

Junfeng Xiao

Materials Science and Engineering
Ecole Polytechnique Federale de Lausanne (EPFL)
Neuchatel, 2000, Switzerland

junfeng.xiao@epfl.ch
+41 764545523
[Link: My Google Scholar](#)

EDUCATION

- Ph.D. Materials Science and Engineering, EPFL, Switzerland, 10/2021-Expected 08/2025
Project: EBSD and TKD for multiscale crystallography of shape memory alloys
- MSc Materials Science and Engineering, Beijing Institute of Technology, China, 09/2017-07/2020
Project: Microstructure and mechanical performance of Ti alloys under high strain-rate loading
- BSc Materials Science and Engineering, Beijing Institute of Technology, China, 09/2013-07/2017

PHD PROGRAM SUPERVISOR

Supervisor: [Prof. Roland Loge](#)

Head of Laboratory of Thermomechanical Metallurgy (LMTM), École Polytechnique Fédérale de Lausanne (EPFL), Neuchatel, 2002, Switzerland

Co-supervisor: [Dr. Cyril Cayron](#)

Senior Scientist in Laboratory of Thermomechanical Metallurgy (LMTM), École Polytechnique Fédérale de Lausanne (EPFL), Neuchatel, 2002, Switzerland

RESEARCH AREAS

Materials science, Mechanical behaviors, Ti alloys, Shape memory alloys, Twinning, Martensite transformation, Microstructures

PUBLICATIONS

Journal Articles

- 2024 J.F. Xiao, C. Cayron, and R.E. Logé. "The role of interaction work in martensite deformation." In: *Scripta Materialia* 256 (2025), p. 116433. ISSN: 1359-6462. DOI: <https://doi.org/10.1016/j.scriptamat.2024.116433>
- 2024 **J.F. Xiao**, C Cayron, and RE Logé. "EBSD study of variant reorientation, texture, and twin formation in a martensitic NiTi alloy deformed in compression." In: *Acta Materialia* 264 (2024), p. 119553
- 2023 **J.F. Xiao**, C. Cayron, and R.E. Logé. "Revealing the microstructure evolution of the deformed superelastic NiTi wire by EBSD." in: *Acta Materialia* 255 (2023), p. 119069. ISSN: 1359-6454. DOI: [10.1016/j.actamat.2023.119069](https://doi.org/10.1016/j.actamat.2023.119069)

- 2023 **J.F. Xiao**, X.K. Shang, J.Q. Zhang, et al. “Revealing the martensitic variant selection in metastable beta titanium alloy Ti–10V–2Fe–3Al under heterogeneous deformation.” In: *Materials Science and Engineering: A* 876 (2023), p. 145181. ISSN: 0921-5093. DOI: 10.1016/j.msea.2023.145181
- 2023 **J.F. Xiao**, Z.H. Nie, B.B. He, and C.W. Tan. “Interplay between dislocation glide and ω precipitation in a Ti–15Mo alloy investigated by TEM.” in: *Materials Science and Engineering: A* 870 (2023), p. 144855. ISSN: 0921-5093. DOI: <https://doi.org/10.1016/j.msea.2023.144855>
- 2022 **J.F. Xiao**, C. Cayron, and R.E. Logé. “An investigation on reorientation and textural evolution in a martensitic NiTi rolled sheet using EBSD.” in: *International Journal of Plasticity* 159 (2022), p. 103468. ISSN: 0749-6419. DOI: <https://doi.org/10.1016/j.ijplas.2022.103468>
- 2022 **J.F. Xiao**, B.B. He, and C.W. Tan. “Effect of martensite on β twinning formation in a metastable beta titanium alloy.” In: *Journal of Alloys and Compounds* 895 (2022), p. 162598. ISSN: 0925-8388. DOI: <https://doi.org/10.1016/j.jallcom.2021.162598>
- 2022 **J. F. Xiao**, X. K. Shang, Y. Li, Q. W. Guan, and Binbin He. “Grain size-dependent tensile behaviour in a metastable beta titanium alloy.” In: *Materials Science and Technology* 38.8 (2022), pp. 469–483. DOI: 10.1080/02670836.2022.2062637
- 2021 **J.F. Xiao**, X.K. Shang, J.H. Hou, Y. Li, and B.B. He. “Role of stress-induced martensite on damage behavior in a metastable titanium alloy.” In: *International Journal of Plasticity* 146 (2021), p. 103103. ISSN: 0749-6419. DOI: <https://doi.org/10.1016/j.ijplas.2021.103103>
- 2021 Linan Xue, **Junfeng Xiao**, Zhihua Nie, et al. “Dynamic response of Ti-6.5Al-1Mo-1V-2Zr-0.1B alloy fabricated by wire arc additive manufacturing.” In: *Materials Science and Engineering: A* 800 (2021), p. 140310. ISSN: 0921-5093. DOI: <https://doi.org/10.1016/j.msea.2020.140310>
- 2020 **J.F. Xiao**, Z.H. Nie, Z.W. Ma, G.F. Liu, F. Hao, and C.W. Tan. “ ω precipitation: Deformation regulator in metastable titanium alloys.” In: *Materials Science and Engineering: A* 772 (2020), p. 138687. ISSN: 0921-5093. DOI: <https://doi.org/10.1016/j.msea.2019.138687>
- 2020 Fang Hao, **Junfeng Xiao**, Yong Feng, et al. “Tensile deformation behavior of a near- α titanium alloy Ti-6Al-2Zr-1Mo-1V under a wide temperature range.” In: *Journal of Materials Research and Technology* 9.3 (2020), pp. 2818–2831. ISSN: 2238-7854. DOI: <https://doi.org/10.1016/j.jmrt.2020.01.016>
- 2019 **J.F. Xiao**, Z.H. Nie, C.W. Tan, et al. “The dynamic response of the metastable β titanium alloy Ti-2Al-9.2Mo-2Fe at ambient temperature.” In: *Materials Science and Engineering: A* 751 (2019), pp. 191–200. ISSN: 0921-5093. DOI: <https://doi.org/10.1016/j.msea.2019.02.068>
- 2019 **J.F. Xiao**, Z.H. Nie, C.W. Tan, et al. “Effect of reverse β -to- ω transformation on twinning and martensitic transformation in a metastable β titanium alloy.” In: *Materials Science and Engineering: A* 759 (2019), pp. 680–687. ISSN: 0921-5093. DOI: <https://doi.org/10.1016/j.msea.2019.05.060>

PAPER BEING PROCESSED

2024

J.F. Xiao, Y.D. Jing, C. Cayron, R. Loge, et al. " Understanding microstructural responses of martensitic NiTi alloy subjected to laser shock peening impact". Status: Revise in **Materials Design**

2024

J.F. Xiao, C. Cayron, M. Van der Meer, R. Loge, " Revisiting the martensite microstructures in NiTi shape memory alloy: A fine scale study using Transmission Kikuchi Diffraction". Status: Ready to Submit to **Acta Materialia**

2024

J.F. Xiao, C. Cayron, Y. Li, B.B. He, R. Loge, "On variant reorientation mechanism of α martensite and textures of Ti-10V-2Fe-3Al alloy upon deformation". Status: Ready to Submit to **Acta Materialia (2024).**

J.F. Xiao, C. Cayron, B.B. He, "Crystallography of α' Martensite in Titanium Alloys: Reorientation and Deformation Twin". Status: Ready to Submit to **Acta Materialia (2024).**

J.F. Xiao, Z.H. Nie, R. Chen, B.B. He, C.W. Tan, "Decouple the concurrent deformation mechanisms in a metastable β titanium alloy under varied strain rates: experiments and modeling". Status: Ready to Submit to **Acta Materialia (2024).**

CITATION

Google Scholar Citations: **292**

REVIEWER FOR

Acta Materialia, Materials Research Letters, Materials Science and Engineering: A, Journal of Alloys and Compounds, Results in Materials, Crystals, Entropy, Molecules, Multiscale and Multidisciplinary Modeling, Experiments and Design

Review finished: **21**

ACADEMIC POSITION

GUEST EDITOR

Journals: [Crystals](#), [Metals](#)

SKILLS AND METHODOLOGIES

Advanced Characterization Techniques:

Transmission Electron Microscopy (TEM)

Transmission Kikuchi Diffraction (TKD)

Electron Backscatter Diffraction (EBSD)

X-ray Diffraction (XRD)

Applied in microstructural analysis of metals and alloys at the nanoscale.

Finite Element Simulations:

Proficient in using software such as MATLAB and ANSYS for analyzing structural behavior under stress.

Collaborative Research in Structural Engineering:

Experienced in large-scale material performance testing at facilities like the **Lacabanne Rock Mechanics Laboratory** and **Galambos Structural Engineering Laboratory**.

Methodologies:

Phase Transformation Modeling

Martensitic Variant Selection Analysis

Applied to projects involving shape memory alloys and titanium alloys.

AWARDS

Outstanding International Student, issued by Chinese embassy in Bern, Switzerland