Taylor D. Sparks
Associate Professor and Associate Chair
Materials Science and Engineering Department
122 Central Campus Drive
University of Utah, Salt Lake City, 84112

Office: CME room 314
Email: sparks@eng.utah.edu
Website: www.eng.utah.edu/~sparks

Publications: (underlined are undergraduate co-authors, * are Sparks Group members)

Submitted

1. Jason R. Hall*, Steven K. Kauwe*, and Taylor D. Sparks "Machine Learning Applications of Particle Packing with Large Size Variations" under review.
2. Su Kong Chong, Lizhe Liu, Taylor D. Sparks, Feng Liu and Vikram V. Deshpande "Topological Phase Transitions in a Hybridized Three-Dimensional Topological Insulator" under review.
6. Akira Nagaoka, Kenji Yoshino, Taizo Masuda, Taylor D. Sparks, Michael A. Scarpulla, and Kensuke Nishioaka "Environmentally friendly thermoelectric pure sulfide Cu2ZnSnS4 with dimensionless figure of merit exceeding 1.0 barrier" under review.

Accepted or published


14. (invited) Marcus Parry*, Samantha Couper, Aria Mansouri Tehrani, Anton O. Oliynyk, Jakoah Brgoch, Lowell Miyagi, and Taylor D. Sparks "Lattice strain and texture analysis of superhard Mo0.9W1.1C and ReW0.8 via diamond anvil cell deformation" Journal of Materials Chemistry A, 7, as part of the Emerging Investigators Special Issue, 24012-24018 (2019). [DOI]


19. Shadi Al Khateeb* and Taylor D. Sparks "Pore-graded and conductor and binder free FeS2 films deposited by spray pyrolysis for high performance lithium ion batteries" Journal of Materials Research, 34,[14], 2456-2471 (2019). [DOI]


of Bi$_2$–xSbxTe$_3$–ySey topological insulator by controlling the crystal growth conditions” Scientific Reports, 8, 17290 (2018). [DOI]
27. Dong Zhang, Anton O. Oliynyk, Gabriel M. Duarte, Abishek K. Iyer, Leila Ghadbeigi*, Steven K. Kauwe*, Taylor D. Sparks, and Arthur Mar “Not Just Par for the Course: Over 72 Quaternary Germanides RE4M2XGe4 (RE = La–Nd, Sm, Gd–Tm, Lu; M = Mn–Ni; X = Ag, Cd) and the Search for Intermetallics with Low Thermal Conductivity” Inorganic Chemistry, 57, [22], 14249-14259 (2018). [DOI]
46. Anton Olignyk, Taylor D. Sparks, Michael W. Gaultois, Leila Ghadbeigi*, and Arthur Mar “Gd_{12}Co_{3}Bi and Gd_{12}Co_{3}Bi, Crystalline Dopplegänger with Low Thermal Conductivities” Inorganic Chemistry, 55, [13], 6625-6633 (2016). [DOI].
49. Leo Lamontagne, Geneva Laurita, Michael Gaultois, Michael Knight, Leila Ghadbeigi*, Taylor D. Sparks, Craig Brown, and Ram Seshadri “High Thermopower with Metallic Conductivity in p-Type Li-Substituted PbPdO$_2$” Chemistry of Materials, 28, [10], 3367-3373 (2016). [DOI].
51. Ram Seshadri and Taylor D. Sparks “Perspective: Interactive materials properties databases through aggregation of literature data” invited article, APL Materials 4, [5], 053206 (2016) [DOI].
56. Leila Ghadbeigi*, Jaye K. Harada, Bethany Lettiere, and Taylor D. Sparks “Performance and resource considerations of Li-ion battery electrode materials” Energy and Environmental Science, 8, 1640-1650 (2015) [DOI]. Selected as rear cover article.

**Selected as cover article.**


63. Wei Liu, Yanli Liu, Bin Li, **Taylor D. Sparks**, Xi Wei and Wei Pan "Ceria (Sm3+, Nd3+)/carbonates composite electrolytes with high electrical conductivity at low temperature" *Composites Science and Technology*, 70, [1], 181-185 (2010). [DOI]


**Patents:**


**Conference Proceedings:** *(underlined names are undergraduate co-authors)*

11. Leila Ghadbeigi, Jaye K. Harada, Bethany Lettiere, and Taylor D. Sparks “Data-mining approach for battery materials” 2015 IEEE Conference on Technologies for Sustainability (SusTech) 239-244 (2015). DOI.


❖ **Materialism Podcast Episodes** (co-authors Taylor D. Sparks and Andrew Falkowski)

❖ **Non-Research Publications:**
   1. Taylor D. Sparks “Materials Informatics: Reducing Trial & Error from the Discovery of New Materials” TEDxSaltLakeCity, September 22 2019, published online at TED.com
   2. Taylor D. Sparks “Opinion: Energy leadership scholars program provides unique research opportunities,” published online on Utahpolicy.com, Utahpulse.com, and KSL.com, 10/1/2014.