

BIOGRAPHICAL SKETCH

Yan Chen, PhD

Neutron Scattering Scientist, VULCAN

Neutron Scattering Division

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Interests

- Advanced *in situ* neutron and X-ray diffraction.
- Synthesis mechanism of oxides and alloys for energy and engineering applications.
- Structural transition in atomic scale under non-equilibrium conditions and external stimuli.
- Deformation mechanisms of engineering materials for superior mechanical behaviors.
- Nondestructive residual stress, texture, and microstructure investigation in engineering components.

Education

- B. S. Materials Science and Engineering, Tsinghua University, Beijing, China, 2007
- M. S. Materials Science and Engineering, Tsinghua University, Beijing, China, 2009
- Ph. D. Materials Science and Engineering, University of Central Florida, Orlando, USA, 2013

Research and Professional Experience

- Neutron Scattering Scientist, VULCAN, Neutron Scattering Division, ORNL (2017 – Present)
- Coordinator of Materials and Engineering Science Initiative, Neutron Scattering Division, ORNL (2024 – Present)
- Postdoctoral Research Associate, Spallation Neutron Source, ORNL (2013 – 2017)
- Graduate Research Assistant, Department of Mechanical, Materials and Aerospace Engineering, University of Central Florida, 2009 – 2013.
- Visiting Student Scholar, Spallation Neutron Source, ORNL (2012)
- Visiting Student Scholar, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland (2011)
- Graduate Research Assistant, Department of Materials Science and Engineering, Tsinghua University, China (2007 – 2009)

Honors and Awards

- 2022 2022 Charles Hatchett Award for the best paper on the science and technology of niobium-based materials. “What is the Role of Nb in Nickel-Rich Layered Oxide Cathodes for Lithium-Ion Batteries?” **ACS Energy Lett.** 2021, 6, 1377-1382.
- 2022 2022 Team Science Award. Building and Transportation Science Division, ORNL.
- 2022 ORNL’s Top 10 Neutron Scattering Achievements of 2022. “New 3-D printed alloys offer strength, greater resistance”, in paper “Strong yet ductile nanolamellar high-entropy alloys by additive manufacturing”, **Nature**, 608, 62-68 (2022).
- 2022 NSD Best Paper Finalist. “Unraveling transition-metal-mediated stability of spinel oxide via *in situ* neutron scattering”, **Journal of Energy Chemistry**, 68, 60-70 (2022).
- 2022 NSD Best Experiment Finalist. “Pushing the Envelope of Sample Dimension for Residual Stress Measurement at VULCAN”.

- 2021 Top Cited Article 2020-2021 in Journal of the American Ceramic Society. “The effect of submicron grain size on thermal stability and mechanical properties of high-entropy carbide ceramics”, *Journal of the American Ceramic Society*, 103, 4463-4472 (2020).
- 2020 ORNL’s Top 10 Neutron Scattering Achievements of 2020. “The Structure of a Fast-Charging Lithium Anode”, in paper “Ultra-Lithium-Rich Disordered Rocksalt Anode for Fast-charging Lithium-Ion Batteries”, *Nature*, 585, 63-67, 2020.
- 2020 NSD Best Paper Finalist. “High performance and low thermal expansion in Er-Fe-V-Mo dual-phase alloys”, *Acta Materialia*, 198, 271–280, 2020.
- 2020 NSD Best Experiment Finalist. “Why stronger? Understanding the stability and transformation of industrial grades of bearing steel”.
- 2019 NSD Best Paper Award, 2019. “Lattice-Cell Orientation Disorder in Complex Spinel Oxides”, *Advanced Energy Materials*, 7(4), 1601950, 2017.
- 2019 ORNL’s Top 10 Neutron Scattering Achievements of 2019. “Understanding hydrogen, lithium ionic mobility in aqueous-lithium metal batteries”, in paper “Elucidating the mobility of H⁺ and Li⁺ ions in (Li_{6.25-x}H_xAl_{0.25})La₃Zr₂O₁₂ via correlative neutron and electron spectroscopy”, *Energy & Environmental Science*, 12, 945-951, 2019.
- 2018 ORNL’s Top neutron scattering achievements of 2018, “Path to better engineering alloys revealed”, in paper “Deformation mechanisms and work-hardening behavior of transformation-induced plasticity high entropy alloys by in-situ neutron diffraction”, *Materials Research Letters*, 6, 11, 620-626, 2018.
- 2012 Honorable Mentions of the 2012 Dr. Bernard S. Baker Student Award for Fuel Cell Research.
- 2012 Poster Award at the MCARE Graduate Student Poster Contest, Clearwater, FL.
- 2007 Gua-Chuan Scholarship for Overall Excellence, Department of Materials Science and Engineering, Tsinghua University, Beijing, China.
- 2005 Gua-Chuan Scholarship for Overall Excellence, Department of Materials Science and Engineering, Tsinghua University, Beijing, China.
- 2004 Scholarship for Overall Excellence, Tsinghua University, Beijing, China.

Professional Activities

➤ Organizer:

- 2025 Vulcan-X Data Reduction and Analysis Workshop, Oak Ridge, TN, July 30-31, 2025.
- 2023 Vulcan Data Reduction and Analysis Workshop, Oak Ridge, TN, November 9, 2023.
- Workshop on Vulcan Data Reduction and Analysis 2022, Oak Ridge, TN, August 17-18, 2022.
- User meeting workshop: “Materials Synthesis Science and Opportunities Aided by in-situ Scattering Tools”, Virtual, 2021.

➤ Professional society affiliation (current and past):

Material Research Society (MRS); The American Ceramic Society (ACerS); Association for Iron & Steel Technology (AIST); The Minerals, Metals & Materials Society (TMS); American Electrochemistry Society.

➤ Reviewer of academic journals:

ACS Applied Energy Materials; ACS Applied Materials & Interfaces; ACS Energy Letters; Acta Materialia; Advanced Engineering Materials; Advanced Materials; Advances in Applied Ceramics; Applied Physics Letters; Ceramics International; Energy & Fuels (ACS); Fuel Cells; Intermetallics; International Journal of Applied Ceramic Technology; Journal of Alloys and Compounds; Journal of Applied Crystallography; Journal of Electronic Materials; Journal of Environmental Sciences; Journal of Engineering Manufacture; Journal of Nuclear Materials; Journal of Power Sources; Journal of Renewable and Sustainable Energy; Journal of the American Ceramic Society; Journal of the European Ceramic Society; Materials; Materials and Design; Materials Letters; Materials Today Advances; Measurement; Nano Energy; Progress in Materials Science; Scientific Reports; Scripta Materialia.

Projects

- NSD Mid-scale (PI). “Multimodal Non-destructive Deformation Mechanism Understanding by Neutron Diffraction and Acoustic Measurement”. \$36k. 2023.
- NSD Post-doc Research (PI). “Multi-compositional High Temperature Shape Memory Materials”. 2023.

Mentoring

➤ Postdocs

- Dr. Seohyeon Jo. NSD MEI postdoc. 2024 – now.
- Dr. Minglei Qu. NSD MEI postdoc. 2023 – 2024. Now Assistant Professor at the Arizona State University.

➤ Students

- Ruben Hernandez (undergraduate). Ca2REERS program. University of Texas Rio Grande Valley. 2024.
- Shadman Sakib (graduate). Ca2REERS program. University of Texas Rio Grande Valley. 2023.
- Enrique Contreras Lopez (graduate). Ca2REERS program. University of Texas Rio Grande Valley. 2022.

Patent

1. Neutronic Engine. Martin L. Wissink, Christopher L. Wray, Scott J. Curran, Ke An, Matthew J. Frost, Yan Chen. U.S. Patent No. 11,768,128. Issued: September 26, 2023.

Publications

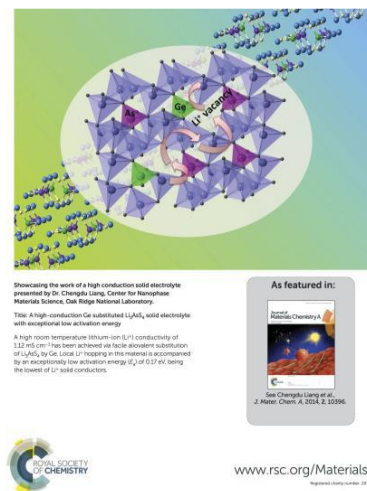
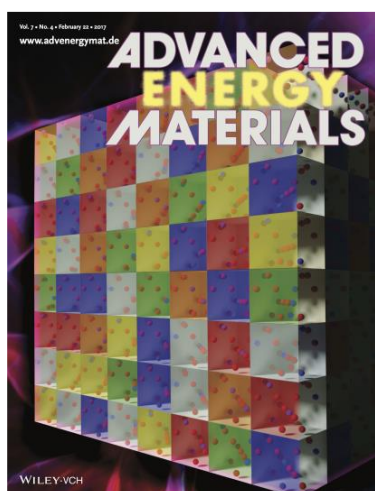
- As of June 2025, a total 133 publications (journal papers, proceedings and technique reports), with the use of neutron instruments including VULCAN, POWGEN, NOMAD, POWDER, EQ-SANS, VISION and BASIS.
- More than 20 oral and poster presentations in international conferences.

➤ Selected news releases and website highlights

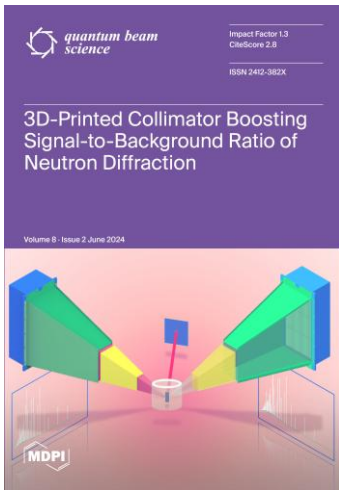
1. [Neutron Probes Load Sharing Transients in 3D-Printed Nanocomposite](https://neutrons.ornl.gov/highlights/neutron-probes-load-sharing-transients-3d-printed-nanocomposite). (2025)
(<https://neutrons.ornl.gov/highlights/neutron-probes-load-sharing-transients-3d-printed-nanocomposite>)
2. [Real-Time Diagnostics for Better Engines](https://science.osti.gov/bes/Highlights/2022/BES-2022-06-e). (2022)
(<https://science.osti.gov/bes/Highlights/2022/BES-2022-06-e>)
3. [Strong Additively Manufactured High-Entropy Alloys](https://neutrons.ornl.gov/highlights/strong-additively-manufactured-high-entropy-alloys). (2022)
(<https://neutrons.ornl.gov/highlights/strong-additively-manufactured-high-entropy-alloys>)
4. [Founding Father' of lithium-ion batteries helps solve 40-year problem with his invention](https://neutrons.ornl.gov/content/%E2%80%98founding-father%E2%80%99-lithium-ion-batteries-helps-solve-40-year-problem-his-invention). (2021)
(<https://neutrons.ornl.gov/content/%E2%80%98founding-father%E2%80%99-lithium-ion-batteries-helps-solve-40-year-problem-his-invention>)
5. [A cousin of table salt could make energy storage faster and safer](https://neutrons.ornl.gov/content/a-cousin-table-salt-could-make-energy-storage-faster-and-safer). (2021)
(<https://neutrons.ornl.gov/content/a-cousin-table-salt-could-make-energy-storage-faster-and-safer>)
6. [Operando Material Lattice Strain Measurement in Firing Engine Accelerates Advanced Vehicle Research](https://live-neutrons.pantheon.site.io/highlights/operando-material-lattice-strain-measurement-firing-engine-accelerates-advanced-vehicle). (2021)
(<https://live-neutrons.pantheon.site.io/highlights/operando-material-lattice-strain-measurement-firing-engine-accelerates-advanced-vehicle>)
7. [West Virginia researchers use neutrons to study materials for power plant improvements](https://neutrons.ornl.gov/content/west-virginia-researchers-use-neutrons-study-materials-power-plant-improvements). (2020)
(<https://neutrons.ornl.gov/content/west-virginia-researchers-use-neutrons-study-materials-power-plant-improvements>)
8. [Honda Probes Residual Stress Distribution in Complex 3D-Printed Automobile Structures](https://neutrons.ornl.gov/highlights/honda-probes-residual-stress-distribution-complex-3d-printed-automobile-structures). (2020)
(<https://neutrons.ornl.gov/highlights/honda-probes-residual-stress-distribution-complex-3d-printed-automobile-structures>)
9. [Princeton uses neutrons to squeeze possibilities for piezoelectrochemical self-charging technologies](https://neutrons.ornl.gov/content/princeton-uses-neutrons-squeeze-possibilities-piezoelectrochemical-self-charging). (2020)
(<https://neutrons.ornl.gov/content/princeton-uses-neutrons-squeeze-possibilities-piezoelectrochemical-self-charging>)

10. [Beyond Theoretical Lithiation of the Anode Material \$\text{Li}_4\text{Ti}_5\text{O}_{12}\$](https://neutrons.ornl.gov/highlights/beyond-theoretical-lithiation-anode-material-li4ti5o12%E2%80%8B) . (2020)
(<https://neutrons.ornl.gov/highlights/beyond-theoretical-lithiation-anode-material-li4ti5o12%E2%80%8B>)
11. [From ancient pottery to fiber optics, ceramics keep evolving—now with lasers and neutrons](https://neutrons.ornl.gov/content/ancient-pottery-fiber-optics-ceramics-keep-evolving%E2%80%94now-lasers-and-neutrons). (2019)
(<https://neutrons.ornl.gov/content/ancient-pottery-fiber-optics-ceramics-keep-evolving%E2%80%94now-lasers-and-neutrons>)
12. [ORNL–Eck Industries partnership fast-tracks high-performance alloys to market](https://neutrons.ornl.gov/content/ornl%E2%80%93eck-industries-partnership-fast-tracks-high-performance-alloys-to-market). (2019)
(<https://neutrons.ornl.gov/content/ornl%E2%80%93eck-industries-partnership-fast-tracks-high-performance-alloys-to-market>)
13. [Neutrons analyze advanced high-strength steels to improve vehicle safety and efficiency](https://neutrons.ornl.gov/content/neutrons-analyze-advanced-high-strength-steels-improve-vehicle-safety-and-efficiency). (2018)
(<https://neutrons.ornl.gov/content/neutrons-analyze-advanced-high-strength-steels-improve-vehicle-safety-and-efficiency>)
14. [New family of aluminum-cerium alloys shows significantly improved high-temperature performance, economic benefits](https://www.greencarcongress.com/2017/12/20171205-alce.html). (2017)
(<https://www.greencarcongress.com/2017/12/20171205-alce.html>)
15. [Researchers Improve Performance of Cathode Material by Controlling Oxygen Activity](https://jacobsschool.ucsd.edu/news/release?id=1975). (2016)
(<https://jacobsschool.ucsd.edu/news/release?id=1975>)
16. [Neutrons offer guide to getting more out of solid-state lithium-ion batteries](https://www.ornl.gov/news/neutrons-offer-guide-getting-more-out-solid-state-lithium-ion-batteries). (2015)
(<https://www.ornl.gov/news/neutrons-offer-guide-getting-more-out-solid-state-lithium-ion-batteries>)

➤ Journal covers of publications



- Lattice-cell orientation disorder in complex spinel oxides
- **Advanced Energy Materials**, 7(4), 2017.
- High performance aluminum-cerium alloys for high-temperature applications
- **Materials Horizons**, 4, 2017.
- A high-conduction Ge substituted Li_3AsS_4 solid electrolyte with exceptional low activation energy
- **Journal of Materials Chemistry A**, 2(27), 2014.



- Effect of collimation on diffraction signal-to-background ratios at a neutron diffractometer
- *Quantum Beam Science*, 8(2), 2024.

➤ List of publications in journals

(2025)

1. Buioli C.P., Vicente Alvarez M.A., Vizcaino P., **Chen Y.**, ["Study of crystal deformation and inter-granular stress in cold rolled pressure tube material using neutron diffraction"](#), *Journal of Nuclear Materials*, 605, 155595 (2025).
2. Gao L., **Chen Y.**, Zhang X., Agnew S.R., Chuang A.C., Sun T., ["Evolution of dislocations during the rapid solidification in additive manufacturing"](#), *Nature Communications*, 16, 4696 (2025).
3. Halacoglu S., Guo X., **Chen Y.**, Yu D., Narayanan B., Jasinski J.B., Wang H., ["Synthesis and post-heating treatment of inorganic NaF·Na₃SbS₄ solid electrolytes"](#), *Nano Energy*, 137, 110770 (2025).
4. Lu H., Zhou C., Song Y., Zhang Y., Wu Y., Long F., Yao Y., Hao J., **Chen Y.**, Yu D., Schwiedrzik J., An K., He L., Lu Z.P., Chen J., ["A strategy to reduce thermal expansion and achieve higher mechanical properties in iron alloys"](#), *Nature Communications*, 16, 211 (2025).
5. Moustafa A.R., Cheng J., Allen J.P., Hu X., Shyam A., An K., Frost M., **Chen Y.**, Splitter D., ["Energy absorption of architected PrintCast interpenetrating composites in tension"](#), *Additive Manufacturing*, 103, 104769 (2025).
6. Zhu N., Hickok T., Fraser K.A., Yu D., **Chen Y.**, An K., Brewer L.N., Allison P.G., Jordon J.B., ["Neutron diffraction analysis of residual stress distribution in the lubricant-free TR-AFSD AA7075 repair coupled with SPH simulations"](#), *Journal of Advanced Joining Processes*, 11, 100283 (2025).

(2024)

7. Ai M., Song Y., Long F., Zhang Y., An K., Yu D., **Chen Y.**, Sakai Y., Ikeda M., Takahashi K., Azuma M., Shi N., Zhou C., Chen J., ["Significantly Promoting the Thermal Conductivity and Machinability of Negative Thermal Expansion Alloy via In Situ Precipitation of Copper Networks"](#), *Advanced Science*, 11, 2404838 (2024).
8. Amalia L., Li Y., Bei H., **Chen Y.**, Yu D., An K., Lyu Z., Liaw P.K., Zhang Y., Ding Q., Gao Y.F., ["Copper effects on the microstructures and deformation mechanisms of CoCrFeNi high entropy alloys"](#), *Applied Physics Letters*, 124, 14, 141901 (2024).
9. Buck Z.N., Martin M.L., Lauria D., Killgore J.P., Bradley P., **Chen Y.**, An K., Connolly M.J., ["Effects of hydrogen on the evolution of 4130 steel microstructure as a result of tensile loading"](#), *International Journal of Hydrogen Energy*, 136, 643-650 (2024).

10. Chen Y., Yu D., An K., "[A Portable Miniature Cryogenic Environment for In Situ Neutron Diffraction](#)", *Crystals*, 14, 640 (2024).
 11. Guo X., Halacoglu S., Chen Y., Wang H., "[Recent Progress on Dominant Sulfide-Type Solid-State Na Superionic Conductors for Solid-State Sodium Batteries](#)", *Small*, 20, 2311195 (2024).
 12. Hu X., Cheng J., Nawaz K., Kesler M.S., Chen Y., An K., "[Utilizing integrated neutron diffraction and elastoplastic self-consistent crystal plasticity model to quantitatively assess the strengthening mechanism in Al-12.5Ce and Al-12.5Ce-0.4Mg alloys](#)", *Modelling and Simulation in Materials Science and Engineering*, 32, 055019 (2024).
 13. Kim Y.S., Luo M.Y., Yu D., An K., Chen Y., Oh I.H., Shin E., Woo W.C., Chae H., Na Y.S., Liaw P.K., Jain J., Han J.H., Huang E., Lee S.Y., "[Enhancing the fatigue resistance of high and medium entropy alloys by manufacturing-driven microstructural developments](#)", *Additive Manufacturing*, 91, 104332 (2024).
 14. Lu J., Zhang Y., Wen Y., Yu D., Chen Y., An K., Huang K., "[Understanding Why SrCo_{0.9}Ta_{0.1}O_{3-δ} is a Better Perovskite Oxygen Electrocatalyst than BaCo_{0.9}Ta_{0.1}O_{3-δ}](#)", *Journal of Physical Chemistry C*, 128, 17252–17260 (2024).
 15. Lyu Z., Liu C., Xie D., Feng R., Yu D., Chen Y., An K., Gao Y.F., Wang H., Liaw P.K., "[Low cycle fatigue performances of Al_{0.3}CoCrFeNi high entropy alloys: In situ neutron diffraction studies on the precipitation effects](#)", *Intermetallics*, 168, 108241 (2024).
 16. Mooraj S., Kim G., Fan X., Samuha S., Xie Y., Li T., Tiley J., Chen Y., Yu D., An K., Hosemann P., Liaw P.K., Chen W., Chen W., "[Additive manufacturing of defect-free TiZrNbTa refractory high-entropy alloy with enhanced elastic isotropy via in-situ alloying of elemental powders](#)", *Communications Materials*, 5, 14, (2024).
 17. Preimesberger J.I., Chen Y., An K., Arnold C.B., "[Understanding the effect of cycling lithium-ion pouch cells under stress using neutron diffraction](#)", *Journal of Power Sources*, 598, 234114 (2024).
 18. Qu M., Yu D., Chen L., An K., Chen Y., "[Understanding the High-Temperature Deformation Behaviors in Additively Manufactured Al6061+TiC Composites via In Situ Neutron Diffraction](#)", *Metals*, 14, 1064 (2024).
 19. Qu M., Yu D., Yuan J., Chen L., An K., Chen Y., "[Multi-stage load partitioning in additively manufactured Al6061+TiC nanocomposite characterized by in-situ neutron diffraction](#)", *Additive Manufacturing*, 96, 104584 (2024).
 20. Rodriguez-Gomez M., Campo J., Orera A., Fuente F.D., Valenciano J., Fricke H., Hussey D.S., Chen Y., Yu D., An K., Larrea A., "[Operando analysis of the positive active mass of lead batteries by neutron diffraction](#)", *Journal of Power Sources*, 591, 233822 (2024).
 21. Yu C., Lin K., Zhang Q., Zhu H., An K., Chen Y., Yu D., Li T., Fu X., Yu Q., You L., Kuang X., Cao Y., Li Q., Deng J., Xing X., "[An isotropic zero thermal expansion alloy with super-high toughness](#)", *Nature Communications*, 15, 2252 (2024).
 22. Yu D., Chen Y., Conner D., Berry K.D., Skorpenske H.D., An K., "[Effect of Collimation on Diffraction Signal-to-Background Ratios at a Neutron Diffractometer](#)", *Quantum Beam Science*, 8, 14 (2024).
 23. Yu D., Guo C., Fu S., Chen Y., An K., Yu W., Chen X., "[Probing the fatigue enhancement in a thermally aged cast duplex stainless steel by in situ neutron diffraction](#)", *Scripta Materialia*, 252, 116252 (2024).
- (2023)
24. Buck Z.N., Connolly M.J., Martin M.L., Lauria D., Killgore J.P., Bradley P., Chen Y., An K., Slifka A., "[Effects of mechanical deformation on dislocation density and phase partitioning in 4130 steel](#)", *Materials Science and Engineering A*, 885, 145592 (2023).
 25. Chen Y., Cernatescu I., Venkatesh V., Stoica A.D., An K., "[On the residual stress relaxation in Inconel 718 superalloys at high temperature by real-time neutron diffraction](#)", *Materials & Design*, 232, 112135 (2023). (**Industry**)
 26. Chen Y., Lee K., An K., Yu D., Zhou H., Whittingham M.S., "[Neutron Diffraction Probing Hydrogen in Monoclinic H₂VOPO₄](#)", *Materials Letters*, 348, 134661 (2023).
 27. Hu L., Duan C., Zhu J., Zhu J., Wang J., Wang K., Gu Z., Xi Z., Hao J., Chen Y., Ma J., Liu J.X., Ma C., "[Revealing the Pnma crystal structure and ion-transport mechanism of the Li₃YCl₆ solid electrolyte](#)", *Cell Reports Physical Science*, 4, 101428 (2023).
 28. Lin K., Zhang W., Yu C., Sun Q., Cao Y., Li W., Jiang S.H., Li Q., Zhang Q., An K., Chen Y., Yu D., Liu J., Kato K., Gu L., Zhang Q., Kuang X., Tang Y., Miao J., Xing X., "[Chemical heterogeneity modulated zero thermal expansion alloy over super-wide temperature range](#)", *Cell Reports Physical Science*, 4, 101254 (2023).

29. Liu Y., Ren J., Guan S., Li C., Zhang Y., Muskeri S., Liu Z., Yu D., **Chen Y.**, An K., Cao Y., Liu W., Zhu Y., Chen W., Mukherjee S., Zhu T., "[Microstructure and mechanical behavior of additively manufactured CoCrFeMnNi high-entropy alloys: Laser directed energy deposition versus powder bed fusion](#)", *Acta Materialia*, 250, 118884 (2023).
 30. Lyu Z., Li Z., Sasaki T., Gao Y.F., An K., **Chen Y.**, Yu D., Hono K., Liaw P.K., "[Micromechanical origin for the wide range of strength-ductility trade-off in metastable high entropy alloys](#)", *Scripta Materialia*, 231, 115439 (2023).
 31. Parascos K., Watts J.L., Alarco J.A., **Chen Y.**, Talbot P.C., "[Optimizing Li⁺ transport in Li₇La₃Zr₂O₁₂ solid electrolytes](#)", *Ceramics International*, 49(14A), 23082-23090 (2023).
 32. Ren J., Wu M., Li C., Guan S., Dong J., Forien J.B., Li T., Shanks K.S., Yu D., **Chen Y.**, An K., Xie K.Y., Voisin T., Chen W., Chen W., "[Deformation mechanisms in an additively manufactured dual-phase eutectic high-entropy alloy](#)", *Acta Materialia*, 257, 119179, (2023).
 33. Wissink M., Wray C.L., Lee P.M., Hoffmeyer M.M., Frost M., An K., **Chen Y.**, "[The Neutronic Engine: A Platform for Operando Neutron Diffraction in Internal Combustion Engines](#)", *SAE International Journal of Engines*, 17, 2, 269-305 (2023).
 34. Xie D., Li Z., Sasaki T., Gao Y.F., Lyu Z., Feng R., **Chen Y.**, An K., Chew H.B., Nakata T., Kamado S., Hono K., Liaw P.K., "[Identifying the effect of coherent precipitates on the deformation mechanisms by in situ neutron diffraction in an extruded magnesium alloy under low-cycle fatigue conditions](#)", *Acta Materialia*, 251, 118903 (2023).
 35. Yu C., Lin K., Chen X., Jiang S.H., Cao Y., Li W., Chen L., An K., **Chen Y.**, Yu D., Kato K., Zhang Q., Gu L., You L., Kuang X., Wu H., Li Q., Deng J., Xing X., "[Superior zero thermal expansion dual-phase alloy via boron-migration mediated solid-state reaction](#)", *Nature Communications*, 14, 3135 (2023).
 36. Zhang D., **Chen Y.**, Vega H., Feng T., Yu D., Everet M., Neuefeind J., An K., Chen R., Luo J., "[Long- and short-range orders in 10-component compositionally complex ceramics](#)", *Advanced Powder Materials*, 2, 100098 (2023).
 37. Zhu N., Avery D.Z., **Chen Y.**, An K., Jordon J.B., Allison P.G., Brewer L.N., "[Residual Stress Distributions in AA6061 Material Produced by Additive Friction Stir Deposition](#)", *Journal of Materials Engineering and Performance*, 32, 5535–5544 (2023).
- (2022)
38. **Chen Y.**, An K., "[Unraveling transition-metal-mediated stability of spinel oxide via in situ neutron scattering](#)", *Journal of Energy Chemistry*, 68, 60-70 (2022).
 39. Feng R., Kim G., Yu D., **Chen Y.**, Chen W., Liaw P.K., An K., "[Elastic behavior of binary and ternary refractory multi-principal-element alloys](#)", *Materials & Design*, 219, 110820 (2022).
 40. He X., Wu J., Zhu Z., Liu H., Li N., Zhou D., Hou X., Wang J., Zhang H., Bresser D., Fu Y., Crafton M.J., McCloskey B., **Chen Y.**, An K., Liu P., Jain A., Li J., Yang W., Yang Y., Winter M., Kostecki R., "[Chemical and structural evolution of Li-Mn-rich layered electrodes under different current densities](#)", *Energy & Environmental Science*, 15, 10, 4137-4147 (2022).
 41. Li F., Gao P., **Chen Y.**, Li C., Shang X., Wan P., Chen W., Kang T., Zhao Z., An K., "[In-situ neutron diffraction investigation of two-stage martensitic transformation in a 13%Mn steel with serrated deformation](#)", *Materials Science and Engineering A*, 840, 142955 (2022).
 42. Li W., Lin K., Yan Y., Yu C., Cao Y., Chen X., Wang C., Kato K., **Chen Y.**, An K., Zhang Q., Gu L., Li Q., Deng J., Xing X., "[Seawater Corrosion Resistant and Isotropic Zero Thermal Expansion \(Zr, Ta\)\(Fe, Co\)₂ Alloy](#)", *Advanced Materials*, 34, 2109592 (2022).
 43. Li Z., Guan B., Xia F., Nie J., Ma L., Li W., Li W., Zhou L., Wang Y., Tian H., Luo J., **Chen Y.**, Frost M., An K., Liu X., "[High-Entropy Perovskite as a High-Performing Chromium-Tolerant Cathode for Solid Oxide Fuel Cells](#)", *ACS Applied Materials & Interfaces*, 14, 21, 24363–24373 (2022).
 44. Parascos K., Watts J.L., Alarco J.A., **Chen Y.**, Talbot P.C., "[Compositional and structural control in LLZO solid electrolytes](#)", *RSC Advances*, 12, 23466-23480 (2022).
 45. Ren J., Zhang Y., Zhao D., **Chen Y.**, Guan S., Liu Y., Liu L., Peng S., Kong F., Poplawsky J., Gao G., Voisin T., An K., Wang Y.M., Xie K.G., Zhu T., Chen W., "[Strong yet ductile nanolamellar high-entropy alloys by additive manufacturing](#)", *Nature*, 608, 62-68 (2022).

46. Srinivasan R., Chandran K.S., **Chen Y.**, An K., "[In-Operando Neutron Diffraction Investigation of Structural Transitions during Lithiation of Si Electrode in Li-Ion Battery](#)", *Journal of the Electrochemical Society*, 169, 100545 (2022).
47. Yu C., Lin K., Cao Y., Li W., **Chen Y.**, An K., Wang C., Kato K., Li Q., Deng J., Xing X., "[Two-dimensional zero thermal expansion in low-cost \$Mn_xFe_{5-x}Si_3\$ alloys via integrating crystallographic texture and magneto-volume effect](#)", *Science China Materials*, 65, 1912–1919 (2022).
48. Zhang D., **Chen Y.**, Feng T., Yu D., An K., Chen R., Luo J., "[Discovery of a reversible redox-induced order-disorder transition in a 10-component compositionally complex ceramic](#)", *Scripta Materialia*, 215, 114699 (2022).
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➤ **Selected presentations in international conference**

1. **Chen Y.**, An K, "In situ Studies of Temperature- and Stress-induced Structure Evolution in Functional Oxides by Time-of-flight Neutron Diffraction", 48th International Conference and Exposition on Advanced Ceramics and Composites conference (ICACC 2024), Daytona Beach, FL, January 28 - February 2, 2024. **(Invited)**
2. **Chen Y.**, Wang H, "Entropy Boosting Ionic Conductivity in Crystalline Solids", MS&T 2023, Columbus, OH, October 1-4, 2023.
3. **Chen Y.**, An K, "Neutron Scattering Aiding to Understand Material Processing for Energy Storage Applications", 2023 MRS Fall Meeting & Exhibit, San Francisco, CA, April 10-14, 2023.
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5. **Chen Y.**, An K, "Neutron Scattering Visualizing Defects Generation and Structure Recovery in Ball-milled Spinel Oxide", MS&T 2022, Pittsburgh, PA, October 9-12, 2022. **(Invited)**
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7. **Chen Y.**, An K, "Transition-metal-mediated Thermal Stability of Spinel Cathode in Li-ion Battery by In Situ Neutron Scattering", MS&T 2021, Virtual, October 17-20, 2021.
8. **Chen Y.**, An K, "Neutrons Guide Materials Design and Synthesis of Functional Oxides", MS&T 2020, Virtual, November 2-6, 2020. **(Invited)**
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