

# Selected Publications and Presentations

## Journal Articles, Books, and Book Chapters

Nonaqueous Electrolyte for Wide Temperature Range Operation of Li-ion Cells

R. Jow, M. Ding, K. Xu, S. Zhang, J. Allen, K. Amine, and G. Henriksen  
J. Power Sources 119-121 (2003) 343-348

Flame-Retardant Additives for Lithium-Ion Batteries

Y.-E. Hyung, D. R. Vissers, and K. Amine  
J. Power Sources **119-121**, 383-387 (2003)

New Interpenetrating Network Type Poly(siloxane-g-ethylene oxide) Polymer Electrolyte for Lithium Battery

B. Oh, D. R. Vissers, Z. Zhang, R. West, H. Tsukamoto, and K. Amine  
J. Power Sources **119-121**, 442-447 (2003)

Comparative Study of  $\text{Li}(\text{Ni}_{0.5-x}\text{Mn}_{0.5-x}\text{M}_{2x})\text{O}_2$  ( $\text{M}'=\text{Mg,Al,Co,Ni,Ti}, x=0,0.025$ ) Cathode Material for Rechargeable Lithium Batteries

S. H. Kang and K. Amine  
J. Power Sources 119-121, 150-155 (2003)

$\text{Li}(\text{Ni}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3})\text{O}_2$  as a Suitable Cathode for High Power Application

I. Belharouak, Y.-K. Sun, J. Liu, and K. Amine  
J. Power Sources, 123/122 (2003) 247-252

Electrochemical and *ex situ* X-ray Study of  $\text{Li}(\text{Li}_{0.2}\text{Ni}_{0.2}\text{Mn}_{0.6})\text{O}_2$  Cathode Material for Li Secondary Batteries

S.-H. Kang, Y. K. Sun, and K. Amine  
Electrochemical and Solid State Letter, 6(9) A183-186 (2003)

Electrochemical Performance of Layered  $\text{L}[\text{Li}_{0.15}\text{Ni}_{0.275-x}\text{Mg}_x\text{Mn}_{0.575}]\text{O}_2$  Cathode Materials for Lithium Secondary Batteries

Y. K. Sun, M. G. Kim, S.-H. Kang, and K. Amine  
J. Mater. Chem. **13**(2), 1-5 (2003)

$\text{Li}_2\text{MTi}_6\text{O}_{14}$  ( $\text{M}=\text{Sr, Ba}$ ) New Anodes for Lithium Ion Batteries

I. Belharouak and K. Amine  
Electrochemistry Communications **5**, 435-438 (2003)

Accelerating Rate Calorimetry Study on the Thermal Stability of Interpenetrating Network Type Poly(siloxane-g-ethylene oxide) Polymer

B. Oh, Y.-E. Hyung, D. R. Vissers, and K. Amine  
Electrochimica Acta **48**(14-16), 2215-2220, 2003

## Patents and Selected Publications and Presentations

Structural Characterization of Layered  $\text{Li}_x\text{Ni}_{0.5}\text{O}_2$  ( $0 < x \leq 2$ ) Oxide Electrodes for Li Batteries  
C. S. Johnson, J.-S. Kim, A. J. Kropf, A. J. Kahaian, J. T. Vaughey, L. Fransson, K. Edström,  
M. M. Thackeray  
Chem. Mater. **15**(12), 2313-2322 (2003)

Structural Considerations of Intermetallic Electrodes for Lithium Batteries  
M. M. Thackeray, J. T. Vaughey, C. S. Johnson, A. J. Kropf, R. Benedek, L. M. L. Fransson, and  
K. Edstrom  
J. Power Sources **113**, 124–130 (2003)

Lithium Reactions with Intermetallic-Compound Electrodes  
R. Benedek and M. M. Thackeray  
J. Power Sources **110**, 406–411 (2002)

Electrochemical Modeling of Lithium Polymer Batteries  
D. W. Dees, V. S. Battaglia, and A. Belanger  
J. Power Sources **110**, 310–320 (2002)

Modeling Thermal Management of Lithium-Ion PNGV Batteries  
P. A. Nelson, D. W. Dees, K. Amine, and G. L. Henriksen  
J. Power Sources **110**, 349–356 (2002)

Synthesis and Electrochemical Properties of  $\text{Li}[\text{Li}(1-2x)]/3\text{Ni}_x\text{Mn}(2-x)/3\text{O}_2$  as Cathode Materials for  
Lithium Secondary Batteries  
S. S. Shin, Y. K. Sun, and K. Amine  
Journal of Power Sources **112**(2), 634-638 (2002)

## Reports

Screening Report on Cell Materials for High-Power Li-Ion HEV Batteries  
J. Liu, A. Kahaian, I. Belharouak, S. Kang, S. Oliver, J. Kim, G. Henriksen, and  
K. Amine  
ANL-03/16, Argonne National Laboratory Report, Argonne, IL, April 2003

## Abstracts and Proceedings Papers

From Gems to Lithium Battery Materials  
M. M. Thackeray  
Abstract, presented at The 21<sup>st</sup> Meeting of the European Crystallographic Association,  
ECM-21, Durban, South Africa, August 24-29, 2003

Advanced Cathode Material for High Power Applications  
K. Amine and J. Liu  
Extended Abstracts, 1<sup>st</sup> International Conference on Polymer Batteries and Fuel Cells,  
Jeju, Korea, June 1-6, p. IINV 14 (2003)

Improved  $\text{LiFePO}_4$  Cathode for Lithium Ion Batteries  
I. Belharouak, J. Dodd, H. Tsukamoto, and K. Amine  
Extended Abstracts, 14<sup>th</sup> International Conference on Solid State Ionics, Monterey, CA,

June 22-27, p. 90 (2003)

Evaluation of Macromonomer Base Gel Polymer Electrolyte for High Power Application

B. Oh and K. Amine

Extended Abstracts, 14<sup>th</sup> International Conference on Solid State Ionics, Monterey, CA, June 22-27, p. 392 (2003)

Enhanced Electrochemical Stability of Colloidal Metal Oxide Coated Spinel  $\text{LiMn}_2\text{O}_4$  Electrodes

C. S. Johnson, K. Lauzze, D. P. Abraham, N. L. Dietz, and M. M. Thackeray

Extended Abstract, presented at 203<sup>rd</sup> Electrochemical Society Meeting, Paris, France, April 28-May 2, 2003

Cation Substitution Strategies for 5 V  $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$  Spinel Electrodes in Lithium Batteries

X. Qian and C. S. Johnson

Extended Abstract, presented at 203<sup>rd</sup> Electrochemical Society Meeting, Paris, France, April 28-May 2, 2003

Flexible Low-Cost Packaging for Lithium Ion Batteries

A. N. Jansen, K. Amine, D. J. Chaiko, and G. L. Henriksen

Proceedings Paper and Extended Abstract, presented at 204<sup>th</sup> Meeting of the Electrochemical Society, Orlando, FL, October 12-17, 2003

Implications of  $dV/dQ$  for the Analysis of Performance Fade in Lithium-Ion Batteries

I. Bloom, S. A. Jones, A. N. Jansen, D. P. Abraham, G. L. Henriksen, V. S. Battaglia, C.

Motloch, J. Christopherson, C. D. Ho, and R. B. Wright

Proceedings Paper and Extended Abstract, presented at 204<sup>th</sup> Meeting of the Electrochemical Society, Orlando, FL, October 12-17, 2003

AC Impedance Electrochemical Modeling of Lithium-Ion Positive Electrodes

D. Dees, E. Gunen, D. Abraham, A. Jansen, and J. Prakash

Proceedings Paper and Extended Abstract, presented at 204<sup>th</sup> Meeting of the Electrochemical Society, Orlando, FL, October 12-17, 2003

Identifying Fade Mechanisms in High-Power Lithium-Ion Cells

D. P. Abraham, J. Knuth, D. W. Dees, A. N. Jansen, E. Sammann, R. Haasch, R. D. Tweston, and S. MacLaren

Proceedings Paper and Extended Abstract, presented at 204<sup>th</sup> Meeting of the Electrochemical Society, Orlando, FL, October 12-17, 2003

Electrochemical Behavior of Surface-Modified and Doped Electrode Materials for High-Power Lithium-Ion Batteries

J. Liu and K. Amine

Extended Abstracts, Mater. Res. Soc. Fall 2002 Meeting, Boston, MA, December 2-6, 2002, p. 566 (2002)

Improvement of Chemical Stability of Spinel Lithium Manganese Oxide for High Power Application

J. Liu and K. Amine

Extended Abstracts, 202<sup>nd</sup> Meeting of the Electrochem. Soc., Salt Lake City, UT, October 20–24, 2002, p. 135 (2002)

Modeling Performance of Lithium-Ion Batteries with Manganese Spinel Positive Electrodes

P. A. Nelson, J. Liu, K. Amine, and G. L. Henriksen

Extended Abstracts, 202<sup>nd</sup> Meeting of the Electrochem. Soc., Salt Lake City, UT, October 20–24, 2002, p. 222 (2002)

**Papers Presented at Scientific Meetings**

Stabilization of  $\text{LiMn}_2\text{O}_4$  Spinel Electrodes for Lithium Batteries

J.-S. Kim, J. T. Vaughey, C. S. Johnson, and M. M. Thackeray

Presented at the Int. Conf. on Polymer Batteries and Fuel Cells, Jeju Island, Korea, June 1–6, 2003

Modeling the Performance of Lithium-Ion Batteries for Fuel Cell Vehicles

P. A. Nelson, D. W. Dees, K. Amine, and G. L. Henriksen

Presented at International Future Transportation Technology Conference, Society of Automotive Engineers, Costa Mesa, CA, June 23-25, 2003

$\text{LiFePO}_4$  as Cathode Material for Rechargeable Lithium-Ion Batteries

L. Agyarko, I. Belharouak, and K. Amine

Presented at the 30<sup>th</sup> Annual Conference of the Organization for the Professional Advancement of Black Chemists and Chemical Engineers, Indianapolis, IN, April 13-19, 2003

Electroactive Poly-Dilithium Phthalocyanine Coatings for Lithium Battery Materials

N. P. Fackler and C. S. Johnson

Presented at 203<sup>rd</sup> Electrochemical Society Meeting, Paris France, April 28-May 2, 2003

Enhanced Electrochemical Stability of Colloidal Metal Oxide Coated Spinel  $\text{LiMn}_2\text{O}_4$  Electrodes

C. S. Johnson, K. Lauzze, D. P. Abraham, N. L. Dietz, and M. M. Thackeray

Presented at the 203<sup>rd</sup> Electrochem. Soc. Meeting, Paris, France, April 27–May 2, 2003

XAFS Analysis of Layered  $\text{Li}_x\text{Ni}_{0.5}\text{Mn}_{0.5}\text{O}_2$  ( $0 < x \leq 2$ ) Electrodes for Lithium Batteries

A. J. Kropf, C. S. Johnson, J. T. Vaughey, and M. M. Thackeray

Presented at 12<sup>th</sup> Users' Meeting for the Advanced Photon Source, Argonne, IL, April 29-May 1, 2003

High-Power Lithium-Ion Batteries with Improved Calendar Life and Safety

K. Amine, J. Liu, Y. Hyung, I. Belharouak, and G. L. Henriksen

Presented at the 43<sup>rd</sup> Battery Symp., Fukuoka, Japan, October 12–14, 2002

An Investigation of the Impedance Rise and Power Fade in High-Power, Li-Ion Cells

I. Bloom, S. A. Jones, V. S. Battaglia, E. G. Polzin, G. L. Henriksen, C. G. Motloch,

J. P. Christophersen, J. R. Belt, C. D. Ho, R. B. Wright, R. G. Jungst, H. L. Case, and

D. H. Doughty

Presented at the 19<sup>th</sup> Int. Electric Vehicle Symp. (EVS-19), the Answer for Clean Mobility, Busan, South Korea, October 19–23, 2002

Phase Transitions in Lithiated Intermetallic Anodes for Lithium Batteries—In Situ XRD Studies

L. Fransson, K. Edstrom, J. T. Vaughey, and M. M. Thackeray

Presented at the 202<sup>nd</sup> Electrochem. Soc. Fall Meeting, Salt Lake City, UT, October 20–25, 2002

Synthesis and Electrochemical Properties of Layered  $\text{Li}(\text{Ni}, \text{MnM}')\text{O}_{2-y}\text{F}_y$  ( $\text{M}' = \text{Al}, \text{Co}, \text{Ti}$ ,  $0 \leq y \leq 0.1$ ) Cathode Materials

S.-H. Kang, Y. K. Sun, and K. Amine

Presented at the 202<sup>nd</sup> Electrochem. Soc. Fall Meeting, Salt Lake City, UT, October 20–25, 2002

Electrochemical Evaluation of  $x\text{Li}_2\text{TlO}_3 \bullet (1-x)\text{LiMn}_{0.5}\text{Ni}_{0.5}\text{O}_2$  ( $0 \leq x \leq 0.31$ ) Electrodes for Lithium-Ion Batteries

J.-S. Kim, C. S. Johnson, J. T. Vaughey, A. J. Kropf, and M. M. Thackeray

Presented at the ECS Fall Meeting, Salt Lake City, UT, October 20–25, 2002

Improved Spinel Lithium Manganese Oxide as Cathode for High Power Battery for HEV Application

J. Liu, K. Xu, T. R. Jow, and K. Amine

Presented at the 202<sup>nd</sup> Electrochem. Soc. Fall Meeting, Salt Lake City, UT, October 20–25, 2002

Use of a Model to Delineate Sources of Impedance Rise in Two Li-ion Cell Chemistries

B. G. Potter, S. A. Jones, G. L. Henriksen, C. Motloch, J. Christophersen, J. Belt, and I. Bloom

Presented at the 202<sup>nd</sup> Electrochem. Soc. Meeting, Salt Lake City, UT, October 20–25, 2002