

## HALEH ARDEBILI

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### APPOINTMENTS

Professor, University of Houston	2020 - present
Associate Professor, University of Houston	2016 - 2020
Assistant Professor, University of Houston	2010 - 2016
Postdoctoral Research Fellow, Rice University	2009 - 2010
Lecturer, University of Houston	2004 - 2010
Research Scientist, General Electric R&D at Niskayuna, NY	2000 - 2003

### EDUCATION

<b>Institution</b>	<b>Major/Area</b>	<b>Degree</b>	<b>Year</b>
Penn State University at University Park	Engineering Science & Mechanics	B.S. Honors	1994
Johns Hopkins University	Mechanical Engineering	M.S.	1996
University of Maryland at College Park	Mechanical Engineering	Ph.D.	2001

### AWARDS and HONORS

- Abraham E. Dukler Distinguished Engineering Faculty Award (2021)
- Undergraduate Research Mentor Award (2021)
- 50-in-5 Scholar Award (2020)
- NSF CAREER Award (2013-2018)
- NASA iTECH Top Ten Finalist (2018)
- Kittinger Teaching Excellence Award (2016)
- Texas Space Grant Consortium New Investigators Award (2014-2015)
- Cullen College of Engineering Outstanding Teacher Award (2013)
- TcSUH Award (2010-2018)
- New Faculty Award (2010)
- Top selected image for “Science as Art” Exhibition and Contest at MRS Conference from over 200 original submissions (2011)
- Invention Fulcrum of Progress-General Electric Award to Inventors, 2003
- Women in Science Award from Saint John’s University, NY, 1988

## PUBLICATIONS

### BOOK

1. Ardebili, H. and Zito, R., *Energy Storage: A New Approach*, Second Edition, Scrivener-Wiley, 2019.
2. Ardebili, H., Zhang, J., Pecht, M. *Encapsulation Technologies for Electronic Applications*, Second Edition, Elsevier, 2018
3. Ardebili, H., and Pecht, M., *Encapsulation Technologies for Electronic Applications*, Elsevier, 2009

### SELECTED JOURNAL PAPERS

1. Aderyani, S., P. Flouda, S. A. Shah, M. J. Green, J. L. Lutkenhaus, and H. Ardebili. "Simulation of cyclic voltammetry in structural supercapacitors with pseudocapacitance behavior." *Electrochimica Acta* 390, 138822, 2021.
2. Aderyani, S., Shah, S. A., Masoudi, A., Green, M. J., Lutkenhaus, J. L., & Ardebili, H. "Comparison of Nanoarchitecture to Porous Media Diffusion Models in Reduced Graphene Oxide/Aramid Nanofiber Electrodes for Supercapacitors", *ACS nano*, 14(5), 5314-5323, 2020.
3. Ghadi, B. M., Yuan, M., & Ardebili, H. "Stretchable fabric-based LiCoO<sub>2</sub> electrode for lithium ion batteries", *Extreme Mechanics Letters*, 32, 100532, 2019.
4. Kelly, T.D., Yuan, M., Kammoun, M., Ardebili, H., "In situ strain dependent electrochemical characterization of a stretchable-sliding battery", *AIP Advances* 9, 085012 (2019).
5. Aderyani, S., Flouda, P., Lutkenhaus, J., and Ardebili, H., "The Effect of Nanoscale Architecture on Ionic Diffusion in rGO/Aramid Nanofiber Structural Electrodes", *Journal of Applied Physics*, 2019.
6. Berg, S., Kelly, T., Porat, I., Moradi-Ghadi, B., and Ardebili, H., "Mechanical deformation effects on ion conduction in stretchable polymer electrolytes" *Applied Physics Letters* 113, 8, 083903, 2018.
7. Berg, S., Akturk, A. Kammoun, M., and Ardebili, H. "Flexible batteries under extreme bending: interfacial contact pressure and conductance", *Extreme Mechanics Letters*, 13, 108-115, 2017.
8. Zhu, B., Barnes, M. G., Kim, H., Yuan, M., Ardebili, H., and Verduzco, R., "Molecular engineering of step-growth liquid crystal elastomers", *Sensors and Actuators B: Chemical*, 244, 433-440, 2017.
9. Kammoun, M., Berg, S., and Ardebili, H., "Stretchable spiral thin-film battery capable of out-of-plane deformation", *Journal of Power Sources* 332, 406-412, 2016.
10. Kelly, T., Moradi Ghadi, B., Berg, S., and Ardebili, H. "In situ study of strain-dependent ion conductivity of stretchable polyethylene oxide electrolyte", *Scientific Reports (Nature)* 6: 20128, 2016.
11. Yayathi, S., Walker, W., Doughty, D., and Ardebili, H., "Energy distributions exhibited during thermal runaway of commercial lithium ion batteries used for human spaceflight applications", *Journal of Power Sources*, 329, 197-206, 2016.
12. Li, Q., and Ardebili, H., "Flexible thin-film battery based on solid-like ionic liquid-polymer electrolyte", *J. of Power Sources* 303,17–21, 2016.
13. Kammoun, M., Berg, S., and Ardebili, H., "Flexible thin-film battery based on graphene-oxide embedded in solid polymer electrolyte", *Nanoscale*, 7, 17516-17522, 2015.
14. Walker, W., and Ardebili, H., "Thermo-electrochemical analysis of lithium ion batteries for space applications using Thermal Desktop", *Journal of Power Sources*, 269, 486–497, 2014.

15. Li, Q., Wood, E. and Ardebili, H., “Elucidating the mechanisms of ion conductivity enhancement in polymer nanocomposite electrolytes for lithium ion batteries”, *Applied Physics Letters*, 102, 243903, 2013.
16. Tang, C., Hackenberg, K., Fu, Q., Ajayan, P.M. and Ardebili, H., “High ion conducting polymer nanocomposite electrolytes using hybrid nanofillers”, *Nano Letters*, 12, 1152–1156, 2012.

## **PATENTS**

1. Ardebili, H., Moradi, B., “Stretchable Fabric Based Electrode-Polymer Electrolyte Battery”, Attorney Docket No. 109293.00099 (UHID 2017-038), Provisional Patent Application, 2017.
2. Ardebili, H., Kammoun, M., Dizon, T., “Stretchable and multifunctional batteries”, U.S. Serial No. 14/671,812, 2015.
3. Baumgartner, C.E., Fobare, D.F., DeJule, M.C., Wei, C.Y., Hennessy, W.A., Wojnarowski, R.J., Ardebili, H., Burdick, Jr., W.E. “Direct CsI scintillator coating for improved digital X-ray detector assembly longevity”, Patent No. 6,720,561, April 13, 2004

## **SYNERGISTIC ACTIVITIES**

- Invited Talks: Invited seminar, Next Generation Flexible and Stretchable Batteries, Texas A&M Univ., 2018, Invited Seminar at Rice University, Sep 2017, *MRS*, Boston, MA Nov 2017, ACS Southwest Regional Meeting, Nov, 2016, Galveston, TX; Gordon Research Conference on Batteries (Moderator), Feb 2016, CA; Flexible Batteries Symposium, San Diego, April, 2017; Texas Soft Matter Meeting, Aug 2015. TMS, Orlando, FL, March 2015; TMS, San Diego, CA, Feb 2014; Composites at Lake Louise, Canada, Nov 2013; Advances in Batteries, ACS, New Orleans, LA, April 2013; Nanomaterials Symposium, TMS, San Antonio, TX, March 2013; Invited Seminar at Iowa State University, Ames, Sep 2012; 67th Southwest Regional Meeting (SWRM2011) of the ACS, Symposium on Nanomaterials for Energy Conversion and Storage Applications, Austin, TX, Nov 2011; International Conference and Workshop on Nanostructured Ceramics and other Nanomaterials, New Delhi, India, March 2012.
- Served as a Reviewer: Advanced Energy Materials, Carbon, Applied Physics Letters, National Science Foundation, National Research Foundation (Singapore), Nanoscale, Journal of Materials, Current Applied Physics, Journal of Visualized Experiments, Journal of Physical Chemistry, Journal of Applied Polymer Science, Journal of Applied Sciences, RSC Advances, Ionics.
- Served as Organizer and Chair: Lead-organizer, MRS symposium “Transport Properties In Nanocomposites”, Boston, Dec 2013; Editor of MRS TT symposium proceedings, Dec 2013; Co-organizer, MRS symposium, “Mechanics of Energy Storage and Conversion”, Spring 2015; Lead organizer for MRS Symposium, Spring 2016. Lead Topic Organizer, ASME Congress, “Nanomaterials for Energy”, November 11-17, 2016, Phoenix, Arizona. Chair of ASME Technical Committee, 2015-2016.
- Joint Appointment in Materials Science and Engineering Program, UH (present)
- NSF ADVANCE advocate: advancing women and minorities at UH and academia (2016-2020)
- Director of Innovation and Entrepreneurship, Cullen College of Engineering, University of Houston (2018-present)
- NSF REU Site Director: College of Engineering at UH (2017-present)
- Undergraduate Advising Team (2016 – 2018)
- Cougar Chairs Leadership Academy (CCLA) at UH (2017).
- Contributor to the Houston National Public Radio Program “Engines of our Ingenuity” (2012-present); written and recorded radio episodes on science and technology.