

Zhen Zhang

Curriculum Vitae

Born: April 21, 1991

Nationality: Chinese

College of Mathematics and Physics
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Employment

- 07/2023- **Research scientist**, Department of Physics, Chengdu University of Technology, China.
- 11/2020- **Postdoctoral researcher**, State Key Laboratory for Mechanical Behavior of Materials,
06/2023 Xi'an Jiaotong University, China.
 - In collaboration with Prof. Evan Ma and Prof. Jun Ding.
- 08/2020- **Visiting scientist**, Department of Physics, Shanghai Jiao Tong University, China.
10/2020 ◦ In collaboration with Prof. Yujie Wang.

Education

- May 2020 **Doctor of Philosophy (Ph.D.)**, University of Montpellier, France.
 - Department of Physics and Laboratoire Charles Coulomb
 - Supervisors: Prof. Walter Kob and Prof. Simona Ispas
 - Thesis: "[Fracture, surface, and structure of silicate glasses](#)" (in English)
- June 2016 **Master of Engineering (M.E.)**, Chongqing University, China.
 - College of Materials Science and Engineering
 - Supervisor: Prof. Bing Xie
 - Thesis: "Molten structure and viscous flow properties of vanadium slag" (in Chinese)
- June 2013 **Bachelor of Engineering (B.E.)**, Chongqing University, China.
 - College of Materials Science and Engineering
 - Thesis: "Modeling of steelmaking process based on artificial neural network" (in Chinese)

Research interest

- 1 Develop and apply state-of-the-art computational methods to probe the structure and properties of disordered materials, such as liquids, glasses, complex concentrated alloys, and granular matter;
- 2 Topological & chemical order, elasticity & plasticity, fracture, irradiation damage, and surface properties.

Selected publications

[17 peer-reviewed articles, including 4 PNAS and 2 PRL; full list at Google scholar;
*corresponding author; +equal contribution]

- [10] **Zhen Zhang**⁺, Zhengxiong Su⁺, Bozhao Zhang⁺, Qin Yu, Jun Ding^{*}, Tan Shi, Chenyang Lu^{*}, Robert O. Ritchie, Evan Ma. Effect of local chemical order on the irradiation-induced defect evolution in CrCoNi medium-entropy alloy.
[Proc. Natl. Acad. Sci. U.S.A.](#), **120**, e2218673120 (2023).
- [9] **Zhen Zhang**, Jun Ding^{*}, and Evan Ma^{*}. Shear transformations in metallic glasses without excessive and pre-definable defects.
[Proc. Natl. Acad. Sci. U.S.A.](#), **119**, e2213941119 (2022).

- [8] **Zhen Zhang**, Simona Ispas, and Walter Kob*. Fracture of silicate glasses: Microcavities and correlations between atomic-level properties.
[Physical Review Materials](#), **6**, 085601 (2022).
- [7] **Zhen Zhang**, Simona Ispas, and Walter Kob*. Origin of the non-linear elastic behavior of silicate glasses.
[Acta Materialia](#), **231**, 117855 (2022).
- [6] Houfei Yuan⁺, **Zhen Zhang**⁺, Walter Kob*, and Yujie Wang*. Connecting packing efficiency of binary hard sphere systems to their intermediate range structure.
[Physical Review Letters](#), **126**, 066101 (2021).
- [5] **Zhen Zhang**, Walter Kob, and Simona Ispas*. First-principles study of the surface of silica and sodium silicate glasses.
[Physical Review B](#), **103**, 184201 (2021).
- [4] **Zhen Zhang**, Simona Ispas, and Walter Kob*. Roughness and scaling properties of oxide glass surfaces at the nanoscale.
[Physical Review Letters](#), **126**, 066101 (2021).
- [3] **Zhen Zhang** and Walter Kob*. Revealing the three-dimensional structure of liquids using four-point correlation functions.
[Proc. Natl. Acad. Sci. U.S.A.](#), **117**, 14032 (2020).
- [2] **Zhen Zhang**, Simona Ispas, and Walter Kob*. Structure and vibrational properties of sodium silicate glass surfaces.
[The Journal of Chemical Physics](#), **153**, 124503 (2020).
- [1] **Zhen Zhang**, Simona Ispas*, and Walter Kob*. The critical role of the interaction potential and simulation protocol for the structural and mechanical properties of sodosilicate glasses.
[Journal of Non-Crystalline Solids](#), **532**, 119895 (2020).

Selected talks & presentations

- 2023 ACerS Glass & Optical Materials Division Annual Meeting, New Orleans, USA, [invited talk](#).
- 2022 The Tenth International Symposium on Advanced Glass, Shanghai, China, **invited talk**.
Mechanical Performances Frontiers Forum on Glasses, Wuhan, China, **invited talk**.
- 2021 International Workshop on Materials Behavior at Micro- and Nano-Scale, Xi'an, China, [Contributed talk](#).
- 2019 4th International Workshop on Glass & Entropy and 9th International Otto Schott Colloquium, Jena, Germany, [Poster](#).
25th International Congress on Glass, Boston, USA, ([Contributed talk](#), [Poster](#)).
- 2018 15th International Conference on the Physics of Non-Crystalline Solids & 14th European Society of Glass Conference, Saint-Malo, France, Contributed talk.
- 2017 Hands-on Workshop Density-Functional Theory and Beyond, Berlin, Germany, [Poster](#).
- 2015 TMS Annual Meeting & Exhibition, Computational Thermodynamics and Kinetics, Orlando, USA, [Poster](#), [Conference paper](#).

Academic service

Reviewer Physical Review Letters, Journal of Non-Crystalline Solids, Frontier in Materials (as Review editor)