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RESEARCH

Materials Theory / Neutron & X-ray scattering / Machine Learning

APPOINTMENT

2020 – Present **Norman C. Rasmussen Career Development Professor**, MIT
2018 – Present **Assistant Professor** of Nuclear Science and Engineering, MIT
2015 – 2017 **Postdoctoral Associate**, Mechanical Engineering, MIT
 Advisors: Prof. Gang Chen and Prof. Mildred S Dresselhaus
2015 Jun – 2015 **Summer Researcher**, MIT Energy Initiative
Aug Advisors: Dr. Frank O'Sullivan and Dr. Sergey Paltsev

EDUCATION

2009 – 2015 **PhD**, Nuclear Science and Engineering, MIT
 Thesis: "Investigation of magnetic interactions in topological insulators"
 Advisors: Prof. Ju Li, Dr. Jagadeesh Moodera, Dr. Yimei Zhu (BNL)
2008 Feb – 2008 **Exchange Student Diploma**, Department of Engineering and System
Jun Science (ESS), National Tsinghua University (NTHU)
 Advisor: Prof. Chih-Hao Lee (NTHU)
2005 – 2009 **BS**, Engineering Physics, Tsinghua University, China
 Advisor: Prof. Ling-An Wu (Institute of Physics, CAS)

PUBLICATIONS

Preprints

067. Z. Chen*, X. Shen*, N. Andrejevic, T. Liu, D. Luo, T. Nguyen, N. C. Drucker, M. Kozina, Q. Song, C. Hua, G. Chen, X. Wang, J. Kong, and M Li*, "Panoramic mapping of phonon transport from ultrafast electron diffraction and machine learning", [arXiv:2202.06199](https://arxiv.org/abs/2202.06199) (2022).
066. HA Merker†, H Heiberger†, LK Nguyen†, T Liu†, Z Chen, N. Andrejevic, NC Drucker, R. Okabe, Y. Wang, T. Smidt* and M. Li*, "Machine Learning Magnetism Classifiers from Atomic Coordinates". under revision (†Equal contribution)
065. NC Drucker†, T. Nguyen†, F. Han†*, X. Luo†, N. Andrejevic, Z. Zhu, G. Bednik, Q. T. Nguyen, Z. Chen, L. K. Nguyen, T. J. Williams, M. B. Stone, A. I. Kolesnikov, S. Chi, J. Fernandez-Baca, T. Hogan, A. Alatas, A. A. Puretzky, D. B. Geohegan, S. Huang, Y. Yue* and M. Li*, "Fluctuation-driven, topology-stabilized order in a correlated nodal semimetal", [arXiv:2103.08489](https://arxiv.org/abs/2103.08489).
064. N. Andjejevic†, J. Andrejevic†, C. H. Rycroft* and M. Li*, "Machine learning spectral indicators of topology", [arXiv:2003.00994](https://arxiv.org/abs/2003.00994), submitted. (†Equal contribution)
063. N. Andrejevic†, F. Han†, T. Nguyen, A. Puretzky, Q. Meng, Y-F Zhao, W. Zhao, L. Wu, D. Geohegan,

C-Z Chang, Y. Zhu*, S. Huang*, M. Li*, "Spectroscopic Signatures of Nonlocal Interfacial Coupling in Superconducting FeSe/SrTiO₃ Heterostructures", [arXiv:1908.05648](https://arxiv.org/abs/1908.05648), submitted. (†Equal contribution)

062. R. Pablo-Pedro*†, N. Andrejevic†, Y. Tsurimaki, Z. Ding, T-H Liu, G.D. Mahan, S. Huang, and M. Li*, "Phonon quantum phase transition", [arXiv:1809.06495](https://arxiv.org/abs/1809.06495), under review. (†Equal contribution)

2022

061. N. Andrejevic*†, Z. Chen†, T. Nguyen, L. Fan, H. Heiberger, L-J Zhou, Y-F Zhao, C-Z Chang, A. Grutter, and M Li*, "Elucidating proximity magnetism through polarized neutron reflectometry and machine learning", [Appl. Phys. Rev. 9, 011421 \(2022\)](https://doi.org/10.1063/1.511421). (†Equal contribution)

- Journal featured article; [AIP Scilight](https://doi.org/10.1063/1.511421). Press Release on [MIT News](https://news.mit.edu/2022/01-14-2022). Highlighted on DOE Office of Science Homepage.

060. T. Nguyen and M. Li*, "Electronic properties of correlated kagomé metals AV₃Sb₅ (A = K, Rb, Cs): A perspective", [J. Appl. Phys. 131, 060901 \(2022\)](https://doi.org/10.1063/1.511421).

- Invited perspective article & Editors' Pick.

059. K-P So, M Stapelberg, Y. R. Zhou, M. Li, MP Short* and S. Yip*, "Observation of dynamical transformation plasticity in metallic nanocomposites through a precompiled machine-learning algorithm", [Mater. Res. Lett. 10, 14 \(2022\)](https://doi.org/10.1063/1.511421).

058. T. Nguyen†, Y. Tsurimaki†, R. Pablo-Pedro†, G. Bednik†, A. Apte, N. Andrejevic and M. Li* (†Equal contribution), "Topological Signatures in Nodal Semimetals through Neutron Scattering", [New J. Phys. 24, 013016 \(2022\)](https://doi.org/10.1063/1.511421). (†Equal contribution)

057. J.M. Fang, S. Basu, M. Li, K-C Shih, J. Wang, M. Cottle, X. Wang, J. Zhao, TJ Mountziaris, JJ LoTurco, and M-P Nieh*, "Restriction-in-Motion of Surface Ligands Enhances Photoluminescence of Quantum Dots – Experiment and Theory", [Adv. Mater. Interfaces, 2102079 \(2022\)](https://doi.org/10.1063/1.511421).

056. M. Li* and Y. Wang*, "One-way express ticket to quantum criticality", [Nature Materials 21, 3 \(2022\)](https://doi.org/10.1038/s41467-021-26004-2).

- Invited News and Views article.

2021

055. J. Xu, F. Han, T-T Wang, LR Thoutam, SE Pate, M. Li*, X. Zhang, Y-L Wang*, R. Fofvat, U. Welp, X. Zhou, W-K Kwok, DY Chung, MG Kanatzidis, and Z-L Xiao*, "Extended Kohler's Rule of Magnetoresistance", [Phys. Rev. X. 11, 041029 \(2021\)](https://doi.org/10.1103/PhysRevX.11.041029).

054. T. Nguyen, N. Andrejevic, H. C. Po, Y. Tsurimaki, N. Drucker, A. Alatas, E. E. Alp, B. M. Leu, A. Cunsolo, Y. Cai, L. Wu, J. A. Garlow, Y. Zhu, A. C. Gossard, S. Huang* and M. Li*, "Signature of Many-Body Localization of Phonons in Strongly Disordered Superlattices", [Nano Lett. 21, 7419 \(2021\)](https://doi.org/10.1021/NANO.0c02114).

- Press Release on [MIT News](https://news.mit.edu/2021/01-14-2021). Highlighted on DOE Office of Science Homepage. [APS Science Highlight](https://doi.org/10.1063/1.511421) at Argonne National Laboratory.

053. Z. Chen†, N. Andrejevic†, N. C. Drucker, T. Nguyen, R.P. Xian, T. Smidt, Y. Wang, R. Ernstorfer, A. Tennant, M. Chan, and M. Li*, "Material Learning on Neutron and X-Ray Scattering", [Chem. Phys. Rev 2, 031301 \(2021\)](https://doi.org/10.1063/1.511421) (†Equal contribution)

- Invited Review Article; Journal Featured Article; [AIP Scilight](https://doi.org/10.1063/1.511421).

052. Z. Chen†, N. Andrejevic†, T. Smidt†, Z. Ding, Y-T Chi, Q. Nguyen, A. Alatas, J. Kong and M. Li*, "Direct prediction of phonon density of states with Euclidean neural networks", [DOI:10.1002/adv.202004214](https://doi.org/10.1002/adv.202004214), Advanced Science (2021). (†Equal contribution)

- Press Release on [MIT News](https://news.mit.edu/2021/01-14-2021) and MIT Daily, selected as journal Front Cover.

051. P. Cao*, K-P So, Y. Yang, JG Park, M. Li, L. Yan, J. Hu, M. Kirk, M. Li, YH Lee, MP Short* and J. Li*, "Carbon nanotube (CNT) metal composites exhibit greatly reduced radiation damage", [*Acta Mater.* **203**, 116483 \(2021\)](#).

50. L. Zhao, S. Wang, Y. Dong, W. Quan, F. Han, Y. Huang, Y. Li, X. Liu, M. Li, Z. Zhang*, J. Zhang*, Z. Tang, J. Li*, "Coarse-grained reduced $\text{Mo}_x\text{Ti}_{1-x}\text{Nb}_2\text{O}_{7+x}$ anodes for high-rate lithium-ion batteries", [*Energy Storage Materials*, **34**, 574 \(2021\)](#).

2020

049. K. Zhang, T. Wang, X. Pang, F. Han, S-L Shang, N.T. Hung, A.R.T. Nugraha, Z-K Liu, M Li*, R. Saito* and Shengxi Huang*, "Anisotropic Fano resonance in a Weyl semimetal candidate LaAlSi ", [*Phys. Rev. B* **102**, 235162 \(2020\)](#).

048. F. Han*†, N. Andrejevic†, T. Nguyen†, V. Kozii†, Q. Nguyen, T. Hogan, Z. Ding, R. Pablo-Pedro, S. Parjan, B. Skinner, A. Alatas, E. Alp, S. Chi, J. Fernandez-Baca, S. Huang, L. Fu* and M. Li*, "Quantized Thermoelectric Hall Effect Induces Giant Power Factor in a Topological Semimetal", [*Nature Communications*, **11**, 6167 \(2020\)](#). (†Equal contribution)

- Press Release on [MIT News](#), Highlighted on [MIT The Infinite](#). Highlighted on DOE Office of Science Homepage.

047. T. Nguyen†, F. Han†, N. Andrejevic†, R. Pablo-Pedro†, A. Apte, Y. Tsurimaki, Z. Ding, K. Zhang, A. Alatas, E. E. Alp, S. Chi, J. Fernandez-Baca, M. Matsuda, D.A. Tennant, Y. Zhao, Z. Xu, J.W. Lynn, S. Huang and M. Li*, "Topological Singularity Induced Chiral Kohn Anomaly in a Weyl Semimetal", [*Phys. Rev. Lett.* **124**, 236401 \(2020\)](#). (†Equal contribution)

- PRL Editors' Suggestion. Press Release on [MIT News](#), Highlighted on DOE Office of Science Homepage, DOE Basic Energy Sciences (BES) [Science Highlights](#).

046. M. Li and G. Chen, "Thermal transport for probing quantum materials", [*MRS Bulletin* **45**, 348 \(2020\)](#).

- Invited Review Article.

045. R. Pablo-Pedro, MA Magana-Fuentes, M. Videa, J. Kong, M. Li, J. Mendoza-Cortes* and T. van Voorhis*, "Understanding disorder in 2D materials: the case of carbon doping of Silicene", [*Nano Lett* **20**, 6336 \(2020\)](#).

044. R. Gao, M. Jin*, F. Han, B. Wang, X. Wang*, Q. Fang, Y. Dong, C. Sun, L. Shao, M. Li, and Ju Li*, "Superconducting Cu/Nb nanolaminate by coded accumulative roll bonding and its helium damage characteristics", [*Acta Mater.* **197**, 212 \(2020\)](#).

043. Y. Tsurimaki, X. Qian, S. Pajovic, F. Han, M. Li and G. Chen*, "Large non-reciprocal absorption and emission of radiation in time-reversal-symmetry-breaking type-I Weyl semimetals", [*Phys. Rev. B* **101**, 165426 \(2020\)](#).

042. K. Zhang, X. Pang, T. Wang, F. Han, S-L Shang, N.T. Hung, A.R.T. Nugraha, Z-K Liu, M. Li*, R. Saito* and S. Huang*, "Phonon-mode dependent Raman spectroscopy of topological nodal semimetal TaP ", [*Phys. Rev. B* **101**, 014308 \(2020\)](#).

2019

041. Y-Y Lyu, F. Han, Z-L Xiao*, J. Xu, Y-L Wang*, H-B Wang, J-K Bao, DY Chung, M. Li*, I. Martin, U. Welp, MG Kadatzidis, and W-K Kwok, "Magnetization Governed Magnetoresistance Anisotropy in Topological Semimetal CeBi ", [*Phys. Rev. B* **100**, 180407\(R\) \(2019\)](#).

040. W. Gong*, B. Fugetsu*, Z-P Wang, T. Ueki, I. Sakata, H. Ogata, F. Han, M. Li, L. Su, X. Zhang, M. Terrones, and M. Endo, "Thicker carbon-nanotube / manganese-oxide hybridized nanostructures as electrodes for creation of fiber-shaped high-energy-density supercapacitors", [Carbon 154, 169 \(2019\)](#).

039. J. Xu, F. Wu, J. Bao, F. Han, Z-L Xiao*, I. Martin*, Y-Y Lyu, Y-L Wang, DY Chung, M. Li, W Zhang*, J. Pearson, J. Jiang, MG Kanatzidis, and W-K Kwok, "Orbital flop in rare Earth monopnictide CeSb", [Nature Communications 10, 2875 \(2019\)](#).

038. Y. Xu, D. Kraemer, B. Song, Z. Jiang, J. Zhou, J. Loomis, J. Wang, M. Li, H. Ghasemi, X. Huang, X. Li and G. Chen*, "Nanostructured polymer films with metal-like thermal conductivity", [Nature Communications, 10, 1771 \(2019\)](#).

037. M. Li*, "Quantized dislocations", [J. Phys.: Condens. Matter 31, 083001 \(2019\)](#).

- Invited Topical Review.

2018

036. Z. Ding, J. Zhou, B. Song, M. Li, T-H Liu and G. Chen*, "Umklapp scatterings are not necessarily resistive", [Phys. Rev. B: Rapid Communications 98, 180302 \(2018\)](#).

035. M. N. Luckyanova, J. Mendoza, H. Lu, B. Song*, S. Huang, J. Zhou, M. Li, Y. Dong, H. Zhou, J. Garlow, L. Wu, B. J. Kirby, A. J. Grutter, A. A. Puretzky, Y. Zhu, M. S. Dresselhaus, A. Gossard, and G. Chen*, "Phonon localization in heat conduction", [Science Advances 4, eaat9460 \(2018\)](#).

034. T-H Liu, B. Song, L. Meroueh, Z. Ding, Q. Song, J. Zhou, M. Li and G. Chen*, "Simultaneously high electron and hole mobilities in cubic boron-V compounds: BP, BAs and BSb", [Phys. Rev. B: Rapid Commun, 98, 081203 \(2018\)](#).

033. L. Ding, M. Ukhtary, M. Chubarov, T. Choudhury, F. Zhang, R. Yang, A. Zhang, J. Fan, M. Terrones, J. Redwing, T. Yang, M. Li, R. Satio and S. Huang*, "Understanding interlayer coupling in tmd-hbn heterostructure by raman spectroscopy", [DOI: 10.1109/ TED.2018.2847230, IEEE Trans. Electron Devices, 2018](#).

032. G. Wei, B. Fugetsu*, Z. Wang, I. Sakata, L. Su, X. Zhang, H. Ogata, M. Li., C. Wang, J. Li, J. Ortiz-Medina, M. Terrones and M. Endo, "Carbon nanotubes and manganese oxide hybrid nanostructures as high performance fiber supercapacitors", [Commun. Chem. 1, 16 \(2018\)](#).

031. W. Zhao†, M. Li†, C-Z Chang†*, J. Jiang, L. Wu, C. Liu, Y. Zhu*, J. S. Moodera and M. H. W. Chan*, "Direct observation of transfer and superconducting pairing of electrons at the FeSe/SrTiO3 interface", [Science Advances 4, eaao2682 \(2018\)](#). (†Equal contribution)

030. M. Li*†, Y. Tsurimaki†, Q. Meng, N. Andrejevic, Y. Zhu, G. D. Mahan and G. Chen*, "Theory of electron-phonon-dislon interacting system – toward a quantized theory of dislocations", [New J. Phys. 20, 023010 \(2018\)](#). (†Equal contribution)

029. T-H Liu, J. Zhou, M. Li, Z. Ding, Q. Song, B. Liao, L. Fu and G. Chen*, " Electron mean-free-path filtering in dirac material snite for improved thermoelectric performance", [Proc. Natl. Acad. Sci., DOI: 10.1073/pnas.1715477115 \(2018\)](#).

- Highlight on [MIT Homepage](#). Press Release on [MIT News](#) etc.

028. F. Han, N. Andrejevic and M. Li*, "A hidden dimension to explore new thermoelectrics", [Joule 2, 16 \(2018\)](#). (Invited Preview Article).

027. Z. Ding, J. Zhou, B. Song, V. Chiloyan, M. Li, T-H Liu and G. Chen*, "Phonon hydrodynamic heat conduction and knudsen minimum in graphite", [Nano Lett. 18, 638 \(2018\)](#).

2017

026. M. Li^{*†}, Q. Song[†], W. Zhao, J. A. Garlow, T-H Liu, L. Wu, Y. Zhu, J. S. Moodera, M. H. W. Chan, G. Chen^{*} and C-Z Chang^{*}, "Dirac-electrons-mediated magnetic proximity effect in topological insulator / magnetic insulator heterostructures", *Phys. Rev. B: Rapid Commun.* **96**, 201301 (2017). ([†]Equal contribution)

025. M. Li^{*}, Q. Song, T-H Liu, L. Meroueh, G. D. Mahan, M. S. Dresselhaus and G. Chen^{*}, "Tailoring superconductivity with quantum dislocations", *Nano Lett.* **17**, 4604 (2017).

024. C. Fu, M. Li^{*}, "Oscillative deviation from Matthiessen's rule due to interacting dislocations", *J. Phys. Condens. Matter* **29**, 325702 (2017).

023. M. Li^{*}, Z. Ding, Q. Meng, J. Zhou, Y. Zhu, H. Liu, M. S. Dresselhaus and G. Chen^{*}, "Nonperturbative quantum nature of the dislocation-phonon interaction", *Nano Lett.* **17**, 1587 (2017).

- Highlight on [DOE Office of Science Homepage](#) and [MIT Homepage](#). Press Release on [MIT News](#), [Phys.org](#), etc.

022. M. Li^{*}, W. Cui, M. S. Dresselhaus and G. Chen^{*}, "Electron energy can oscillate near a crystal dislocation", *New J. Phys.* **19**, 013033 (2017).

- Selected as [New Journal of Physics Highlights of 2017](#).

2016

021. A. Vipin^{*}, B. Fugetsu, I. Sakata, A. Isogai, M. Endo, M. Li, M. S. Dresselhaus, "Cellulose nanofiber backboned Prussian blue nanoparticles as powerful adsorbents for the selective elimination of radioactive cesium", *Sci. Rep.* **6**, 37009 (2016).

020. Z. Zhu, M. Li and J. Li^{*}, "Topological semimetal- topological insulator quantum phase transition in zintl compounds Ba₂X (X=Si, Ge)", *Phys. Rev. B* **94**, 155121 (2016).

019. K-P So, D. Chen, A. Kushima, M. Li, S. Kim, Y. Yang, Z. Wang, J-G Park, Y-H Lee, R. I. Gonzalez, M. Kiwi, E. M. Bringa, S. Lin^{*} and J. Li^{*}, "Dispersion of carbon nanotubes in aluminum improves radiation resistance", *Nano Energy* **22**, 319 (2016).

- Press Release on [MIT News](#).

018. C-Z Chang^{*} and M. Li, "Quantum anomalous hall effect in time-reversal-symmetry breaking topological insulators", *J. Phys. Condens. Matter* **28**, 123002 (2016).

- Invited Topical Review.

2015

017. M. Li^{*}, C. Chang^{*}, B. J. Kirby, M. Jamer, W. Cui, L. Wu, P. Wei, Y. Zhu, D. Heiman, J. Li and J. S. Moodera^{*}, "Proximity driven enhanced magnetic order at ferromagnetic insulator / magnetic topological insulator interface", *Phys. Rev. Lett.* **115**, 087201 (2015).

- Press Release on [MIT News](#), [Phys.org](#), etc.

016. M. Li^{*}, C. Chang^{*}, L. Wu, J. Tao, W. Zhao, M. Chan, J. S. Moodera, J. Li and Y. Zhu^{*}, "Experimental verification of the van Vleck nature of long-range ferromagnetic order in vanadium-doped three-dimensional topological insulator Sb₂Te₃". *Phys. Rev. Lett.* **114**, 146802 (2015).

- Press Release on [BNL News](#), [BNL homepage](#), [ScienceDaily](#), [Phys.org](#), etc.

015. M. Li^{*}, W. Cui, J. Yu, Z. Dai, Z. Wang, F. Katmis, W. Guo and J. Moodera, "Magnetic proximity effect and interlayer exchange coupling of ferromagnetic / topological insulator / ferromagnetic trilayer", *Phys. Rev. B* **91**, 014427 (2015).

014. A. Ugur, F. Katmis, M. Li, L. Wu, Y. Zhu, K. Varanasi and K. Gleason^{*}, "Low-dimensional conduction mechanisms in highly-conductive and transparent conjugated polymers", *Advanced Materials* **31**, 4604 (2015).

- Press Release on [MIT news](#), [MIT homepage](#), etc.

013. Z. Tian*, M. Li*, Z. Ren, H. Ma, A. Alatas, S. Wilson and J. Li, "Investigation of phonon transport in PbTe-PbSe alloys using inelastic x-ray scattering", *J. Phys. Condens. Matter.* **27**, 375403 (2015).

012. M. Li*, W. Cui, L. Wu, Q. Meng, Y. Zhu, Y. Zhang, W. Liu and Z. Ren, "Topological effect to surface plasmon excitation in topological insulator nanowires". *Can. J. Phys.* **93**, 591-598 (2015).

2014

011. M. Li*, Z. Dai, W. Cui, Z. Wang, F. Katmis, P. Le, J. Wang, L. Wu and Y. Zhu, "Tunable THz surface plasmonics based on topological insulator-layered superconductor hybrid structure", *Phys. Rev. B* **89**, 235432 (2014).

010. Z. Wang, E. Fratini, M. Li, P. Le, E. Manontov, P. Baglioni, S-H Chen, "Hydration-dependent dynamic crossover phenomenon in protein hydration water", *Phys. Rev. E* **90**, 042705 (2014).

009. J. Niu, A. Kushima, M. Li, W. Li, Z. Wang, and J. Li*, "Scalable synthesis of sulfur nanosponge cathode for lithium-sulfur battery with greatly improved cyclability", *J. Mater. Chem. A* **2**, 19788-19796 (2014).

008. W. Cui, M. Li*, Z. Dai, Q. Meng and Y. Zhu, "Near-field optical effect of a core-shell nanostructure in proximity to a flat surface", *J. Chem. Phys.* **140**, 044109 (2014).

007. Z. Wang, W-S Chiang, P. Le, E. Fratini, M. Li, A. Alatas, P. Baglioni and S-H Chen*, "One role of hydration water in proteins: key to the 'softening' of short time intraprotein collective vibrations of a specific length scale", *Soft Matter* **10**, 4298 (2014).

006. Z. Wang, K-H Liu, P. Le, M. Li, W-S Chiang, J. Leao, M. Tyagi, J. Copley, A. Podlesnyak, A. I. Kolesnikov, C-Y Mou, and S-H Chen*, "Boson peak in deeply-cooled confined water: a possible way to explore the existence of the liquid-to-liquid transition in water", *Phys. Rev. Lett.* **112**, 237802 (2014).

005. A.D. Liao, M. Yao, F. Katmis, M. Li, S. Tang, J. Moodera, C. Opeil, and M. S.Dresselhaus, "Inducing anisotropic electronic transport in bismuth thin films", *Appl. Phys. Lett.* **105**, 063114 (2014).

Before 2014

004. S. Paltsev, F. O'Sullivan, N. Lee, A. Agarwal, M. Li, X. Li, N. Fylaktos (2013), "[Natural Gas Monetization Pathways for Cyprus: Interim Report - Economics of Project Development Options](#)", MIT Energy Initiative, Massachusetts Institute of Technology, Cambridge, MA. ISBN 978-0-9828008-8-1.

003. M. Li, XQ Chu, E. Fratini, P. Baglioni, A. Alatas, E.E. Alp, S-H Chen*, "Phonon-like excitation in secondary and tertiary structure of hydrated protein powders", *Soft Matter* **7**, 9848-9853 (2011).

002. C-S Tsao, M. Li, Y. Zhang, J. B. Leao, W-S Chiang, T-Y Chung, Y-R Tzeng, M-S Yu, and S-H Chen*, "Probing the room temperature spatial distribution of hydrogen in nanoporous carbon by use of small-angle neutron scattering", *J. Phys. Chem. C* **114**, 19895 (2010).

001. C-S Tsao, Y. Liu, M. Li, Y. Zhang, J. B. Leao, H-W Chang, M-S Yu and S-H Chen*, "Neutron scattering methodology for absolute measurement of room-temperature hydrogen storage capacity and evidence for spillover effect in a pt-doped activated carbon", *J. Phys. Chem. Lett.* **1**, 1569-1573 (2010).

Book Chapters

B01. M. Li* and R. Pablo-Pedro, "Quantized Dislocations for Functional and Quantum Materials", [Handbook of Materials Modeling, 2nd Ed, pp 265-283](#), Springer International Publishing.

INVITED TALKS

T038. M. Li, Dec 2022, Materials Research Society (MRS) Fall Meeting.

T037. M. Li, Oct 2022, Materials Science & Technology (MS&T) 2022 Technical Meeting and Exhibition.

T036. M. Li, Jun 2022, American Conference on Neutron Scattering.

T035. M. Li, Feb 2022, Physics Colloquium, U Maryland.

T034. M. Li, Feb 2022, Quantum Information and Quantum Materials Seminar, Oak Ridge National Lab (ORNL).

T033. M. Li, Nov 2021, U Alabama at Birmingham Physics Colloquium.

T032. M. Li, Oct 2021, Physics Colloquium, Physics Division, Argonne National Lab.

T031. M. Li, Sept 2021, U Mass Amherst Mechanical Engineering Seminar.

T030. M. Li, Sept 2021, Workshop on meV IXS, Spring-8, APS, NSLS-II and ESRF.

T029. M. Li, Aug 2021, Joint Nanoscience and Neutron Scattering User Meeting, ORNL.

T028. M. Li, Jun 2021, Quantum Materials: New Insights from Neutron Scattering Workshop, U Minnesota Center for Quantum Materials.

T027. M. Li, Jun 2021, Quantum Complex Matter 2021 Symposium, Rome - RICMASS and Frascati National Laboratory.

T026. M. Li, Apr 2021, "Machine learning augmented characterization for emergent quantum materials", Brookhaven National Laboratory (BNL) Condensed Matter Physics and Materials Science Seminar.

T025. M. Li, Apr 2021, Lecture for Society of Physics Students, University of Puerto Rico, Mayagüez.

T024. M. Li, Apr 2021, "Exotic phenomena and energy applications induced by topological singularities in a Weyl semimetal", Idaho National Laboratory Frontiers of Energy Science Seminar.

T023. M. Li, Mar 2021, "Machine learning augmented neutron and X-ray scattering", WUSTL Physics Seminar.

T022. M. Li, Mar 2021, "Learning materials' topology from simple spectroscopic features", American Physical Society (APS) March Meeting 2021.

T021. M. Li, Mar 2021, "Introduction to Disclons, A Quantized Description of Dislocations – With Implications for Thermal and Electrical Transport", Minerals, Metals, and Materials Society (TMS) 2021 150th Annual Meeting.

T020. M. Li, Oct 2020, "Machine learning augmented spectroscopy for energy materials", MIT Alumni Faculty Forum.

T019. M. Li, Aug 2020, "Machine-Learning Augmented X-Ray Absorption for Topological Materials Identification", Argonne National Lab (ANL) APS/CNM Workshop.

T018. M. Li, Aug 2020, "Giant Neutron Response in Topological Materials", ORNL Neutron Scattering Division, Neutrons and Complementary Techniques for Quantum Materials Workshop.

T017. M. Li, Jul 2020, "A Tale of Two Singularities", MIT MechE Alliance Seminar Series.

T016. M. Li, Dec 2019, "Necessity for a Second Polarized Neutron Reflectometer", ORNL Second Target Station Workshop.

T015. M. Li, Oct 2019, "Quantized Dislocations", U Minnesota Condensed Matter Seminar.

T014. M. Li, Sept 2019, "Topological Singularity Induced Chiral Kohn Anomaly in Weyl Semimetals", 2019 SSRL/LCLS Users' Meeting, SLAC National Accelerator Laboratory.

T013. M. Li, Apr 2019, "Quantized Dislocations", 2019 Nano Conference Boston.

T012. M. Li, Mar 2019, "Quantized Dislocations", University of Virginia Department of Materials Science and Engineering Seminar.

T011. M. Li, Jan 2019, "Quantum Field Approach to Materials with Large Defects", MIT IAP Physics Lecture Series.

T010. M. Li, Oct 2018, "Dislon – quantum field description of materials extended defects", Department of Physics Seminar Series, Boston College.

T009. M. Li, Oct 2018, "Quantized dislocations for dislocated functional and quantum materials",

Materials Science and Engineering Seminar, Rensselaer Polytechnic Institute.

T008. M. Li, Sept 2018, "Quantized Dislocations", Institut Quantique Seminar, University of Sherbrooke, Canada.

T007. M. Li, Feb 2018, "Dislon: Understanding Effects of Dislocations in Materials", MIT CEE Henry L. Pierce Laboratory Seminar Series.

T006. M. Li and G. Chen, Nov 2017, "Quantized Dislocations", invited talk at 2017 Materials Research Society (MRS) Fall Meeting.

T005. M. Li, Apr 2017, "From materials defects to spectroscopies: a nanoscale insight toward an energy-efficient nuclear engineering", seminar at Mechanical Engineering Department, University of South Carolina.

T004. M. Li, Apr 2016, "Dislon- Quantum Journey of Crystal Dislocations", National Synchrotron Light Source- II Friday Lunchtime Seminar Series, Brookhaven National Lab.

T003. M. Li, Feb 2016, "Radiation physics today for materials science tomorrow", 2016 Del Favero Doctoral Thesis Prize Lecture.

T002. M. Li, Jun 2015, "Investigation of Magnetic Interactions in Thermoelectric Topological Insulator Materials", DOE Energy Frontier Research Center (EFRC), Solid-State Solar Thermal Energy Conversion (S³TEC) Seminar.

T001. M. Li, Feb 2015, "Spectroscopic Studies of a Magnetic Topological Insulator", Condensed-Matter Physics & Materials Science Seminar, Brookhaven National Lab.

TEACHING

2021 Fall	22.S902 "Quantum theory of materials characterizations" (Rating 7.0/7.0)
2021 Fall	22.12 "Radiation-matter interaction" (Rating 5.7/7.0)
2021	MIT Ruth and Joel Spira Award for Excellence in Teaching
2021	Panelist, MIT Teaching + Learning Lab English-as-a-Second-Language Faculty Panel
2021 Spring	22.042 "Machine learning in nuclear science and engineering" (Rating 6.6/7.0)
2021 Spring	22.02 "Applied nuclear physics" (Rating 6.3/7.0)
2020 Fall	22.12 "Radiation-matter interaction" (Rating 6.8/7.0)
2020 Spring	22.02 "Applied nuclear physics" (Rating N/A)
2020	MIT Alumni Class Funds Education Initiatives Funding
2019 Fall	22.12 "Radiation-matter interaction" (Rating 6.3/7.0)
2019 Spring	22.02 "Applied nuclear physics" (Rating 6.4/7.0)
2018 Fall	22.12 "Radiation-matter interaction" (Rating 6.4/7.0)
2018 Spring	22.02 "Applied nuclear physics" (Rating 6.6/7.0)
2017	MIT Educational Technology Teaching Certificate
2016	MIT Kaufman Teaching Certificate
2015	MIT NSE Outstanding Teaching Assistant (TA) Award
2015	MIT NSE Outstanding Grader of the Year

SERVICE

2021 – Present Advisory Board, Artificial Intelligence for MultiModal Analysis (AIMM), Department of Energy (DOE) Scientific User Facilities.

2021 – Present Member, MIT Center of Quantum Engineering (CQE).

2021 – Present Advisory Board, Center for Quantum Actinide Science and Technology (C-QAST), Idaho National Laboratory (INL), funded by National Science Foundation (NSF).

2021 – Present Member, MIT-IBM Watson AI Lab.

2021 – Present Member, APS User Organization Steering Committee, Argonne National Lab.

2021 Organizer for MRS 2021 Fall Meeting Symposium EQ04 “*Machine Learning on Experimental Data for Emergent Quantum Materials*”

2021 Organizer for Brookhaven National Laboratory NSLS-II & CFN Annual Users’ Meeting Workshop “*Machine Learning Augmented X-Ray Scattering and Spectroscopies*”

2021 Co-Organizer for MRS 2021 Spring Meeting Symposium CT04 “*Predictive Modeling Augmented Multimodal Characterization of Emergent Quantum Materials*”

2020 Co-organizer for AMSE 2020 Symposium 27 “*Quantum Materials*”

2020 – Present Science Reviewer, Neutron Sciences General User Program at Oak Ridge National Laboratory

2020 Co-organizer for Argonne National Laboratory APS/CNM Users Meeting Workshop “*Multi-Modal X-ray Techniques for Emergent Quantum Materials*”

2019 – Present Voting Member, MIT Radiation Protection Committee (RPC)

2019 Organizer for MRS 2019 Fall Meeting Symposium MQ03 “*Predictive Synthesis and Advanced Characterization of Emerging Quantum Materials*”

2019 Organizer for Brookhaven National Laboratory NSLS-II & CFN Users’ Meeting Workshop “*Collective Phenomena in Quantum Materials*”

2018 – Present Member of Editorial Board, *iScience* (Cell Press)

2018 – Present Member of Editorial Board, *PeerJ Materials Science*

2018 – Present Proposal Review Panel, Advanced Photon Source, Argonne National Laboratory

2018 – Present Reviewer, National Science Foundation (NSF)