Johnson, A. J. Kropf, H. Tostmann, L. Fransson, K. Edstrom, M. M. Thackeray "Electron Transfer at the Border Between Intermetallic and Zintl Phases" Basic Energy Sciences (DOE) Electrochemistry Program Review, Lemont, IL, May 2003.

318. M. M. Thackeray, C. S. Johnson, J. T. Vaughey, R. Benedek "Interfacial and Bulk Charge Transfer in Intermetallic and Metal Oxide Compounds" Basic Energy Sciences (DOE) Electrochemistry Program Review, Lemont, IL, May 2003.

319. M. M. Thackeray, R. Benedek, C. S. Johnson, J. T. Vaughey, A. J. Kahaian "New Electrode Materials for Battery Applications" Synthesis, Characterization and Modeling" Basic Energy Sciences (DOE) Electrochemistry Program Review, Lemont, IL, May 2003.

320. C. S. Johnson, J.-S. Kim, J. T. Vaughey, S. A. Hackney, W. Yoon, C. P. Grey, M. A. Anderson, W. A. Zeltner, K. Walz, M. M. Thackeray "New Cathode Materials" Batteries for Advanced Transportation Technologies (BATT) Annual Review, Berkeley, CA, May 2004.

321. J. T. Vaughey, C. S. Johnson, R. Benedek, H. Bryngelsson, K. Edstrom, M. M. Thackeray "Non-Carbonaceous Anode Materials" Batteries for Advanced Transportation Technologies (BATT) Annual Review, Berkeley, CA, May 2004.

322. Johnson, C.S., X. Qian, J. T. Vaughey, M. M. Thackeray, and A. J. Kropf "X-ray Absorption Spectroscopy (XAS) Characterization of 5 V $Li[Co_xNi_{0.5-x}Mn_{1.5}]O_4$ (x=0, 0.1, 0.2, 0.4, and 0.5) Spinel Cathodes for Lithium Batteries", Advanced Photon Source Review, February 2005.

323. J. T. Vaughey, M. M. Thackeray "Advance Anodes for Lithium-Ion Batteries" Applied Science and Technology Program Review, Lemont, IL, April 2005.

324. R. Benedek, R. Prasad, C. S. Johnson, J. T. Vaughey, M. M. Thackeray "First Principles Modeling of the Stability of Layered Li Battery Electrodes" Applied Science and Technology Program Review, Lemont, IL, April 2005

325. J. T. Vaughey, C. S. Johnson, M. M. Thackeray "Non-Carbonaceous Anode Materials"

Batteries for Advanced Transportation Technologies (BATT) Annual Review, Berkeley, CA, May 2005.

326. C. S. Johnson, J. T. Vaughey, S-H. Kang, N. Li, S. A. Hackney, C. P. Grey, M. M. Thackeray "New Cathode Materials" Batteries for Advanced Transportation Technologies (BATT) Annual Review, Berkeley, CA, May 2004.

327. Il-Seok Kim, J. T. Vaughey, J. Elam, M. Pellin, J. Carlisle, O. Auciello "Novel Cu_6Sn_5 Thin Film Electrodes for High Performance Thin Film Batteries" University of Chicago Materials Science Division Review, February 2006.

328. J. T. Vaughey, J. M. Ralph "Hydrogen Storage in a Zintl Matrix" Farasis Program Review, Hayward, CA May 2006.

329. J. T. Vaughey, C. M. Lopez, D. W. Dees "Lithium Metal Anodes" DOE Office of Vehicle Technologies Annual Merit Review, Bethesda, MD, February 2008.

330. M. M. Thackeray, J. T. Vaughey "Non-Carbonaceous Anodes" DOE Office of Vehicle Technologies Annual Merit Review, Bethesda, MD, February 2008.

331. J. T. Vaughey, C. M. Lopez, D. Dees "Lithium Metal Anodes" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, May 2009.

332. Andrew Jansen, J. T. Vaughey "Development of Improved Methods for Making Intermetallic Anodes" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, May 2009.

333. M. M. Thackeray, J. T. Vaughey, L. Trahey "Non-Carbonaceous Anodes" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, May 2009.

334. J. T. Vaughey, C. M. Lopez, D. Dees "Lithium Metal Anodes" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2010.

335. M. M. Thackeray, J. T. Vaughey "Non-Carbonaceous Anodes" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2010.

336. L. Trahey, J. Vaughey, A. Jansen, M. M. Thackeray "Binder Free Intermetallic Sn Electrodes" Argonne-PNNL Joint Workshop on Energy Storage, Argonne National Laboratory, November 2010.

337. A.N. Jansen, J. T. Vaughey "Exploratory Research of Non-Aqueous Flow Batteries" Argonne-PNNL Joint Workshop on Energy Storage, Argonne National Laboratory, November 2010.

338. J. Vaughey, C. M. Lopez, D. Dees "Morphological Changes on Cycling for the Lithium Metal Anode" Argonne-PNNL Joint Workshop on Energy Storage, Argonne National Laboratory, November 2010.

339. D. Schroeder, J. Vaughey, B. Key "Ceramic Electrolytes: Synthesis and Characterization" BATT-ILIRP Workshop, Berkeley, CA, March 2011.

340. J. Vaughey, D. Schroeder, J. Zhang, S Neuhold "Organic Coatings for Lithium Metal: Synthesis and Characterization" BATT-ILIRP Workshop, Berkeley, CA, March 2011.

341. J. T. Vaughey, D. J. Schroeder, B. Key, S. Neuhold "BATT-ILIRP: Lithium Metal Anodes" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, May 2011.

342. J. Vaughey, D. Schroeder, B. Key, B. Ingram, A. Hubaud, S. Neuhold "Lithium Metal Anodes", DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, May 2012.

343. J. Vaughey, L. Trahey, F. Dogan "Three-Dimensional Battery Architectures" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, May 2012.

344. J. Vaughey, L. Trahey "Metallic Copper Binders for Li-Ion Batteries: Synthesis and Characterization" BATT Workshop, Washington DC, May 2011.

345. L. Trahey, F. Dogan, B. Johnson, J. Vaughey "Applications of X-Ray Tomography to Three-Dimensional Anode Architectures" BATT Workshop, Berkeley, CA, August 2011.

346. B. Ingram, D. Schroeder, J. Vaughey, B. Key "Ceramic Electrolytes: Synthesis and Characterization" BATT-ILIRP Workshop, Berkeley, CA, October 2011.

347. S. Neuhold, J. Vaughey, D. Schroeder "Organic Coatings for Lithium Metal: Synthesis and Characterization" BATT-ILIRP Workshop, Berkeley, CA, October 2011.

348. L. Trahey, F. Brushett, X. Xiao, J. Vaughey "X-Ray Tomography on 3D Microporous Tin-based Anodes" BATT Workshop, Berkeley, CA, February 2012.

349. F. Dogan, A. Hubaud, K. Johnson, J. Vaughey "Synthesis and Interfacial Characterization of Silicon Electrodes" BATT Workshop, Berkeley, CA, February 2012.

350. J. Vaughey, D. Schroeder, B. Ingram, B. Key, A. Hubaud "Synthesis and Characterization of LLZ-Garnet based Li-ion Solid Electrolytes" BATT-ILIRP Fall Workshop, Lemont, IL, October 2012.

351. B. Key, F. Dogan, J. Vaughey, M. Slater, J. Croy, K. Gallagher, C.S. Johnson, Y. Ren "NMR Studies and Local Structure of Voltage Fade Electrodes" DOE-USDrive Workshop, Lemont, IL, January 2013.

352. J. T. Vaughey, B. Key, F. Dogan "Solid State NMR Studies and Local Structure of Voltage Fade Materials" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, May 2013.

353. A. K. Burrell, A. Abouimrane, D. Abraham, K. Amine, M. Balasubramanian, J. Bareño, I. Belharouak, R. Benedek, I. Bloom, Z. Chen, D. Dees, K. Gallagher, H. Iddir, B. Ingram, C. Johnson, W. Lu, D. Miller, Y. Qin, Y. Ren, M. Thackeray, L. Trahey, J. Vaughey "Addressing the Voltage Fade Issue with Li-Mn Rich Oxide Cathode Materials" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, May 2013.

354. J. T. Vaughey, L. Trahey, F. Dogan "Novel Anode Materials: Three Dimensional Architectures" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, May 2013.

355. D. J. Schroeder, A. A. Hubaud, J. T. Vaughey "Ceramic Membranes for Non-Aqueous Redox Flow Batteries" JCESR Full Program Review Meeting, Bolingbrook, IL, January 2014.

356. J. Vaughey, D. Schroeder, A. A. Hubaud "JCESR Membrane Studies" JCESR Full Program Review Meeting, Bolingbrook, IL, January 2014.

357. D. Proffit, D. Schroeder, J. Vaughey "Synthesis and Characterization of New Materials for Multivalent Cathodes" JCESR Full Program Review Meeting, Bolingbrook, IL, January 2014.

358. D. Proffit, A. Lipson, B. Ingram, A. K. Burrell, J. Vaughey "Synthesis and Evaluation of New Multivalent Electrochemical Cells – Electrodes and Electrolytes" JCESR Full Program Review Meeting, Bolingbrook, IL, January 2014.

359. K. Poeppelmeier, J. Vaughey, L. Fuoco, J. Incorvati "Multivalent Intercalation in Oxide Fluorides" JCESR Full Program Review Meeting, Bolingbrook, IL, January 2014.

360. J. T. Vaughey, L. Trahey, F. Dogan "Novel Anode Materials" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2014.

361. J. T. Vaughey, D. Schroeder, J. Rodriguez Lopez, N. Gavvalapalli, K. Cheng, J. S. Moore, B. Helms, C. Li, A. Joshi, D. Milliron "Membranes for Non-Aqueous Flow Batteries" 2014 DOE-BES JCESR Science and Management Review, Argonne National Laboratory, Lemont, IL, July 2014.

362. D. L. Proffit, J. Vaughey, L. Fuoco, J. Incorvati, K. Poeppelmeier, A. Lipson, B. Ingram, A. K. Burrell, P. Senguttuvan, C. Johnson, C. Kim, T. Yi, J. Cabana, D. Eroglu, K. Gallagher, M. Liu, A. Jain, K. Persson, L. Wan, D. Prendergast, R. Malik, P. Canepa, G. Ceder, "Cathode Materials for Multivalent Batteries" 2014 DOE-BES JCESR Science and Management Review, Argonne National Laboratory, Lemont, IL, July 2014.

363. M. Liu, A. Jain, K. Persson, R. Malik, Z. Rong, G. Ceder, A. Lipson, B. Ingram, D. Proffit, J. Vaughey, L. Fuoco, J. Incorvati, K. Poeppelmeier, C.-J. Kim, J. Cabana, A. K. Burrell "Computational Screening of Multivalent Cathodes" 2014 DOE-BES JCESR Science and Management Review, Argonne National Laboratory, Lemont, IL, July 2014.

364. B. Perdue, N. Hale, V. Duffort, C. Liao, M. Rodriguez, M. Chen, S. Kim, J. Vaughey, L. Nazar, J. Schwank, V. Srinivasan, K. Zavadil, C. Apblett "Multivalent Prototyping and its Value Meeting JCESR Goals" 2014 DOE-BES JCESR Science and Management Review, Argonne National Laboratory, Lemont, IL, July 2014.

365. B. Key, H. Wang, D. Proffit, P. Senguttuvan, N. Sa, T. Kinnebrugh, K. Chapman, B. Pan, C. Liao, V. Duffort, L. Nazar, T. Yi, C. Kim, P. Phillips, J. Incorvati, K. Poeppelmeier, J. Cabana, J. Vaughey, A. K. Burrell "Ex-situ MAS and In-situ Static ^{25}Mg NMR Studies of Mg-Ion Batteries" JCESR Full Program Review Meeting, Lisle, IL, April 2015.

366. N. Sa, D. Proffit, A. Lipson, T. T. Fister, M. liu, G. S. Gautam, N. Hahn, Z. Feng, Y. Ren, C. Sun, J. Vaughey, C. Liao, P. Fenter, K. Persson, G. Ceder, K. Zavadil, A. K. Burrell "Development and Application of a Non-Aqueous Electrolyte for a Rechargeable Mg-Ion Battery" JCESR Full Program Review Meeting, Lisle, IL, April 2015.

367. A. Hubaud, D. Schroeder, J. Vaughey "Developing Anode Materials for Magnesium-Ion Batteries" JCESR Full Program Review Meeting, Lisle, IL, April 2015.

368. B. Pan, J. Vaughey, A. K. Burrell, Z. Zhang, C. Liao "Highly Stable Electrolytes for Rechargeable Magnesium-Ion Batteries" JCESR Full Program Review Meeting, Lisle, IL, April 2015.

369. A. Lipson, S. Lapidus, D. Proffit, B. Pan, C. Liao, J. Vaughey, B.J. Ingram "Prussian Blue Analogues for Multivalent Batteries" JCESR Full Program Review Meeting, Lisle, IL, April 2015.

370. Danielle Proffit, Albert Lipson, Lindsay Fuoco, Baofei Pan, Sang Don Han, Zhenxing Feng, Timothy Fister, Baris Key, Brian Ingram, Ken Poeppelmeier, Anthony Burrell, and John Vaughey "System Level Design for Testing Multivalent Intercalation of Hollandite K_xTiO_2" JCESR Full Program Review Meeting, Lisle, IL, April 2015.

371. A. K. Burrell, J. Vaughey, A. Hubaud, F. Dogan, H. Ibbir, J. Zhang, C. Liao, A. Tornheim, C. S. Johnson, A. Vu "Materials for High Energy High Voltage Batteries" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2015.

372. A. Lipson, V. Duffort, B. J. Ingram, J. Vaughey, L. Nazar, A. K. Burrell "Prussian Blue–based Cathode Materials for Multivalent Batteries" 2015 DOE-BES JCESR Science and Management Review, Argonne National Laboratory, Lemont, IL, July 2015.

373. M. Liu, A. Jain, K. Persson, J. Vaughey, L. Fuoco, J. Incorvati, K. Poeppelmeier "New Multivalent Intercalation Cathodes – Materials Design and Synthesis" 2015 DOE-BES JCESR Science and Management Review, Argonne National Laboratory, Lemont, IL, July 2015.

374. N. Sa, A. K. Burrell, T. L. Kinnibrugh, H. Wang, B. Key, K. W. Chapman, J. T. Vaughey, D. L. Proffit, P. J. Chupas, and T. Fister "A Study of Mg Intercalation and a Prospective Mg Full Cell Design based on $Mg_x[V_2O_5]$" 2015 DOE-BES JCESR Science and Management

Review, Argonne National Laboratory, Lemont, IL, July 2015.

375. F. Dogan, J. Vaughey, H. Iddir "^{29}Al MAS-NMR Studies of Alumina Coated NMC Cathodes: Role of Annealing Time and Temperature on Electrochemical Performance" DOE-USDrive Workshop, Detroit, MI, November 2015.

376. Miao Liu, Baris Key, Patrick Bonnick, Ziqin Rong, Piero Canepa, Daniel Hannah, Xiaoqi Sun, Linda Nazar, Gerbrand Ceder, Kristin Persson, Ryan Bayliss, Saul Lapidus, Premkumar Senguttuvan, Niya Sa, Sang-don Han, Jordi Cabana, John T. Vaughey "Theoretical and Experimental Study of Cation Mobilities in Multivalent Intercalation Cathodes" 2016 DOE-BES JCESR Science and Management Review, Argonne National Laboratory, Lemont, IL, May 2016.

377. S.-D. Han, P. Senguttuvan, N. N. Rajput, X. Qu, S. Kim, Albert L. Lipson, S. Tepavcevic, Baofei Pan, M. Malone, T. T. Fister, Ralph Nuzzo, Andrew Gewirth, Kristin A. Persson, Christopher S. Johnson, Anthony K. Burrell, J. T. Vaughey "Zinc as a Model Multivalent Cation: Theory and Experiment" 2016 DOE-BES JCESR Science and Management Review, Argonne National Laboratory, Lemont, IL, May 2016.

378. Niya Sa, Hao Wang, Baris Key, John T. Vaughey, Gopalakrishnan Sai Gautam,Karena W. Chapman, Zhenxing Feng, Yang Ren, Paul A. Fenter, Gerbrand Ceder, Arijita Mukherjee, Robert Klie, Anthony K. Burrell "Layered Cathode Materials for Rechargeable Mg-Ion Batteries" JCESR Full Program Meeting, Lemont, IL, April 2016.

379. R. Bayliss, B. Key, S. Lapidus, Hyun Deog Yoo, G. Nolis, A. A. Adil, F. Dogan, M. G. Tucker, J. T. Vaughey, J. Cabana "Structural Complexities of Magnesium Manganese Spinels" JCESR Full Program Meeting, Lemont, IL, April 2016.

380. A. Wustrow, P. Phillips, N. Sa, J. Vaughey, R. Klie, K.R. Poeppelmeier "Targeted Synthesis of $MgCr_2S_4$: A New Phase for Mg Cathodes" JCESR Full Program Meeting, Lemont, IL, April 2016.

381. Baofei Pan, J. T. Vaughey, A. K. Burrell, Z. Zhang, Chen Liao "Exploring Reliable Organic Cathode Materials for High Performance Mg-Ion Batteries" JCESR Full Program Meeting, Lemont, IL, April 2016.

382. Albert Lipson, Soojeong Kim, Baofei Pan, Chen Liao, T. T. Fister, A. K. Burrell, J. T. Vaughey, B. J. Ingram "Multivalent Cathode and High Voltage Full Cell Development" JCESR Full Program Meeting, Lemont, IL, April 2016.

383. T. T. Fister, S. -D. Han, S. Kim, Z. Feng, P. Fenter, B. Pan, C. Liao, A. Hubaud, J. T. Vaughey, K. Lundberg, K. Ta, Andrew A. Gewirth "Real Time Diffraction of Multivalent Ion Absorption, Alloying, and Electrodeposition" JCESR Full Program Meeting, Lemont, IL, April 2016.

384. S. D. Han, P. Senguttuvan, N. Raiput, X. Qu, S. Kim, T. T. Fister, S. Tepavcevic, K. Persson, C. S. Johnson, A. K. Burrell, J. Vaughey "Case Studies on Non-Aqueous Zn-ion Battery Systems: A Pathway to Develop Multivalent Ion Batteries" JCESR Full Program

Meeting, Lemont, IL, April 2016.

385. D. Proffit, N. Sa, A. Lipson, A. Burrell, B.J. Ingram, J. Vaughey "Multivalent Ion Battery Cathodes" JCESR Full Program Meeting, Lemont, IL, April 2016.

386. B. Key, H. Wang, R. Bayliss, D. Proffit, P. Senguttuvan, N. Sa, T. Kinnibrugh, K. Chapman, V. Duffort, L. Nazar, T. Yi, Choongjoong Kim, P. Phillips, J. Incorvati, K. Poeppelmeier, J. Cabana, J. T. Vaughey, A. K. Burrell "^{25}Mg NMR Studies of Mg-Ion Battery Materials" JCESR Full Program Meeting, Lemont, IL, April 2016.

387. J. Incorvati, J. Hancock, L. Wan, B. Key, D. Zhou, C. Liao, M. Holland, H. Wang, D. Prendergast, K. Poeppelmeier, J. Vaughey "Mixed Anion and Mixed Valent Magnesium-Ion Battery Cathodes" JCESR Full Program Meeting, Lemont, IL, April 2016.

388. J. Vaughey, F. Dogan, H. Ibbir, J. Croy, C. Liao, C. Peebles, D. Abraham, G. Veith, D. Dees "Materials for High Energy High Voltage Batteries" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2016.

389. J. Vaughey, B. Key "Fundamental Studies and Reactivity of Lithiated Silicon" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, September 2016.

390. B.J. Ingram, J. Cabana, G. Ceder, K. Poeppelmeier, D. Prendergast, J. Vaughey "Multivalent Ion Battery Cathodes" JCESR Program Review, Washington, DC, January 2017.

391. J. Vaughey, B. Key, N. Sa "Materials Design and Characterization of Highly Reduced Model Systems" SEISta, NREL, Golden, CO, January 2017.

392. B. Key, J. Vaughey "Fundamental Studies and Reactivity of Lithiated Silicon" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, January 2017

393. J. Vaughey, B. Key, N. Sa, B. Han "Materials Design and Characterization of Highly Reduced Model Systems" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, April 2017.

394. J. Vaughey, B. Key, N. Sa, B. Han "Materials Design and Characterization of Highly Reduced Model Systems" DeepDive & SEISta Joint Program Review, Washington DC, June 2017.

395. A.K. Burrell, C. Ban, N. Neale, G. Veith, R. Ruther, J. Vaughey, N. Sa, B. Key, R. Kostecki, P. Ross "Fundamental Studies of Silicon-based Electrodes for Li-Ion Batteries – DeepDive & SEISta Joint Program" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2017.

396. J. Vaughey, F. Dogan, B. Han, H. Ibbir, G. Chen, R. Ruther, G. Veith, D. Dees "Materials for High Energy High Voltage Batteries" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2017.

397. D. Dees, A.N. Jansen, B. Polzin, S. Trask, A. Dunlop, C. Ban, R. Tenent, G. Veith, R.

Ruther, J. Nanda, J. Vaughey, N. Sa, B. Key, Binghong Han, R. Kostecki, G. Liu, W. Tong, P. Ross D. Abraham, J. Gilbert, K. Kalaga, K. Fenton, J. Zhang, A. Tornheim, C. Liao, C. Peebles, L. Zhang, J. J. Zhang, C. S Johnson, W. Dose "Silicon Electrode Deep Dive Program" DOE Hydrogen Program and Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2017.

398. J. Vaughey, B. Han, B. Key "Fundamental Studies and Reactivity of Lithiated Silicon" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, September 2017.

399. B. Han, J. Vaughey, B. Key "Fundamental Studies and Reactivity of Lithiated Silicon" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, September 2017.

400. B. Key, B. Han, F. Dogan, J. Vaughey "Fundamental Studies and Reactivity of Lithiated Silicon" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, January 2018.

401. B. Key, B. Han, J. Vaughey "Reactivity of Lithiated Silicon with Electrolytes" DeepDive & SEISta Joint Program Review, Argonne National Laboratory, Lemont, IL April 2018.

402. J. Vaughey, F. Dogan, B. Han, R. Ruther, G. Veith "Materials for High Energy High Voltage Batteries" DOE Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2018.

403. Chunmei Ban, S.-D. Han, G. Veith, J. Vaughey, N. Sa "Surface Analysis of the Silicon SEI" DOE Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2018.

404. B. Han, J. Vaughey, B. Key "Fundamental Studies and Reactivity of Lithiated Silicon" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, August 2018.

405. Bob-Jin Kwon, Krista Hawthorne, Ka-Cheong Lau, Soojeong Kim, Timothy T. Fister, Chen Liao, Baris Key, John Vaughey "Reversible Magnesium Intercalation into a High Voltage Spinel Oxide; A Case Study using $MgCrVO_4$" JCESR Program Review, Lemont, IL, Oct 2018.

406. J. Vaughey "Adjusting LIB Cation Ratios using Soft Chemistry" Lithium-Ion Battery Recycling Program Review, Argonne National Laboratory, Lemont, IL. Nov 2018.

407. J. Vaughey "Relithiation Strategies for Lithium-Ion Cathodes" Lithium-Ion Battery Recycling Program Review, Argonne National Laboratory, Lemont, IL. Nov 2018.

408. J. Vaughey, B. Key, F. Dogan, B. Han "Cell Balancing Issues Associated with Silicon-rich Electrodes" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, January 2019

409. J. Vaughey, A. Montoya "Relithiation Strategies for Lithium-Ion Cathodes" Lithium-Ion Battery Recycling Program Review, NREL, Golden, CO, February 2019.

410. J. Vaughey "Adjusting LIB Cation Ratios using Soft Chemistry" Lithium-Ion Battery Recycling Program Review, ORNL, Oak Ridge, TN, May 2019.

411. J. Vaughey, B. Key, F. Dogan, B. Han "Surface Substitution as a Method to Mitigate Cell Reactions" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, January 2019

412. B. Key, J. Vaughey, B. Han "Phase Relations and Electrochemistry of Surface Substituted Silicon Anodes" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, January 2019

413. J. Vaughey, A. Montoya "Relithiation Strategies for Lithium-Ion Cathodes" Lithium-Ion Battery Recycling Program Review, ORNL, Oak Ridge, TN, May 2019.

414. J. Vaughey "Using MAS-NMR to Quantify Cation Diffusion for Recycle Cathodes" Lithium-Ion Battery Recycling Program Review, ORNL, Oak Ridge, TN, May 2019.

415. Anthony K. Burrell, C. Ban, N. Neale, G. Veith, B. Armstrong, J. Vaughey, N. Sa, B. Key, R. Kostecki, P. Ross "Fundamental Studies of Silicon-based Electrodes for Li-Ion Batteries – the SEISta Program" DOE Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2019

416. J. Vaughey, D. Dees, A.N. Jansen, B. Polzin, S. Trask, A. Dunlop, B. Armstrong, G. Veith, N. Sa, B. Key, Binghong Han, R. Kostecki, G. Liu, W. Tong, P. Ross D. Abraham, J. Zhang, A. Tornheim, L. Zhang, J. J. Zhang, C. S Johnson "Silicon Electrode Deep Dive Program" DOE Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2019.

417. J. Vaughey, Y. Wang, A. Lipson, J. Durham, J. Coyle, X. Li, A. Burrell, A. Montoya, Z. Chen, L. Pan, E. Dahl, Q. Dai, J. Li, A. Jansen, I. Belharouak, S. Dai "Lithium-Ion Battery Direct Recycling Strategies" DOE Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2019.

418. A. Montoya, J. Vaughey, A. Lipson, J. Durham, E. Dahl, S. Dai, J. Coyle, X. Li, Z. Chen, L. Pan, Y. Wang "ReCell – A New DOE LIB Recycling Program: Lithium-Ion Battery Direct Recycling" DOE Vehicle Technologies Program Annual Merit Review, Washington, DC, June 2019.

419. J. Vaughey "Interfacial Materials Chemistry" CSE Group Leaders Meeting, Argonne National Laboratory, Lemont, IL, July 2019.

420. J. Vaughey, A. Montoya, F. Dogan "Direct Recycling – Recent Advances in Relithiation" Lithium-Ion Battery Recycling Program Review, Argonne National Laboratory, Lemont, IL, August 2019

421. J. Vaughey, A. Montoya, F. Dogan "Compositional Change for Recycled Cathodes" Lithium-Ion Battery Recycling Program Review, Argonne National Laboratory, Lemont, IL, August 2019.

422. B. Key, X. Li, F. Dogan, B. Han, J. Vaughey "Zintl-based Coatings for Silicon Electrodes" DeepDive & SEISta Joint Program Review, LBNL, Berkeley, CA, August 2019.

423. J. Vaughey "Silicon Electrochemistry – New Approaches to Stabilizing Silicon Electrodes"

DeepDive & SEISta Joint Program Review, LBNL, Berkeley, CA, August 2019.

424. Lauren Blanc, Abhi Shyamsunder, Yanjie Cui, Sanghyeon Kim, Haesun Park, Peter Zapol, J. T. Vaughey, Linda F. Nazar "Pushing the Bounds of Divalent Electrochemistry: Exploring the Possibility of Calcium Batteries and a Novel High-Voltage Ca Electrolyte and its Implementation in Ca-ion Cells" JCESR Program Review, Argonne National Laboratory, Lemont, IL, September 2019.

425. A. Montoya, J. Vaughey, "Direct Recycling – Thermal Relithiation" Lithium-Ion Battery Recycling Program Argonne National Laboratory, Lemont, IL, November 2019

426. J. Vaughey, A. Montoya "Cathode Upcycling" Lithium-Ion Battery Recycling Program Review, Argonne National Laboratory, Lemont, IL, November 2019.

427. B. Key, X. Li, F. Dogan, J. Vaughey "Zintl-based Coatings for Silicon Electrodes" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, January 2020.

428. X. Li, B. Key, F. Dogan, J. Vaughey "Evaluation and Testing of Zintl-Based Electrolytes" DeepDive & SEISta Joint Program Review, NREL, Golden, CO, January 2020.

429. A. Montoya, J. Vaughey, "Direct Recycling – Thermal Relithiation" Lithium-Ion Battery Recycling Program National Renewable Energy Laboratory, Golden CO Mar 2020.

430. A. Montoya, J. Vaughey "Cathode Upcycling" Lithium-Ion Battery Recycling Program Review, National Renewable Energy Laboratory, Golden CO Mar 2020.

431. B. Key, S. D. Han, X. Li, F. Dogan, Y. Ha, J. Vaughey "Zintl-based Coatings for Silicon Electrodes" DeepDive & SEISta Joint Program Review, Virtual Meeting, April 2020.

432. B. Key, S.D. Han, J. Vaughey "Electrode Interfaces" DeepDive & SEISta Joint Program Review, Virtual Meeting, April 2020.

433. J. Vaughey "Silicon Deep Dive: Materials and Interfaces" DOE Vehicle Technologies Program Annual Merit Review, Virtual Meeting, June 2020.

434. J. Vaughey "Direct Cathode Recycling: Relithiation and Upcycling" DOE Vehicle Technologies Program Annual Merit Review, Virtual Meeting, June 2020.

435. J. Vaughey B. Armstrong, J. Zhang "Silicon Deep Dive: Overview and Discussion" DOE Vehicle Technologies Program Annual Merit Review, Virtual Meeting, June 2020.

436. J. Vaughey "Direct Cathode Recycling: Relithiation and Upcycling" ReCell Recycling Center Town Hall Industry Day, Virtual Meeting, June 2020.

437. A. Montoya, J. Vaughey, "Direct Recycling – Thermal Relithiation with Economic Analysis" Lithium-Ion Battery Recycling Program Virtual Review Meeting, June 2020.

438. A. Montoya, J. Vaughey "Cathode Upcycling" Lithium-Ion Battery Recycling Program

Review, Virtual Review Meeting, June 2020.

439. A. Montoya, J. Vaughey, "Direct Recycling – Thermal Relithiation with Economic Analysis" Lithium-Ion Battery Recycling Program Virtual Review Meeting, September 2020.

440. A. Montoya, J. Vaughey "Cathode Upcycling" Lithium-Ion Battery Recycling Program Review, Virtual Review Meeting, September 2020.

441. Bob-Jin Kwon, Baris Key, Ian Johnson, John Vaughey, Liang Yin, Linhua Hu, Robert Klie, Prakash Parajuli, Chen Liao, Jordi Cabana, Brian Ingram "Reversible Magnesium Intercalation into High Voltage Spinel Oxides: A Case Study using $Mg(CrV)O_4$, $Mg(MnCr)O_4$, and $Mg(CrTi)O_4$" JCESR Virtual Program Review, Lemont, IL, Sept 2020.

442. B. Key, X. Li, Y. Zhang, R. Uppuluri, F. Dogan, J. Vaughey "Zintl-based Coatings for Silicon Electrodes" DeepDive & SEISta Joint Program Review, Virtual Meeting, September 2020.

443. A. Gutierrez, J. Vaughey "Role of Coatings in Stabilizing Low Cobalt Cathodes" Realizing Next Generation Cathodes Virtual Program Review, October 2020.

444. A. Montoya, J. Vaughey, "Direct Recycling – Thermal Relithiation with Economic Analysis" Lithium-Ion Battery Recycling Program Virtual Review Meeting, December 2020.

445. A. Montoya, J. Vaughey "Cathode Upcycling" Lithium-Ion Battery Recycling Program Review, Virtual Review Meeting, December 2020.

446. A. Montoya, J. Vaughey, "Direct Recycling – Thermal Relithiation with Economic Analysis" Lithium-Ion Battery Recycling Program Virtual Review Meeting, March 2021.

447. A. Montoya, J. Vaughey "Cathode Upcycling" Lithium-Ion Battery Recycling Program Review, Virtual Review Meeting, March 2021.

448. J. Vaughey "ReCell Direct Cathode Recycling: Relithiation and Upcycling" DOE Vehicle Technologies Program Annual Merit Review, Virtual, June 2021.

449. A. Montoya, J. Vaughey, "Direct Recycling – Thermal Relithiation with Economic Analysis" Lithium-Ion Battery Recycling Program Virtual Review Meeting, September 2021.

450. A. Montoya, J. Vaughey "Cathode Upcycling" Lithium-Ion Battery Recycling Program Review, Virtual Review Meeting, September 2021.

451. L. Nazar, G. Ceder, Sanghyeon Kim, Lauren Blanc, Abhi Shyamsunder, Haesun Park, Peter Zapol, J. T. Vaughey "A New Family of Ca-Ion Cathodes Based on the NASICON Structure" JCESR Program Review, Argonne National Laboratory, Lemont, IL, September 2021.

452. A. Montoya, J. Vaughey, "Direct Recycling – Thermal Relithiation and Scaling Results" Lithium-Ion Battery Recycling Program Virtual Review Meeting, December 2021.

453. A. Montoya, J. Vaughey "Cathode Upcycling" Lithium-Ion Battery Recycling Program Review, Virtual Review Meeting, December 2021

454. J. Vaughey "Ca-Ion Energy Storage Materials" JCESR Office of Science Management Council, March 2022.

455. B. Cunningham, G. Veith, K. Harrison, C.S. Johnson, R. Kostecki, N. Neale, J. Vaughey, A.K. Burrell "Silicon Consortium Program: Overview" DOE Vehicle Technologies Program Annual Merit Review, Washington DC, June 2022.

456. A. Montoya, J. Vaughey, "Direct Recycling – Thermal Relithiation and Scaling Results" Lithium-Ion Battery Recycling Program Review Meeting, Golden, CO, November 2022.

457. A. Montoya, J. Vaughey "Cathode Upcycling" Lithium-Ion Battery Recycling Program Review Meeting, Golden, CO, November 2022.

458. J. Vaughey, F. Dogan, B. Key "MV Electrolyte Additive Stabilization of Lithiated Silicon Interfaces" SCP Program Review, Lemont, IL, Dec 2022.

MEETINGS

- Gordon Conference on Solid State Chemistry, Plymouth, NH, July 1990.
- Gordon Conference on Zeolitic and Layered Materials, Plymouth NH, June 1993.
- Gordon Conference on Solid State Chemistry, Wolfeboro, NH, July 1994.
- 210th American Chemical Society Meeting, Chicago, IL August 1995.
- 191st Meeting of the Materials Research Society, Boston, December 1997.
- 193rd Meeting of the Materials Research Society, Boston, December 1998.
- 196th Meeting of the Electrochemical Society & SOFC-VI, Honolulu, HI October 1999.
- Gordon Conference on Solid State Chemistry, New London, NH, July 2000.
- 198th Meeting of the Electrochemical Society, Phoenix, AZ, October 2000.
- International Conference on Materials for Advanced Technologies, Singapore, July 2001.
- 11th International Meeting on Lithium Batteries, Monterey, CA June 2002.
- 202nd Meeting of the Electrochemical Society, Salt Lake City, UT, October 2002.
- 14th International Conference on Solid State Ionics, Monterey, CA, June 2003.
- 226th American Chemical Society National Meeting, New York City, NY, Sept, 2003.
- Gordon Conference on Solid State Chemistry, New London, NH, July 2004.
- 208th Meeting of the Electrochemical Society, Los Angeles, CA, USA, October 2005.
- American Conference on Neutron Scattering, St. Charles, IL, USA, June 2006.
- Gordon Conference on Solid State Chemistry, New London, NH, July 2006.
- 211th Meeting of the Electrochemical Society, Chicago, IL, USA, May 2007.
- 14th International Meeting on Lithium Batteries, Tianjin, China June 2008.
- Gordon Conference on Solid State Chemistry, New London, NH, August 2010.
- Beyond Lithium-ion VI, Boulder, CO, June 2013.
- Beyond Lithium-ion VII, Lemont, IL, June 2014.
- Gordon Conference on Solid State Chemistry, New London, NH, July 2014.
- 20th International Conference on Solid State Ionics, Keystone, CO, June 2015.
- 228th Meeting of the Electrochemical Society, Phoenix, AZ, October 2015.
- 18th International Meeting on Lithium Batteries, Chicago, IL, June 2016.
- 232nd Meeting of the Electrochemical Society, National Harbor, MD, October 2017.
- 233rd Meeting of the Electrochemical Society, Seattle, WA, April 2018.
- American Association for the Advancement of Science (AAAS), Washington DC, February 2019.
- 234th Meeting of the Materials Research Society, Phoenix, AZ, April 2019.
- NaatBatt Lithium-Ion Battery Recycling Workshop, Buffalo, NY, July 2019.
- 236th Meeting of the Electrochemical Society, Atlanta, GA, October 2019
- Gordon Conference on Solid State Chemistry, New London, NH, July 2022