LEAH RILEY (THOMPKINS)

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As an accomplished innovator, I seek to leverage my deep technical knowledge and passion for products that change the world. My superpower is building top quality engineering and research teams that create products people love. I led the development and commercialization of a groundbreaking energy storage technology that has disrupted a $60 billion battery industry. With strong industrial relationships across the globe, my unique blend of business strategy and technical skills helps small companies grow and large companies thrive.

Professional Experience

POLYDROP, LLC. 1/16 – 11/17 (Bellevue, WA)
Chief Technology Officer
Vice President of Research and Development

- Led engineering team to develop new polymer products for consumer electronics and sensitive device protection, including PCBs and touch screens
- Completed multi-faceted Design of Experiments (DOE) for optimized performance and materials down-select
- Successfully delivered 4 on-time products meeting B2B and B2C specifications
- Performed environmental testing on consumer products, including thermal cycling, abrasion, UV exposure
- Wrote and manage company intellectual property portfolio to cover new inventions and increase company value
- Managed R&D for $1.25M government grant operations and project budgets

ENERG2 TECHNOLOGIES, INC. (acquired by BASF) 4/11 – 12/15 (Seattle, WA)
Director of Research and Development
Senior Research Scientist
Research Scientist

- Designed complex lead-acid, lithium ion battery and ultracapacitor testing systems and procedures for screening product quality and performance
- Developed and ran life tests of products including drop, pressure, temperature, rate, and accelerated cycling
- Piloted the invention of three unique products in two years from inception to sales (market sizes: $60B, $30B, $2B)
- Steered a 20 member cross-functional staff team of research, quality, manufacturing, and sales to ensure on-time delivery of high performing products in energy storage
- Performed advanced post-mortem analysis on battery cells and systems to identify failure-modes for continuous improvement

- Served as a member of the executive staff and met weekly with Chief Operating Officer and Executive Management
- Established and implemented FMEA processes and control processes (Cp, Cpk) as dictated under ISO:9001 certification

ARGONNE NATIONAL LABORATORY 1/11 - 4/11 (Argonne, IL)
Research Intern

- Collaborated with cross functional teams to create novel battery materials
- Provided expertise of advanced surface modifications methods on cathodes

NATIONAL RENEWABLE ENERGY LABORATORY 6/08 – 12/10 (Golden, CO)
Graduate Researcher

- Led graduate and undergraduate researchers in advanced materials development through ALD on anodes and metal-oxide cathodes
- Maintained multiple laboratories with equipment upkeep and inventory
- Designed and built state-of-the-art nanospinning system for in-house growth of nanowires

EMMA WILLARD SCHOOL 8/05 – 5/08 (Troy, NY)
Science Instructor

- Taught advanced and introductory Physics and Aerospace Engineering

UNIVERSITY OF SOUTHERN CALIFORNIA 9/03 – 7/05 (Los Angeles, CA)
Graduate Researcher

- Partnered with Northrop Grumman and NASA Jet Propulsion Laboratory
- Designed parts using AutoCAD 3D modeling software
- Performed computational fluid dynamics on meso-scaled systems (Fluent)

Education

- Ph.D., Mechanical Engineering – University of Colorado, Boulder (2011)
- M.S., Astronautics and Aerospace Engineering – University of Southern California, Los Angeles, CA (2005)
- B.A., Physics – Mount Holyoke College, South Hadley, MA (2003)

Relevant Skills and Coursework

- JMP, Filemaker, HTML/CSS, VBA, C/C++, Mathematica, Igor, Matlab, Python, AutoCAD, Gambit, Fluent, Arbin, XRD, XPS, EDS, FTIR
- Design of experiments, project management of cross-functional teams

Professional Affiliations

- Board of Directors, Washington State CleanTech Alliance
- Technical Advisory Committee, North Seattle College

Patents

C. Simmons, V. Hrechka, L.A. Thompkins, L.D. Pozzo, "Structured Conjugated Polymers and Uses Thereof," Provisional Patent Application US 62/460,598, 2017

L.A. Thompkins, V. Hrechka, "Conductive Conformal Coatings," Provisional Patent Application US 62/360,047, 2016

L.A. Thompkins, V. Hrechka, B.A.E. Courtright, "Compositions Comprising Conjugated Polymers and Uses Thereof," PCT Patent Application 62/349,472, 2016

B.A.E. Courtright, L.D. Pozzo, V. Hrechka, L.A. Thompkins, "Dispersed Intrinsically Conductive Polymers for Novel Transparent Films," PCT Patent Application 62/290,304, 2016

L.A. Thompkins, A.M. Feaver, H.R. Costantino, A.T. Chang, K. Geramita, A.J. Sakshaug, "Carbon-Lead Blends for use in Hybrid Energy Storage Devices," E.P. 2715840B1

K. Geramita, B. Kron, H.R. Costantino, A.M. Feaver, A.J. Sakshaug, L.A. Thompkins, A.T. Chang, "Preparation of Polymeric Resins and Carbon Materials," U.S. Patent 9,409,777

A.M Feaver, L.A. Thompkins, K. Geramita, B.E. Krohn, A.J. Sakshaug, S. Fredrick, H.R. Costantino, C. Goodwin, C. Timmons, "Nano-featured Porous Silicon Materials," PCT Patent Application No. 16/046882, 2015

H.R. Costantino, A.C. Chang, B.E. Krohn, A.J. Saksaug, L.A. Thompkins, A.M. Feaver, "Novel Methods for Sol-Gel Polymerization in Absence of Solvent and Creation of Tunable Carbon Structure from the same," PCT Patent Application No. 14/029106, 2014

A.J. Sakshaug, L.A. Thompkins, H.R. Costantino, A.M. Feaver, "Energy Storage Devices Based on Hybrid Carbon Electrode System," PCT Patent Application No. 14/026460, 2013

A.J. Sakshaug, B.E. Krohn, L.A. Thompkins, K. Geramita, A. McAdie, H.R. Costantino, A.M Feaver, "High Capacity Hard Carbon Materials Comprising Efficiency Enhancers," PCT Patent Application No. 14/042165, 2013

L.A. Thompkins, A.J. Sakshaug, K. Geramita, A.M. Feaver, H.R. Costantino, B.E. Krohn, A. McAdie, "Composite Carbon Materials Comprising Lithium Alloying Electrochemical Modifiers," PCT Patent Application No. 13/070828, 2012

L.A. Thompkins, A.M. Feaver, H.R. Costantino, A.J. Sakshaug, "Hard Carbon Materials and Use in an Electrode for an Electrical Energy Storage Device," PCT Patent Application No. 13/021324, 2012

L.A. Thompkins, A.M. Feaver, H.R. Costantino, A.J. Sakshaug, "Hard Carbon Materials," US Patent Application No. 61/585,611, 2012

Publications

M. Lim, M. Hu, M, Sandeep, A. Sakshaug, A. Strong, L.A. Riley, P. Pauzauskie, "Ultrafast Sol-Gel Synthesis of Graphene Aerogel Materials," Carbon, vol. 95, pp. 616-624, 2015

L.A. Riley and A.J. Sakshaug, "Characterization of Activated Carbons and Understanding their Hydrogen Gassing Properties in Lead-acid Battery Negative Plates," ALABC Project no. 1012L, July 2012.

L.A. Riley, A.S. Cavanagh, S.M. George, S.H. Lee, A.C. Dillon, "Improved Mechanical Integrity of ALD-Coated Composite Electrodes for Li-ion Batteries," Electrochemical and Solid State Letters, 14 (3), A29-A31, 2011.

A.C. Dillon, L.A. Riley, Y.S. Jung, C. Ban, D. Molina, A.H. Mahan, A.S. Cavanagh, S.M. George, S.H. Lee, "HWCVD MoO_3 Nanoparticles and a-Si for Next Generation Li-ion Anodes," Thin Solid Films, vol. 519, 14, 4495-4497, 2011.

L.A. Riley, S.V. Atta, A.S. Cavanagh, Y. Yan, S.M. George, P. Liu, A.C. Dillon and S.-H. Lee, "Effects of ALD Surface Modification of Combustion Synthesized $Li(Ni_{1/3}Mn_{1/3}Co_{1/3})O_2$ Particles on Their Electrochemical Performance," Journal of Power Sources, vol. 196, 6, 3317-3324, 2011.

L.A. Riley, A.S. Cavanagh, S.M. George, Y.S. Jung, S.H. Lee, A.C. Dillon, "Conformal Surface Coatings to Enable High Volume Expansion Li-Ion Anode Materials," ChemPhysChem, 11, 2124-2130, 2010

L.A. Riley, S.H. Lee, L. Gedvillas, A.C. Dillon, "Optimization of MoO_3 Nanoparticles as Negative-Electrode Material in High-Energy Lithium Ion Batteries," Journal of Power Sources, 195 (2), 588-592, 2010

Y.S. Jung, A.S. Cavanagh, L.A. Riley, S.-H. Kang, A.C. Dillon, M.D. Groner, S.M. George, and S.-H. Lee, "Ultrathin Direct Atomic Layer Deposition on Composite Electrodes is critical for Highly Durable and Safe Li-Ion Batteries," Advanced Materials, 2010, 22, 2172-+.

S. Collier, J. Cripps, L.A. Riley, E. Schuster, and E. Muntz; "Initial Studies of an Autonomous High Specific Power Meso-Scale Generator," AIAA-2004-2286 37th AIAA Thermophysics Conference, Portland, Oregon, June 28-1, 2004