DAVID M. STEWART

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Curriculum Vitae

I am a cross disciplinary scientist with over ten years of experience in micro fabrication, electrochemical systems, and basic materials chemistry and physics. Recently, I have been combining modeling and experiments to study electrochemical interfaces, kinetics, and stress-electrochemistry coupling. I am lead-PI on a DOE-funded collaborative program investigating how interface thermodynamics impact electrochemical reactions and point defect distributions. Additionally, I direct several projects on solid-state electrochemistry, materials synthesis, and surface analysis using thin film structures.

Beyond research, I enjoy teaching physics, chemistry, and nanofabrication, and mentoring a diverse group of students. I have advised over a dozen Ph.D. and undergraduate students and developed outreach programs to promote STEM education among younger students. I have been invited to present my work at conferences both domestically and internationally.

APPOINTMENTS & EDUCATION

University of Maryland, College Park, MD — present

Associate Research Scientist (2024–)
Assistant Research Scientist (2019–24)
Post-doctoral Research Assistant (2016–19)

University of Maine, Orono, ME — Ph.D. Physics — 2016

Graduate Research Assistant (2013–16)
Graduate Teaching Assistant (2012–13)

University of Florida, Gainesville, FL — B.S. Physics — 2011

Undergraduate Research Assistant (2010–12)

RESEARCH PROJECTS

Thin Film Platforms and Strategies to Advance Fundamental Science for Solid-State Ionic Materials — 2026-29

DOE BES   Co-PI   with Gary Rubloff, Sang Bok Lee, and Paul Albertus (UMD)

A continuation of the *Platforms* program below, but taking it in new directions. Directing several projects with collaborators and advisees, all in the vein of using thin film structures to study fundamental phenomena in solid-state batteries:

1. *Transport at nanoionic interfaces*: charge carrier populations and associated fields can be dramatically altered near interfaces, leading to orders of magnitude changes in the charge transport. This project aims to use multilayer thin films with layer thicknesses below the debye length, and combine transport measurements parallel and perpendicular to the interfaces to unravel anisotropic charge mobility and the impacts of interfaces on macroscopic charge transport.

2. *Stress induced diffusion*: with the coupling of electric, chemical, and mechanical energy fields there is a prediction that stress will enhance ion diffusion and also redirect it.

We are studying different ways to apply external stress and electric fields to direct ion transport and validate the theoretical predictions.

Beyond-Li Battery Materials 2026-30

UMD *Faculty Mentor* *undergraduate research team*

This Vertically Integrated Project Team is composed of undergraduates from varying departments and across class levels. We are investigating the fundamental materials science of energy storage devices built around earth-abundant alternatives to lithium, with a focus on sodium (Na) and magnesium (Mg). Using vanadium oxide (V O) as a model host material, the team explores a unifying scientific and engineering approach called electrochemical phase engineering — a method of tuning a material's crystal structure and properties through controlled electrochemical and thermal treatments — to unlock new possibilities for next-generation batteries. Thin film fabrication and surface science techniques adapted from the microelectronics industry are combined with traditional electrochemical methods for a research experience that develops skills valued across the semiconductor, energy storage, and clean energy industries.

Discovering Ion-Electron Interactions at Electrochemical Interfaces Using Depth-Resolved Electron Microscopy 2024–27

DOE BES *Lead PI* *with Leonard Brillson (OSU) and Yue Qi (Brown)*

The goal is to reveal and understand how ion movement and its coupling to free electron spatial distributions creates interfacial dipoles and mobile, charged defects that form barriers to charge transport and phase changes, which are challenging to measure and model. This requires (1) creative fabrication of model devices that enables (2) *in operando*, 3D measurements correlating electronic, ionic, and phase distributions on a nanoscale and (3) a close collaboration with theory for modeling the intertwined ion-electronic interactions and ion transport process.

Summer Research Experiences in Renewable and Sustainable Energy Technology 2022–24

NSF REU *mentor* *with PIs Isabel Lloyd, Luz Martinez-Miranda, and Catherine Stephens*

The propagation of Li dendrites through grain boundaries plagues solid-state batteries, while controlling the plating and stripping process is essential to cycle efficiency in advanced cells. By fabricating interlayers with well-defined properties between solid electrolytes, we study deposition and transport of Li along homo- and heterogenous boundaries. Under applied stress, plating/stripping and the propagation of Li dendrites can be dynamically altered, giving insight into new mechanical modeling efforts.

Thin Film Platforms for Solid-State Ionic Devices 2019–26

DOE BES *Co-PI* *with Gary Rubloff, Sang Bok Lee, Paul Albertus (UMD) and A. Alec Talin (Sandia Nat. Lab)*

Directing several projects with collaborators and advisees, all in the vein of using thin film structures to study fundamental phenomena in solid-state batteries:

1. *Electrochemo-mechanical coupling*: by combining multiphysics modeling and novel experimental approaches, we are seeing new couplings between stress and electrochemical fields and the effects on bulk ion transport. Experiments using Raman-strain microscopy uncovered diffusion lengths 100x longer in stressed Si anodes and explained canonical results with new modeling techniques confirmed by experiment. Models of discharge dynamics in 3D structures similarly revealed much longer diffusion lengths than imagined, but which are restricted by stress from nanoconfinement.

2. *Solid-state ionic interfaces*: by taking a systematic, surface science approach to interface formation, we investigate the buried boundary between electrode and electrolyte, which controls most aspects of battery performance. We use patterning techniques to form an array of film stacks together, each exposing different interfaces of the battery for characterization. Cathodoluminescence studies of band bending at heterojunctions revealed the coupling between electron and Li^+ ion equilibria, and physical connections to the electrochemical concept of charge transfer impedance. These studies further inform modeling of advanced architectures in thrust 1.

3. *Diffusion and phase evolution*: in solid materials, diffusion processes are often modeled without consideration for phase changes, dynamic material properties, or the activity of a large number of charged defects (ions). Experimental measurements have shown that changes in conductivity lead to ion distributions that deviate strongly from simple diffusion models. We are using patterning to create samples which force ion diffusion over 10-100s of microns that can be monitored *in situ* by phase changes and electrochemical measurements, which measures how phase inhomogeneities are created and migrate, and how material properties thus vary spatially.

Nanostructures for Electrical Energy Storage 2017–19

DOE EFRC *Post-doc under Gary Rubloff*

Developed and characterized ALD thin film electrodes based on SnO_2 as anodes for 3D micro-batteries. Found a process to mingle SnO_2 and Sn_3N_4 depositions to produce SnO_xN_y films of varying composition. Thin films had greater reversibility as Li^+ electrodes than bulk examples (80% retention over 500 cycles as opposed to 40%), and the cycle stability was found to smoothly improve with increasing N:O ratio, while most other electrochemical properties were unchanged. This provides a high-performance, conformal anode for 3D batteries, as demonstrated in our published papers, and in ongoing work to this day.

Also used multiphysics modeling to study different micro-battery architectures, and projected performance of various design choices for both experiments and manufacturability. Models showed competitive performance with conventional cells and unveiled new avenues of research into stress-electrochemistry coupling and confinement effects on transport. These models are helping a spin-off company begin commercializing 3D battery technology developed in this group.

ZrB_2 and h-BN Thin Films for Harsh,
High Temperature Environment Sensors 2012–16

NSF DMR *Dissertation advisors Robert Lad and Robert Meulenberg*

For my Ph.D. work, I deposited thin film ZrB_2 samples by e-beam co-evaporation, and the electrical, chemical, crystal phase, and morphological stability was studied under air, vacuum, and inert atmosphere annealing up to 1200 °C. We also analyzed the performance of environmental barriers at these temperatures, including amorphous Al_2O_3 by ALD and high crystallinity h-BN coatings by reactive sputtering with substrate biasing. With collaborators in electrical engineering, Candidate thin film stacks were fabricated piezoelectric sensors on YSZ substrates for high temperature sensors. Rapid oxidation of the bare ZrB_2 led to quick failure in air, but in vacuum or inert atmosphere the films survived thermal cycling between 23–850 °C for a total of 45 hours at 850 °C. ALD Al_2O_3 was found to be a better oxidation barrier, but thermal expansion mismatch induced too large a stress for the films to remain intact. Devices using ZrB_2 may hold the most promise in sensors for spacecraft, especially due to its radiation hardness.

Predictions of exciton lifetimes in quantum dot solar cells 2010–12

NSF CHE *Undergraduate advisor David Micha*

I performed density functional theory calculations on several Si nanoparticle structures with and without Ag adsorbate clusters and dopants. Photo-absorption strength and exciton lifetimes were compared for different structures, and improved solar cell efficiency (2x improvement in liftetime) was predicted for a combination of larger Ag adsorbate clusters on doped, amorphous QDs.

ADVISING & MENTORING

Ph.D. Students

Justin Martin	Mat. Sci. & Eng. Masters candidate
John Horeauf	Mat. Sci. & Eng. Ph.D. candidate
Hyunjoon Yoo *(KAIST, South Korea)*	Mech. Eng. Ph.D. candidate
Leopoldo Tapia-Aracayo	Mat. Sci. & Eng. Ph.D. candidate
Osma Gomez	Chemistry Ph.D. candidate
Victoria Castagna Ferrari	Mat. Sci. & Eng. Ph.D. 2024
Dissertation: Interfaces in Thin-Film Solid-State Batteries	
Haotian Wang	Mat. Sci. & Eng. Ph.D. 2022
Dissertation: Electrochem-Mechanics Characterization of Si Electrode/Si Based Solid-State Battery	

Undergraduate Students

Maryam Alameer	Mat. Sci. & Eng. B.S.
Peter Micciche	Physics B.S.
Samuel Chen	Mat. Sci. & Eng. B.S. 2026
Kim Taylor	Mat. Sci. & Eng. B.S. 2025
Stephanie Yang	Mech. Eng. B.S.
Spencer Caverly	Mat. Sci. & Eng. B.S. 2025
Adam Antar	Mech. Eng. B.S. 2025
Gabriella d'Orto	Chem. Eng. B.S.
Lukas Karapin-Springorum *(Pomona College, California)*	Physics B.A. 2024
Senior thesis: Mechanisms of Dendritic Shorting in Lithium Metal Batteries using $Li_7La_3Zr_2O_{12}$ Solid Electrolytes	
Matthew Jarvis	Chem. Eng. B.S. 2024
Paolo Lami	Mech. Eng. B.S. 2022

NSF REU Students

Three students as part of *Summer Research Experiences in Renewable and Sustainable Energy Technology* at U. of Maryland.
Two students as part of *Sensor Science and Engineering* at U. of Maine.

TEACHING

Microprocessing Materials, U. of Maryland, Dept. of Mat. Sci. & Eng.

Professor (Spring 2027), formerly guest lecturer.

Advanced Materials Fabrication Laboratory, U. of Maryland, Dept. of Mat. Sci. & Eng.

Professor (Fall 2026).

Beyond Li Battery Materials, U. of Maryland, Dept. of Mat. Sci. & Eng.

Vertically Integrated Project (Fall 2026). Leading an undergraduate research team, training in advanced analytical techniques, grading based on activity and teamwork.

Modern Physics, U. of Maine, Dept. of Physics & Astronomy

Guest Lecturer. Prepared and presented lectures on topics such as nuclear radiation, Planck's law, and the discovery of quantum mechanics.

Introductory Physics with Calculus, U. of Maine, Dept. of Physics & Astronomy

Teaching Assistant. Led recitation sections using inquiry-based learning and group discussion, facilitated labs. Volunteered tutoring and exam prep for years beyond my appointment.

SYNERGISTIC ACTIVITIES

MRS Career Advancement Subcommittee Member 2020–24

Leading organization of the *Meet the New Research Hires* poster session for connecting early career scientists with jobs in national labs and companies. Hosted a panel webinar on the faculty application process. Reviewed abstract submissions for poster sessions and career symposium.

DOE Science Foundations for Energy Earthshots review panelist 2023

NSF DMR Major Research Equipment review panelist 2021

Physics is Phun and Discovery Days 2018–21

Developed and led public shows and interactive demos for local K-12 students and families. Helped develop and present the *Quantum for Kids* program, a four hour event for elementary and middle school students. Recorded demos on super conductivity for remote classes and outreach videos.

DOE Early Career Network Representative 2018–20

Led discussion groups on mentoring and public outreach. Supported organization of webinars on tenure, proposal writing, and research at national labs.

DOE EFRC Newsletter 2019

Editorial board member and author of two articles and several illustrations for the public newsletter that highlights recent science advances at DOE research centers across the country.

Society of Physics Students 2014–16

Volunteered to tutor undergrad students in all introductory Physics course sections weekly and at special exam review sessions.

Maine Engineering Week Expo 2015

Performed table demos on crystal structures for K-12 students and families. Gave public tours of surface science and electron microscopy labs.

4-H Science Saturday 2014

Prepared an opening talk on nanoscale science and helped with hands on science demos with middle school girls using ACS PCSA Materials Science Kits.

Peer Review 2017–26

ACS Energy Letters
Advanced Energy Materials
Advanced Materials
Angewandte Chemie
Cell Reports Physical Sciences
Dalton Transactions
ECS J. of Solid State Science & Technology
ECS J. of the Electrochemical Society
Electrochimica Acta
RSC Advances
Small

PUBLICATIONS

[1] R. Damircheli, D. M. Stewart, A. P. Kafle, T. S. Akash, B. Hoang, S. Goswami, T.-F. Hung, S. Das, and C.-F. Lin. "Synergistic Hybrid Interfaces for Ultrastable Sodium Anode via Spontaneous Conversion of Tin Fluoride in Polymer Matrix". In: *ACS Appl. Energy Mater.* (Feb. 18, 2026). DOI: `10.1021/acsaem.5c03683`.

[2] V. C. Ferrari, N. S. Kim, K. E. Gregorczyk, S. B. Lee, A. A. Talin, G. W. Rubloff, and D. M. Stewart. "Process-Induced Chemical Reactions on Interfaces of Thin Film Ionic Materials". In: *Solid State Ion.* 444 (Oct. 2026), p. 117271. DOI: `10.1016/j.ssi.2026.117271`.

[3] D. Halbing, G. Pustorino, L. Tapia-Aracayo, D. Stewart, Y. Qi, and L. J. Brillson. "Oxygen Vacancy Evolution at $Li_xV_2O_5$/LiPON Solid State Electrochemical Interfaces Using Depth Resolved Cathodoluminescence Spectroscopy". In: *ACS Appl. Mater. Interfaces* 18.16 (Apr. 29, 2026), pp. 23730–23740. DOI: `10.1021/acsami.5c25104`.

[4] G. Pustorino, L. Tapia-Aracayo, D. Halbing, L. J. Brillson, D. M. Stewart, and Y. Qi. "Multi-Ion Defect Model for Space-Charge Layer Formation at LiPON/$Li_xV_2O_5$ Electrochemical Interfaces". In: *Npj Comput. Mater.* (June 1, 2026), (in press). DOI: `10.1038/s41524-026-02182-y`.

[5] B. Bhargava, Y. Song, M. F. Petracci, L. Crofton, D. M. Stewart, T. Jung, Z. Warecki, A. A. Talin, G. W. Rubloff, and P. Albertus. "Controlled Interfacial Stress Platform for Electrochemical-Mechanical Coupling Measurements". In: *Adv. Energy Mater.* (Dec. 26, 2025), e04343. DOI: `10.1002/aenm.202504343`.

[6] V. C. Ferrari, S. B. Lee, G. W. Rubloff, and D. M. Stewart. "Interface Diagnostics Platform for Thin-Film Solid-State Batteries". In: *Energy Environ. Sci.* 18.4 (2025), pp. 1783–1800. DOI: `10.1039/D4EE03915G`.

[7] D. R. Fontecha, A. C. Kozen, D. M. Stewart, A. T. Hall, J. Cumings, G. W. Rubloff, and K. E. Gregorczyk. "Nanoscale Mixed Ion-Electron-Conducting NASICON-Type Thin Films: Lithium Titanium Phosphate via Atomic Layer Deposition". In: *ACS Appl. Mater. Interfaces* 17.17 (Apr. 30, 2025), pp. 25358–25369. DOI: `10.1021/acsami.5c02201`.

[8] O. J. Gomez, A. Antar, A. T. Hall, L. Tapia-Aracayo, J. Seo, N. Kim, Z. Sun, R. Lim, F. Chen, Y. Li, J. Cumings, G. Rubloff, S. B. Lee, D. Stewart, and Y. Wang. "A Facile Synthesis of Bulk LiPON in Solution for Solid-State Electrolytes". In: *J. Mater. Chem. A* 13.34 (Aug. 26, 2025), pp. 28368–28376. DOI: `10.1039/D5TA03196F`.

[9] Y. Song, T. Jung, G. W. Rubloff, D. M. Stewart, and P. Albertus. "Electrochemical-Mechanical Coupling Strongly Affects the Performance of Nanopore, Thin-Film, and Solid-State Batteries". In: *J. Electrochem. Soc.* 172.2 (Feb. 1, 2025), p. 020529. DOI: `10.1149/1945-7111/adb64f`.

[10] B. Hoang, R. Damircheli, V. C. Ferrari, D. M. Stewart, M. Brausch, N. Nguyen, and C.-F. Lin. "Highly Effective Polyacrylonitrile-Rich Artificial Solid-Electrolyte-Interphase for Dendrite-Free Li-Metal/Solid-State Battery". In: *ACS Appl. Mater. Interfaces* 16.46 (Nov. 20, 2024), pp. 63703–63712. DOI: `10.1021/acsami.4c16480`.

[11] Z. Warecki, V. C. Ferrari, D. A. Robinson, J. D. Sugar, J. Lee, A. V. Ievlev, N. S. Kim, D. M. Stewart, S. B. Lee, P. Albertus, G. Rubloff, and A. A. Talin. "Simultaneous Solid

Electrolyte Deposition and Cathode Lithiation for Thin Film Batteries and Lithium Iontronic Devices". In: *ACS Energy Lett.* (Apr. 9, 2024), pp. 2065–2074. DOI: 10.1021/acsenergylett.4c00674.

[12] B. Hoang, V. Castagna Ferrari, H. Wang, D. M. Stewart, R. Damircheli, and C.-F. Lin. "From Amorphous to Crystalline Thin-Film FeF_3 Conversion Electrodes by Sputtering Deposition". In: *ACS Appl. Energy Mater.* 6.19 (Oct. 9, 2023), pp. 10005–10011. DOI: 10.1021/acsaem.3c01593.

[13] Z. Levy, V. C. Ferrari, P. Rosas, M. J. Walker, K. Duddella, M. Haseman, D. Stewart, G. Rubloff, and L. J. Brillson. "Lithium Spatial Distribution and Split-Off Electronic Bands at Nanoscale V_2O_5/LiPON Interfaces". In: *ACS Appl. Energy Mater.* 6.9 (May 8, 2023), pp. 4538–4548. DOI: 10.1021/acsaem.2c03683.

[14] Y. Song, B. Bhargava, D. M. Stewart, A. A. Talin, G. W. Rubloff, and P. Albertus. "Electrochemical-Mechanical Coupling Measurements". In: *Joule* 7.4 (Apr. 2023), pp. 652–674. DOI: 10.1016/j.joule.2023.03.001.

[15] H. Wang, N. S. Kim, Y. Song, P. Albertus, S. B. Lee, G. Rubloff, and D. Stewart. "Micro-Raman Stress Characterization of Crystalline Si as a Function of the Lithiation State". In: *ACS Appl. Mater. Interfaces* 15.8 (Mar. 1, 2023), pp. 10752–10760. DOI: 10.1021/acsami.2c22530.

[16] H. Wang, Y. Song, V. C. Ferrari, N. S. Kim, S. B. Lee, P. Albertus, G. Rubloff, and D. M. Stewart. "In Situ Raman Mapping of Si Island Electrodes and Stress Modeling as a Function of Lithiation and Size". In: *ACS Appl. Mater. Interfaces* 15.34 (Aug. 30, 2023), pp. 40409–40418. DOI: 10.1021/acsami.3c06287.

[17] V. C. Ferrari, N. S. Kim, S. B. Lee, G. W. Rubloff, and D. M. Stewart. "Co-Sputtering of Lithium Vanadium Oxide Thin Films with Variable Lithium Content to Enable Advanced Solid-State Batteries". In: *J. Mater. Chem. A* 10.23 (2022), pp. 12518–12531. DOI: 10.1039/D2TA01021F.

[18] D. Fontecha, R. B. Nuwayhid, A. C. Kozen, D. M. Stewart, G. W. Rubloff, and K. E. Gregorczyk. "Low Temperature Plasma-Enhanced Atomic Layer Deposition of Sodium Phosphorus Oxynitride with Tunable Nitrogen Content". In: *J. Vac. Sci. Technol. A* 40.3 (May 2022), p. 032403. DOI: 10.1116/6.0001752.

[19] A. Jarry, S. Ricote, A. Geller, C. Pellegrinelli, X. Zhang, D. Stewart, I. Takeuchi, E. Wachsman, E. J. Crumlin, and B. Eichhorn. "Assessing Substitution Effects on Surface Chemistry by in Situ Ambient Pressure X-ray Photoelectron Spectroscopy on Perovskite Thin Films, $BaCe_xZr_{0.9-x}Y_{0.1}O_{2.95}$ (X= 0; 0.2; 0.9)". In: *ACS Appl. Mater. Interfaces* 10.43 (Oct. 31, 2018), pp. 37661–37670. DOI: 10.1021/acsami.8b12546.

[20] A. Pearse, T. Schmitt, E. Sahadeo, D. M. Stewart, A. Kozen, K. Gerasopoulos, A. A. Talin, S. B. Lee, G. W. Rubloff, and K. E. Gregorczyk. "Three-Dimensional Solid-State Lithium-Ion Batteries Fabricated by Conformal Vapor-Phase Chemistry". In: *ACS Nano* 12.5 (May 22, 2018), pp. 4286–4294. DOI: 10.1021/acsnano.7b08751.

[21] D. M. Stewart and R. J. Lad. "Enhanced Crystallinity of H-BN Films Induced by Substrate Bias During Magnetron Sputtering". In: *Phys. Status Solidi B* 255.3 (Mar. 2018), p. 1700458. DOI: 10.1002/pssb.201700458.

[22] D. M. Stewart, A. J. Pearse, N. S. Kim, E. J. Fuller, A. A. Talin, K. Gregorczyk, S. B. Lee, and G. W. Rubloff. "Tin Oxynitride Anodes by Atomic Layer Deposition for Solid-State Batteries". In: *Chem. Mater.* 30.8 (Apr. 24, 2018), pp. 2526–2534. DOI: 10.1021/acs.chemmater.7b04666.

[23] D. M. Stewart, G. P. Bernhardt, and R. J. Lad. "Zirconium Diboride Thin Films for Use in High Temperature Sensors and MEMS Devices". In: SPIE Microtechnologies. Ed. by L. Fonseca, M. Prunnila, and E. Peiner. Barcelona, Spain, May 30, 2017, 102460Q. DOI: 10.1117/12.2266561.

[24] C. A. Apblett, D. M. Stewart, R. T. Fryer, J. C. Sell, H. D. I. Pratt, T. M. Anderson, and R. W. Meulenberg. "In Situ XANES and EXAFS Analysis of Redox Active Fe Center Ionic Liquids". In: *Electrochimica Acta* 185 (Dec. 2015), pp. 156–161. DOI: `10.1016/j.electacta.2015.09.093`.

[25] R. Lad, D. Stewart, R. Fryer, J. Sell, D. Frankel, G. Bernhardt, and R. Meulenberg. "Electrically Conductive Pt-Zr-B and Pt-Si Thin Films for Use in High Temperature Harsh Environments". In: *MRS Online Proc. Libr.* 1746 (Jan. 5, 2015), pp. 26–31. DOI: `10.1557/opl.2015.400`.

[26] J. C. Sell, D. M. Stewart, G. P. Bernhardt, D. J. Frankel, and R. J. Lad. "Electrically Stable Nanocomposite Thin Films Formed by Oxidation of Pt-ZrB2 Nanolaminate Templates". In: *J. Vac. Sci. Technol. B* 33.2 (Mar. 1, 2015), p. 021805. DOI: `10.1116/1.4914313`.

[27] D. M. Stewart, D. J. Frankel, and R. J. Lad. "Growth, Structure, and High Temperature Stability of Zirconium Diboride Thin Films". In: *J. Vac. Sci. Technol. A* 33.3 (May 2015), p. 031505. DOI: `10.1116/1.4916565`.

[28] D. M. Stewart, R. W. Meulenberg, and R. J. Lad. "Nanostructure and Bonding of Zirconium Diboride Thin Films Studied by X-ray Spectroscopy". In: *Thin Solid Films* 596 (Dec. 2015), pp. 155–159. DOI: `10.1016/j.tsf.2015.06.063`.

[29] D. M. Stewart, M. G. Mavros, and D. A. Micha. "Light Absorption by Crystalline and Amorphous Silicon Quantum Dots with Silver Adsorbates and Dopants". In: *J. Phys. Chem. C* 116.43 (Nov. 1, 2012), pp. 23107–23112. DOI: `10.1021/jp3075805`.

INVITED TALKS

ACerS Spring Meeting, Bellvue, WA — 2026

Solid-state electrochemical interfaces: advanced characterization of multi-charge interactions,
D. M. Stewart, L. Tapia-Aracayo, D. Harbing, G. Pustorino, Y. Qi, L. Brillson.

SPIE OP106, San Diego, CA — 2023

Platforms for characterizing thin film electrochemical energy storage devices,
D. M. Stewart, V. C. Ferrari, H. Wang, G. W. Rubloff.

NNFC-UMD International Workshop & Summer School, Muju-gun, South Korea — 2023

Physical Processes in thin film batteries: from fabrication to operation,
D. M. Stewart, V. C. Ferrari, H. Wang, G. W. Rubloff.

242nd ECS Meeting, Atlanta, GA — 2022

Multi-Scale Electrochemo-Mechanical Experiments on Thin Film Battery Materials,
Y. Song, B. Bhargava, Z. Warecki, D.M. Stewart, P. Albertus.

ECS AiMES, Cancun, Mexico — 2018

Conformal Energy Storage: Atomic Layer Deposition of 3D Solid State Batteries,
A. J. Pearse, K. E. Gregorczyk, D. M. Stewart, G. W. Rubloff