

Jun DING (丁俊)

Xi'an Jiaotong University
School of Materials Science and Engineering
28 West Xianning Road, Xi'an, Shaanxi, China
Email: dingsn@xjtu.edu.cn
Homepage: <http://gr.xjtu.edu.cn/en/web/dingsn/home>

Education

Johns Hopkins University (Ph.D advisor: Prof. Evan Ma)	Ph.D. in Materials Sci. & Eng.	9/2014
Shanghai Jiao Tong University, China	B.S. in Materials Sci. & Eng.	6/2010

Professional experience

Xi'an Jiaotong University, School of Materials Sci. & Eng. <i>Professor</i>		11/2019-present
Lawrence Berkeley National Laboratory, Materials Science Division <i>Postdoctoral Fellow</i> (Supervisor: Prof. Robert Ritchie & Mark Asta)		2/2015-10/2019
Johns Hopkins University, Department of Materials Sci. & Eng. <i>Postdoctoral Associate</i> (Supervisor: Prof. Michael Falk)		10/2014-1/2015

Research Interests

Disordered structural alloys: High-entropy alloys and Metallic glasses;
Accelerated computational materials discovery and design;
Additive Manufacturing of structural alloys;
Multiscale modelling of deformation of advanced structural alloys
Supercooled liquids and crystal-liquid interfaces

Awards and Honors

Young Scientist Award, 27 th International Symposium on Metastable, Amorphous and Nanostructured Materials (ISMANAM)	2023
Outstanding Young Scientist, C-MRS	2023
National Young Talents Program in China	2019
Acta Student Award (News at Acta Materialia , and JHU Engineering School)	2015

JSPS Postdoctoral Fellowship for Oversea Researchers	2015
Fellowship, Whiting School of Engineering at Johns Hopkins University	2010
Tsang hin chi Scholarship	2007~2010

Journal Publications (*Corresponding author)

Google Scholar: <https://scholar.google.com/citations?user=WYSM210AAAAJ&hl=en>

(Total citations ~ 3600; H-index = 26)

ResearchID: <https://publons.com/researcher/2688738/jun-ding/>

1. Wang L⁺, **Ding J⁺**, Chen S, Jin K, ... Xue YF*, Ma E*. Tailoring planar slip to achieve pure metal-like ductility in body-centred cubic multi-principal element alloys. *Nature Materials* 22, 950-957 (2023)
2. Zhang Z⁺, Su ZX⁺, Zhang BZ⁺, Yu Q, **Ding J***, Shi T, Lu CY*, Ritchie RO, Ma E*. Effect of local chemical order on the irradiation-induced defect evolution in CrCoNi medium-entropy alloy. *Proceedings of the National Academy of Sciences (PNAS)* 120, 15 (2023)
3. Zhang YX, Xie, SJ, **Ding J**, Poh LH, Sha ZD*. Multi-Objective optimization of high-performance Fe-based metallic glasses via machine learning approach. *Journal of Alloys and Compounds* 170793 (2023)
4. Su ZX⁺, **Ding J⁺**, Song M, Jiang L, Shi T, Li ZM, Wang S, Gao F, Yun D, Ma E*, CY Lu*. Enhancing the radiation tolerance of high-entropy alloys via solute-promoted chemical heterogeneities. *Acta Materialia* 245, 118662 (2023)
5. Liu C, Cui JZ, Cheng ZY, Zhang BZ, Zhang SY, **Ding J**, Yu R*, Ma E*. Direct observation of oxygen atom taking tetrahedral interstitial sites in medium-entropy body-centered-cubic solutions. *Advanced Materials* 2209941 (2023)
6. Liu C, Zhang Z*, **Ding, J***, Ma E. On the reliability of using reverse Monte Carlo simulations to construct the atomic structure model of metallic glasses. *Scripta Materiala* 225, 115159 (2023)
7. Chen B, Li SZ*, **Ding J***, Ding XD, Sun J, Ma E*. Correlating dislocation mobility with local lattice distortion in refractory multi-principal element alloys. *Scripta Materiala* 222, 115048 (2023)
8. Xun KH, Zhang BZ, Wang Q, Zhang Z, **Ding J***, Ma E*. Local chemical inhomogeneities in TiZrNb-based refractory high-entropy alloy. *Journal of Materials Science & Technology*, 135, 221-230 (2023)
9. Zhang Z, **Ding J***, Ma E*. Shear transformation in metallic glasses without excessive and predefinable defects. *Proceedings of the National Academy of Sciences (PNAS)* 119, 48 (2022)

10. Yan JY, Yin S, Asta M, Ritchie RO, **Ding J***, Yu Q*. Anomalous size effect on yield strength enabled by compositional heterogeneity in high-entropy alloy nanoparticles. [Nature Communications](#), 13:2789 (2022)
11. Chen Y, **Ding J***, Sha ZD* Grain size and heterophase effects on mechanical properties of Mg-Cu nanoglasses. [Frontier in Materials](#), 9, 908952 (2022)
12. Wang YC+, **Ding J***, Fan Z+, Tian L+, Li M, Lu HH, Zhang YQ, Ma E*, Li J*, Shan ZW* Tension-compression asymmetry in amorphous silicon. [Nature Materials](#), 20, 1371-1377 (2021)
13. Gao J, **Ding J***, Zhang Y, Zhu T, Yu Qian*. Tuning the near room temperature oxidation behavior of high entropy alloy nanoparticles. [Nano Research](#) (2021)
14. Zhang BZ, **Ding J***, Ma E*. Chemical short-range order in bodycentered-cubic TiZrHfNb high-entropy alloys. [Applied Physics Letters](#) 119, 201908 (2021)
15. Yin Sheng, Zuo YX, Abu-Odeh A, Zhang H, Li XG, **Ding J**, Ong SP, Asta M, Ritchie R. Atomistic simulations of dislocation mobility in refractory high-entropy alloys and the effect of chemical short-range order. [Nature Communications](#) 12, 4873 (2021)
16. Bu YQ+, Wu Y+, Lei ZF, Yuan XY, Wu HH, Feng XB, Liu J*, **Ding J**, Lu Y*, Wang HT*, Lu ZP*, Yang W. Local chemical fluctuation mediated ductility in body-centered-cubic high-entropy alloys. [Materials Today](#) 46, 28-34 (2021)
17. **Ding J***, Wang ZJ*. Local chemical order in high-entropy alloys. [Acta Metallurgica Sinica](#) 57, 413-424 (2021) [Invited review]
18. Ding J*, Li L*, Wang N, Tian L, Asta M, Ritchie RO & Egami T*. Universal nature of the saddle states of structural excitations in metallic glasses. [Materials Today Physics](#), 17, 100359 (2021)
19. Wang Q, **Ding J***, Zhang LF, Podryabinkin E, Shapeev A, Ma E. Predicting the propensity for thermally activated β events in metallic glasses via interpretable machine learning. [npj Computational Materials](#) 6, 194 (2020)
20. Fan Z*, **Ding J**, Ma E*. Machine learning bridges local static structure with multiple properties in metallic glasses. [Materials Today](#) 49, 48-62 (2020)
21. Zhang RP, Zhao, S, **Ding J**, Chong, Y, Jia Tao, Ophus C, Asta M, Ritchie RO & Minor A*. Short-range order and its impact on the CrCoNi medium-entropy alloy, [Nature](#) 581, 283-287 (2020)
22. Yin S, **Ding J**, Asta M* & Ritchie RO*. Ab initio modeling of the role of short-range order in the Peierls potential of screw dislocations in body-centered cubic high-entropy alloys. [npj Computational Materials](#). 6, 110 (2020)

23. Pekin T, **Ding J**, Gammer C, Ozdol VB, Opus C, Asta M, Ritchie, RO & Minor A*. Direct measurement of nanostructural change during *in situ* deformation of a bulk metallic glass. [Nature Communications](#). 10, 2445 (2019)
24. Tian L, Li L, **Ding J** & Mousseau N. ART_data_analyzer: Automating parallelized computations to study the evolution of materials. [SoftwareX](#). 9, 238-243 (2019)
25. **Ding J**, Yu Q, Asta M* & Ritchie, RO*. Tunable stacking fault energies by tailoring local chemical order in CrCoNi medium-entropy alloys. [Proceedings of the National Academy of Sciences \(PNAS\)](#), 115, 8919-8924 (2018)

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26. **Ding J**, Asta M* & Ritchie RO*. Melts of CrCoNi-based high-entropy alloys: Atomic diffusion and electronic/atomic structure from *ab initio* simulation. [Applied Physics Letters](#), 113, 111902 (2018)
27. Wang N+, **Ding J**+, Luo P, Liu YH, Li L* & Yan F. Chemical variation induced nanoscale spatial heterogeneity in metallic glasses. [Materials Research Letters](#), 6, 655-661 (2018)
28. Fan Z, **Ding J**, Ma E. Making glassy solids ductile at room temperature by imparting flexibility into their amorphous structure. [Materials Research Letters](#), 6, 570-583 (2018)
29. Wang N, **Ding J***, Yan F, Asta M, Rithie RO & Li L*. Spatial correlation of elastic heterogeneity tunes the deformation behavior of metallic glasses. [npj Computational Materials](#), 4, 19 (2018)
30. **Ding J**, Asta M* & Ritchie RO*. On the question of fractal packing structure in metallic glasses. [Proceedings of the National Academy of Sciences \(PNAS\)](#), 114, 8458-8463 (2017)

-- [DOE Highlight](#); [Phys.org](#)
31. Fan Z, **Ding J***, Li Q.J & Ma. E*. Correlating the properties of amorphous silicon with its flexibility volume. [Physical Review B](#), 95, 144211 (2017)
32. **Ding J*** & Ma E*. Computational Modelling sheds light on structural evolution in metallic glasses and supercooled liquids. [npj Computational Materials](#), 3, 9 (2017)
33. **Ding J**, Cheng Y.Q, Sheng H.W, Asta M, Ritchie RO. & Ma E*. Universal Structural Parameter to Quantitatively Predict Metallic Glass Properties. [Nature Communications](#), 7, 13733 (2016)

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34. Ma E*, & **Ding J**. Tailoring structural inhomogeneities in metallic glasses to enable tensile ductility at room temperature. [Materials Today](#), 19, 568-579 (2016)
35. **Ding J**, Asta M* & Ritchie RO*. Anomalous structure-property relationships in metallic glasses through pressure-mediated glass formation. [Physical Review B: Rapid Communications](#). 93, 140204 (R) (2016)

36. **Ding J**, Ma E, Asta M* & Ritchie RO*. Second-nearest-neighbor correlations from connection of atomic packing motifs in metallic glasses and liquids. [Scientific Reports](#), 5: 17429 (2015)
37. **Ding J**, Patinet S, Falk ML, Cheng YQ, & Ma E*. Soft spots and their structural signature in a metallic glass. [Proceedings of the National Academy of Sciences \(PNAS\)](#) 111 (39): 14052-14056 (2014)
38. **Ding J**, Cheng YQ, & Ma E*. Full icosahedra dominate local order in Cu₆₄Zr₃₆ metallic glass and supercooled liquid. [Acta Materialia](#) 69:343-354. (2014)
39. **Ding J** *, Cheng YQ, & Ma E*. On the origin of elastic strain limit of bulk metallic glasses. [Applied Physics Letters](#) 104(1):011912. (2014)
40. **Ding J** * & Cheng YQ. Charge transfer and atomic-level pressure in metallic glasses. [Applied Physics Letters](#) 104(5):051903. (2014)
41. **Ding J** *, Xu M, Guan PF, Deng SW, Cheng YQ & Ma E. Temperature effects on atomic pair distribution functions of melts. [The Journal of Chemical Physics](#) 140(6):064501. (2014)
42. **Ding J** *, Cheng YQ, & Ma E. Charge-transfer-enhanced prism-type local order in amorphous Mg₆₅Cu₂₅Y₁₀: Short-to-medium-range structural evolution underlying liquid fragility and heat capacity. [Acta Materialia](#) 61(8):3130-3140. (2013)
43. **Ding J** *, Cheng YQ, & Ma E. Quantitative measure of local solidity/liquidity in metallic glasses. [Acta Materialia](#) 61(12):4474-4480. (2013)
44. Cheng YQ, **Ding J**, & Ma E*. Local topology vs. atomic-level stresses as a measure of disorder: Correlating structural indicators for metallic glasses. [Materials Research Letters](#) 1(1):3-12. (2013)
45. **Ding J**, Cheng YQ, Sheng H, & Ma E*. Short-range structural signature of excess specific heat and fragility of metallic-glass-forming supercooled liquids. [Physical Review B: Rapid Communications](#). 85(6). (2012)
46. **Ding J**, Cheng YQ, & Ma E*. Correlating local structure with inhomogeneous elastic deformation in a metallic glass. [Applied Physics Letters](#) 101(12). (2012)
47. Xu M, **Ding J**, & Ma E*. One-dimensional stringlike cooperative migration of lithium ions in an ultrafast ionic conductor. [Applied Physics Letters](#) 101(3):031901. (2012)
48. Wang C-C, **Ding J**, Cheng YQ, Wan JC, Tian L, Sun J, Shan ZW*, Li J* & Ma E*. Sample size matters for Al₈₈Fe₇Gd₅ metallic glass: Smaller is stronger. [Acta Materialia](#) 60(13-14):5370-5379. (2012)

Invited Talk and Seminar

1. **Ding J**. Tunable stacking fault energies by tailoring local chemical order in NiCoCr medium-entropy alloys. TMS Annual Meeting. San Antonio, USA. 3/2019
2. **Ding J**. Tunable stacking fault energies by tailoring local chemical order in NiCoCr

- medium-entropy alloys. The 2nd International Conference on High-entropy Materials. Jeju, Korea. 12/2018
3. **Ding J.** Computation-guided understanding and design of disordered structural alloys. Department of Mechanical and aerospace Engineering, UC Irvine. 4/2018
 4. **Ding J,** Asta M & Ritchie R. Melts of high-entropy alloys: Atomic diffusion and electronic/atomic structure from ab initio simulation. TMS Meeting, Phoenix, USA. 3/2018
 5. **Ding J,** Asta M & Ritchie R. Effect of pressure on the structure and properties of metallic glasses examined by computer simulation. TMS Meeting, Phoenix, USA. 3/2018
 6. **Ding J.** Tuning order in disordered materials. Oak Ridge National Laboratory. 3/2017
 7. **Ding J,** Asta M & Ritchie R. Accurate Peak Prediction of Pair Correlation Functions in Metallic Glasses. TMS Meeting, San Diego, USA. 3/2017
 8. **Ding J.** Tuning Order in Disordered Materials. Dartmouth College, Hanover NH. 3/2016
 9. **Ding J.** Atomic-Level Structure and Structure-Property Relationship in Metallic Glasses, Lawrence Berkeley National Laboratory, Berkeley, USA 11/2014
 10. **Ding J & Ma E.** Structural and Elastic Heterogeneity in Metallic Glasses by Molecular Dynamics Simulation, Yale University, New Haven, USA 2/2014
 11. **Ding J & Ma E.** Modeling of Size Effect in Yielding Strength in Metallic Glasses. Xi'an Jiaotong University, Xi'an, China. 12/2011.

Conference Oral Presentation

1. **Ding J.** Tunable stacking fault energies by tailoring local chemical order in NiCoCr medium-entropy alloys. MRS Fall Meeting, Boston, USA. 11/2018
2. **Ding J,** Asta M, Ritchie RO, Li L. Spatial correlation of elastic heterogeneity tunes the deformation behavior of metallic glasses. MRS Fall Meeting, Boston, USA 11/2017
3. **Ding J,** Asta M and Ritchie RO. Structural Signature of Thermally Activated Events in Amorphous Solids. TMS meeting, Nashville, USA 2/2016
4. **Ding J,** Cheng YQ and Ma E. Structural Relaxation and Dependence of Shear Modulus in Metallic-glass-forming Supercooled Liquids, TMS meeting, San Diego, USA. 2/2014.
5. **Ding J,** Cheng YQ and Ma E. On the Origin of Elastic Limit in Bulk Metallic Glasses, MRS Fall meeting, Boston USA 12/2013
6. **Ding J,** Cheng YQ and Ma E. Atomic and Electronic Structures Underlying the Extraordinary Properties of Mg-based Bulk Metallic Glasses, The 9th International Conference on Bulk Metallic Glasses, Xiamen, China, 12/2012
7. **Ding J,** Cheng YQ and Ma E. Correlating Local Structure with Heterogeneous Elastic Deformation in a Metallic Glass. MRS Fall Meeting, Boston, USA. 11/2012

Synergistic Activities

Journal Reviewer: Nature; Science, Nature Materials; Nature Communications; Physical Review Letters; Nano Letters; Science Advance; Acta Materialia; Journal of Physical Chemistry Letters; Physical Review B; npj Computational Materials; Applied Physics Letters; Journal of Applied Physics; Journal of Magnetism and Magnetic Materials; Computational Materials Science

<https://publons.com/researcher/2688738/jun-ding/peer-review/>

Memberships: Materials Research Society (MRS); American Physical Society (APS); The Minerals, Metals and Materials Society (TMS)

Session Chair: 2017 MRS Fall Meeting Symposium TC06; 2018 MRS Fall Meeting Symposium PM 04; 2018 The 2nd International Conference on High-entropy Materials