DEAN R. WHEELER
CURRICULUM VITAE

EDUCATION

University of California, Berkeley	*Ph.D. Chemical Engineering*, 2002 John Newman, Advisor NSF Graduate Research Fellowship
Brigham Young University Provo, Utah	*B.S. Chemical Engineering, magna cum laude*, 1996 Minor in Arabic Ezra Taft Benson Scholarship

WORK EXPERIENCE

- Department Chair (2022-present), Professor (2016-present), Associate Professor (2009-2016), and Assistant Professor (2003-2009), Chemical Engineering Department, Brigham Young University
- Expert Witness and Consultant for Alston & Bird (2023–2025), Safety Management Services (2022), Hall Labs (2021–2022), Fish & Richardson (2021), Caldera (2016–2017, 2021), SpectraPower (2020–2021), Thorpe North & Western (2016–2017), Novatek (2010–2011), Airgyro Aviation (2006-2008), Parr Waddoups (2007), Phoenix Systems (2006), and vSpring Capital (2005)
- Educational Advisor, AMIDEAST Foundation, Amman, Jordan (1996–1997)

TECHNICAL EXPERTISE

Electrochemical engineering, with applications including lithium-based batteries, alkaline batteries, low-temperature fuel cells, and electrodeposition.

HONORS AND AWARDS

- William Pope Professorship (endowed chair, 2018-2023) and Outstanding Faculty Award (2011), BYU Chemical Engineering Department
- Karl G. Maeser Research and Creative Arts Award (2019) and Faculty Young Scholar Award (2010), Brigham Young University.
- NSF Faculty Early Career Development Award (2006).

PEER-REVIEWED ARCHIVAL PUBLICATIONS (64 TOTAL; MOST RECENT 5 GIVEN HERE)

- A. Hamedi, E. Shumway, and D.R. Wheeler, "Electrode-level modeling of silicon anodes for improved cell design," *J. Electrochem. Soc.* 171, 120539 (2024).
- F. Sun and D.R. Wheeler, "The effects of lithium ions and pH on the function of polyacrylic acid binder for silicon anodes," *J. Electrochem. Soc.* 170, 080502 (2023).

- B. Liu, N. James, A. Hamedi, A. Yao, S. Trask, B.A. Mazzeo, D.R. Wheeler, "Direct measurements of ionic transport behavior of dual-layer porous electrodes," *J. Electrochem. Soc.* 170, 020501 (2023).
- A. Hamedi, A. Yao, R. Martin, R. Roig, R. Valadez, D. Pile, A. Shellikeri, B. Liu, D.R. Wheeler, "Multi-layer anodes for high-current applications," *Electrochimica Acta* 439, 141649 (2023).
- M. Nikpour, B. Liu, P. Minson, Z. Hillman, B.A. Mazzeo, D.R. Wheeler, "Li-ion electrode microstructure evolution during drying and calendering," *Batteries* 8, 107 (2022).

Scientific and Invited Presentations (119 total; most recent 5 given here)

- E. Shumway, A. Hamedi, and D. Wheeler, Electrode-level modeling of silicon anodes for improved design, PRiME 2024, Honolulu HI, 2024.
- K. Manwaring, B. Gonda, C. Parise, L. Garcia, F. Sun, K. Adhikari, D. Wheeler, and B. Mazzeo, "Large-scale production of nanotube silicon for lithium-ion batteries," PRiME 2024, Honolulu HI, 2024.
- D. Wheeler, A. Hamedi, and E. Shumway, "Robust and efficient mechanical model of high-volume-change silicon electrodes for Li-ion batteries," PRiME 2024, Honolulu HI, 2024.
- F. Sun, L. Zurita, and D. Wheeler, "Effect of short-chain polymer binders on mechanical and electrochemical performance of silicon anodes," PRiME 2024, Honolulu HI, 2024.
- E. Oldham, J. Alvaré, and D. Wheeler, "The role of volume change in lithium oxygen battery electrodes," PRiME 2024, Honolulu HI, 2024.

External Competitive Research Grants ($7.2M total, $5.8M as PI; most recent 5 given here)

- Jay Rastegar (PI), Javier Alvara, Brian Mazzeo, and D. Wheeler, "High-Frequency AC Heating of Batteries in Extreme Cold Environments", NASA, Phase I STTR, $45k (BYU portion), 13 months beginning 8/21/2024
- Javier Alvara and D. Wheeler (BYU PI), "Soldier-Portable Batteries Based on Safe High-Energy-Density Rechargeable Lithium-Oxygen Chemistry", USSOCOM, Phase I SBIR, $51k (BYU portion), 6 months beginning 10/20/2023
- Javier Alvara and D. Wheeler (BYU PI), "Development of High-Energy-Density Reserve Lithium-Oxygen Batteries with Integrated Chemical Oxygen Generator", US Army, Phase I and Phase II STTR (2 grants), $410k (BYU portion), cumulatively 2.5 years beginning 9/21/2022
- D. Wheeler (PI), "Electrochemical Modeling of Advanced Multilayer Electrodes", EnPower Inc., $50k, 10 months beginning 6/01/2022
- D. Wheeler (PI), "Domestic Halloysite-Derived Silicon as a Low-Cost High-Performance Anode Material for Li-Ion Batteries", US Department of Energy, Phase I and Phase II STTR (2 grants), $200k+$1100k, cumulatively three years beginning 7/01/2021.

INSTITUTIONAL SERVICE

- BYU Chemical Engineering Department
  - Department chair (2022—present)
  - Graduate program chair (2009–2012) and committee member (2003–2009, 2020-present)
  - Faculty merit committee member (2016–2022)
  - Junior faculty peer mentor (2016–2022)
  - Advisor for AIChE Chem-E-Car student team (2004–2022)
  - Undergraduate committee member (2012–2020)
  - Honors program department coordinator (2017–2020)
  - Faculty search committee chair (2016–2017) and member (2007–2008, 2010–2011)
  - Advisor for BYU AIChE student chapter (2008–2009) – awarded outstanding chapter by national organization
- BYU Ira A. Fulton College of Engineering
  - Head faculty advisor for Tau Beta Pi Engineering Honor Society (2012–2017) – increased number of BYU students receiving national scholarships from average 3 per year (2005-2012) to average 18 per year (2013-2017)
  - Panel member for Faculty Development Seminar for new faculty (2008)
  - Presenter at NSF Career Award Workshop for new faculty (2011, 2012)
- BYU
  - Member, ad hoc CFS Independent Examination Review Committee (2024)
  - Member, University Microscopy Committee (2017–present)
  - Faculty Advisory Council elected member (2017–2020); co-chair of Compensation and Benefits (2018) and Mental Health Committees (2019)

PROFESSIONAL SERVICE

- Gordon Research Conference on Batteries (inaugurated 2012, held every 2 years)
  - Invited speaker (2018)
  - Conference co-chair and chair (2014, 2016)
  - Discussion Leader (2012, 2022)
- The Electrochemical Society (ECS)
  - Co-chair for technical symposia (2010–2024)
  - Member of exec committee for Energy Technology Division (2010–2018)
- American Institute of Chemical Engineers (AIChE)
  - Co-chair for technical symposia (2003, 2006, 2007)
- National Science Foundation
  - Proposal/panel reviewer (2005, 2007, 2010, 2013, 2015, 2018, 2021)
  - Speaker at fuel cell workshop (2005)
- US Department of Energy
  - “Battery Hub” ($120M program) panel reviewer (2012, 2019)
  - Proposal reviewer (2015, 2017-2024)
- French National Research Agency (ANR)

- Proposal reviewer (2021)
- Academic external reviewer
  - Research grant application, University of Freiburg (2021).
  - Tenure and promotion candidates (2023, 2014, 2012)
  - PhD candidate, Queensland University of Technology (2012)
- Manuscript reviewer for multiple technical journals (2003–present)
- State and local government service
  - Invited member of Utah government-sponsored Lithium Battery Technical Advisory Council (2022)
  - Organized inaugural "Utah Battery Industry Meetup" networking event sponsored by Utah Governor's Office of Economic Opportunity (2022).
  - Invited briefing to public utilities committee of Utah Legislature (2017)
  - Invited speaker at annual conference of Utah Municipal Power Agency (2019)

Student Mentoring

- Postdocs advised (1)
- Graduate students advised (24 total; 19 of whom have completed degree)
- Graduate students, member of committee (60, including 12 in other depts)
- Undergraduate research assistants (105)
- Undergraduate chem-E-car team members (115)

Courses Taught

- Undergraduate
  - Univ 101 Student Success
  - ChEn 170* Introduction to Chemical Engineering
  - ChEn 191 Pre-professional Seminar
  - ChEn 199R Academic Internship
  - ChEn 263 Computational Tools
  - ChEn 285* Chemical Process and Fluids Laboratory
  - ChEn 345* Chemical Reaction and Materials Laboratory
  - ChEn 373 Thermodynamics
  - ChEn 376 Heat & Mass Transfer
  - ChEn 378 Materials Science for Engineers
  - ChEn 391 Career Skills for Chemical Engineers
  - ChEn 498R* Chem-E-Car Design
- Graduate
  - ChEn 531 Thermodynamics of Multicomponent Systems
  - ChEn 533 Transport Phenomena
  - ChEn 693R* Electrochemical Engineering
  - ChEn 691R/791R Graduate Student Seminar

*indicates courses designed or substantially redesigned by Wheeler