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Publications:

I. Refereed Papers (* indicates the corresponding author)

- [1] Yu Cheng, Yu-Yung Ting, **Chih-Hsuan Chen***, Superelasticity and elastocaloric effect of Ti-rich TiNi shape memory ribbon, Mater. Sci. Eng. A, 855 (2022) 143945. [\[LINK\]](#)
- [2] Li-Wei Tseng*, **Chih-Hsuan Chen**, Yu-Chih Tzeng, Po-Yu Lee, Nian-Hu Lu, and Yury Chumlyakov, Microstructure and superelastic properties of FeNiCoAlTi single crystals with the <100> orientation under tension, Crystals, 12 (2022) 548. [\[LINK\]](#)
- [3] Thu-Trang Nguyen, Chih-Chien Hu, Bo-Yan Chou, Ching-Yi Chou, Guan-Yi Lin, Yu-Chen Hu, Yan-Lin Chen, Wei-Tung Hsu, Zi-Sheng Lin, Yueh-Lien Lee, **Chih-Hsuan Chen**, Hung-Wei Yen*, Ren-Jei Chung*, Evaluating hydrogenated nickel-titanium alloy for orthopedic implant J. Mater. Res. Tech., 18 (2022) 1115-1123. [\[LINK\]](#)
- [4] Nian-Hu Lu, **Chih-Hsuan Chen***, Compressive stress-induced martensitic transformation and elastocaloric effect in Cu-Al-Mn single-crystal alloy, Mater. Sci. Eng. A, 840 (2022) 142945. [\[LINK\]](#)
- [5] Yen-Ting Chang, Ming-Hao Lee, Ming-Wen Chu, **Chih-Hsuan Chen***, Phase formations and microstructures of Ti₂₀Zr₁₅Hf₁₅Ni₃₅Cu₁₅ high-entropy shape memory alloy under different aging conditions, Mater. Today Adv., 14 (2022) 100223. [\[LINK\]](#)
- [6] Hao-Chen Lee, Jia-Jyun Shen, Yen-Ting Chang, Cheng-Tien Wu, **Chih-Hsuan Chen***, Evolutions of superelasticity and elastocaloric effect of Ti₅₀Ni₄₈Fe₂ and aged-hardened Ni-rich Ti_{49.2}Ni_{49.3}Fe_{1.5} shape memory alloys under cyclic compressive deformation, J. Alloy Compd., 893 (2022) 162352. [\[LINK\]](#)
- [7] Li-Wei Tseng*, **Chih-Hsuan Chen**, Wei-Cheng Chen, Yu Cheng and Nian-Hu Lu, Shape Memory Properties and Microstructure of New Iron-Based FeNiCoAlTiNb Shape Memory Alloys, Crystals, 11 (2021) 1253. [\[LINK\]](#)
- [8] Tung-Huan Su, Nian-Hu Lu, **Chih-Hsuan Chen***, and Chuin-Shan Chen*, On the Decrease in Transformation Stress in a Bicrystal Cu-Al-Mn Shape-Memory Alloy during Cyclic Compressive Deformation, Materials, Materials, 14 (2021) 4439. [\[LINK\]](#)
- [9] Yu-Nien Shen, Yen-Ting Chang, **Chih-Hsuan Chen***, Alloying-assisted precipitation strengthening of Ti₅₀Ni₁₅Pd₂₅Cu₁₀ shape memory alloy, Mater. Sci. Eng. A, 821 (2021) 141636. [\[LINK\]](#)
- [10] Po-Ting Lin, Hung-Chi Liu, Po-Ying Hsieh, Cheng-Yu Wei, Che-Wei Tsai*, Yutaka S Sato, Shih-Che Chen, Hung-Wei Yen, Nian-Hu Lu, **Chih-Hsuan Chen**, Heterogeneous structure-induced strength-ductility synergy by partial recrystallization during friction stir welding of a high-entropy alloy, Mater. & Design, 197 (2021) 109238. [\[LINK\]](#)

- [11] Nian-Hu Lu, **Chih-Hsuan Chen***, Inhomogeneous Martensitic Transformation Behavior and Elastocaloric Effect in a Bicrystal Cu-Al-Mn Shape Memory Alloy, *Mater. Sci. Eng. A*, 800 (2021) 140386. [\[LINK\]](#)
- [12] **Chih-Hsuan Chen***, Nian-Hu Lu, Jia-Jyun Shen, Yue-Jin Chen, Strain glass and stress-induced martensitic transformation characteristics of $\text{Ti}_{40}\text{Zr}_{10}\text{Ni}_{40}\text{Co}_5\text{Cu}_5$ multi-principal element alloy, *Scripta Mater.*, 186 (2020) 127. [\[LINK\]](#)
- [13] **Chih-Hsuan Chen***, Yue-Jin Chen, Jia-Jyun Shen, Microstructure and Mechanical Properties of $(\text{TiZrHf})_{50}(\text{NiCoCu})_{50}$ High Entropy Alloys, *Met. Mater. Int.*, 26 (2020) 617. [\[LINK\]](#)
- [14] Tung-Huan Su, Nian-Hu Lu, **Chih-Hsuan Chen***, Chuin-Shan Chen*, Full-Field Stress and Strain Measurements Revealing Energy Dissipation Characteristics in Martensitic Band of Cu-Al-Mn Shape Memory Alloy, *Mater. Today Comm.*, 24 (2020) 101321. [\[LINK\]](#)
- [15] Jia-Jyun Shen, Nian-Hu Lu, **Chih-Hsuan Chen***, Mechanical and elastocaloric effect of aged Ni-rich TiNi shape memory alloy under load-controlled deformation, *Mater. Sci. Eng. A*, 788 (2020) 139554. [\[LINK\]](#)
- [16] Pei-Yu Cheng, Nian-Hu Lu, Yi-Sheng Lu, **Chih-Hsuan Chen***, Yueh-Lien Lee*, Jian-Zhang Chen*, Surface Modification of FeCoNiCr Medium-Entropy Alloy (MEA) Using Octadecyltrichlorosilane and Atmospheric-Pressure Plasma Jet, *Polymers*, 12 (2020) 788. [\[LINK\]](#)
- [17] **Chih-Hsuan Chen*** and Nien-Hu Lu, Improved Functional Stability of Ti-rich TiNi Shape Memory Ribbon Prepared by Melt-spinning, *J. Alloy Compd.*, 819 (2020) 152988. [\[LINK\]](#)
- [18] Yung-Chien Huang, Cheng-Si Tsao, Chieh Lin, Yi-Cheng Lai, Shyi-Kaan Wu, **Chih-Hsuan Chen**, Evolution of Guinier-Preston zones in cold-rolled $\text{Al}_{0.2}\text{CoCrFeNi}$ high-entropy alloy studied by synchrotron small-angle X-ray scattering, *Mater. Sci. Eng. A*, 769 (2020) 138526. [\[LINK\]](#)
- [19] Hao-Chen Lee, Yue-Jin Chen and **Chih-Hsuan Chen***, Effect of Solution Treatment on the Shape Memory Functions of $(\text{TiZrHf})_{50}\text{Ni}_{25}\text{Co}_{10}\text{Cu}_{15}$ High Entropy Shape Memory Alloy, *Entropy*, 21 (2019) 1027. [\[LINK\]](#)
- [20] **Chih-Hsuan Chen**, Yen-Cheng Wang, Shyi-Kaan Wu*, Nian-Hu Lu, Precipitation hardening by nanoscale Ti_2Ni phase in high Ti-rich $\text{Ti}_{52.6}\text{Ni}_{46.8}\text{Si}_{0.6}$ melt-spun ribbon, *J. Alloy. Compd.*, 810 (2019) 151904. [\[LINK\]](#)
- [21] HY Lu, **CH Chen**, NT Tsou*, The Analysis of Superelasticity and Microstructural Evolution in NiTi Single Crystals by Molecular Dynamics, *Materials*, 12 (2019) 57. [\[LINK\]](#)
- [22] Yung-Chien Huang, Cheng-Si Tsao, Shyi-Kaan Wu*, Chieh Lin, **Chih-Hsuan Chen**, Nano-precipitates in severely deformed and low-temperature aged CoCrFeMnNi high-entropy alloy studied by synchrotron small-angle X-ray scattering, *Intermetallics*, 105 (2019) 146. [\[LINK\]](#)
- [23] **Chih-Hsuan Chen***, Yue-Jin Chen, Shape Memory Characteristic of $(\text{TiZrHf})_{50}\text{Ni}_{25}\text{Co}_{10}\text{Cu}_{15}$ High Entropy Shape Memory Alloy, *Scripta Mater.*, 162 (2019) 185. [\[LINK\]](#)
- [24] **Chih-Hsuan Chen****, Shyi-Kaan Wu* and Hsin-Kai Wang, Transformational and pseudoelastic characteristics of melt-spun $\text{Ti}_{50}\text{Ni}_{25}\text{Cu}_{25}$ shape memory ribbon crystallized and aged at a low temperature, *J. Alloy. Compd.*, 753 (2018) 655. [\[LINK\]](#)
- [25] **Chih-Hsuan Chen**, Hsin-Kai Wang and Shyi-Kaan Wu*, A study on the crystallization behavior

- of amorphous $\text{Ti}_{50}\text{Ni}_{25}\text{Cu}_{25}$ shape memory ribbon by X-ray diffraction measurement, *Intermetallics*, 93 (2018) 347. [\[LINK\]](#)
- [26] **Chih-Hsuan Chen**, Hsin-Kai Wang and Shyi-Kaan Wu*, Pseudoelasticity Response of Aged $\text{Ti}_{50}\text{Ni}_{25}\text{Cu}_{25}$ Shape Memory Ribbon under Nanoindentation Tests, *Intermetallics*, 64 (2015) 78. [\[LINK\]](#)
- [27] **Chih-Hsuan Chen** and Shyi-Kaan Wu*, Observations of Self-accommodated R-phase Morphologies in a $\text{Ti}_{50.3}\text{Ni}_{48.2}\text{Fe}_{1.5}$ Shape Memory Alloy, *Mater. Chara.*, 107 (2015) 202. [\[LINK\]](#)
- [28] Nien-Ti Tsou*, **Chih-Hsuan Chen**, Chuin-Shan Chen and Shyi-Kaan Wu, Classification and Analysis of Trigonal Martensite Laminate Twins in Shape Memory Alloys, *Acta Mater.*, 89 (2015)193. [\[LINK\]](#)
- [29] Chiao-Yin Nien, Hsin-Kai Wang, **Chih-Hsuan Chen**, Seiichiro Ii, Shyi-Kaan Wu and Chun-Hway Hsueh*, Superelasticity of TiNi-based Shape Memory Alloys at Micro-nano Scale, *J. Mater. Res.*, 29 (2014) 2717. [\[LINK\]](#)
- [30] **Chih-Hsuan Chen**, Shyi-Kaan Wu* and Chun-Yu Lai, The Characteristics of Precipitation Hardening and the Shape Memory Effect in Aged $\text{Ti}_{50.6}\text{Ni}_{39.4}\text{Cu}_{9.8}\text{Si}_{0.2}$ Shape Memory Ribbons, *Mater. Sci. Eng. A*, 613 (2014) 317. [\[LINK\]](#)
- [31] **C.H. Chen** and S. K. Wu*, Martensitic Transformation and Pseudoelasticity of Aged $\text{Ti}_{50.1}\text{Ni}_{49.7}\text{Si}_{0.2}$ shape Memory Ribbon, *Mater. Sci. Eng. A*, 593 (2014) 85. [\[LINK\]](#)
- [32] S. Y. Cheng, **C. H. Chen** and S. K. Wu*, A Study of the Structure of G-P Zones in Ti-rich TiNi Shape Memory Melt-Spun Ribbons, *Philosophical Magazine*, 93 (2013) 3167. [\[LINK\]](#)
- [33] **C. H. Chen**, S. Y. Cheng and S. K. Wu*, Nanoindentation Studies on Precipitation Hardening of Ti-rich $\text{Ti}_{50.4}\text{Ni}_{49.5}\text{Si}_{0.1}$ Shape Memory Ribbons, *Intermetallics*, 36 (2013) 109. [\[LINK\]](#)

II. International Conference Papers (* indicates the corresponding author)

- [1] Yi-Ting Hsu, Yen-Ting Chang, **Chih-Hsuan Chen***, Ryosuke Kainuma, Improved Functional Properties of $Ti_{16.7}Zr_{16.7}Hf_{16.7}Ni_{25}Co_{10}Cu_{15}$ High-entropy Shape Memory Ribbon Prepared by Melt-spinning Method, European Symposium on Martensitic Transformations (ESOMAT), Sep. 5-9, Ankara, Turkey.
- [2] **Chih-Hsuan Chen***, Yen-Ting Chang, Yue-Jin Chen, Hao-Chen Lee, Jia-Jyun Shen, Nian-Hu Lu, Functional Properties and Microstructures of High-entropy Shape Memory Alloys, Webinar on Science, Engineering and Technology (held by Vebleo), Jan. 26-28, 2022 (Virtual).
- [3] **Chih-Hsuan Chen***, Nian-Hu Lu, Functional Stability and Elastocaloric Effect of Ti-rich TiNi Shape Memory Ribbon, ICOMAT 2022, Mar. 13-18, 2022, Korea (Virtual).
- [4] Nian-Hu Lu, **Chih-Hsuan Chen***, Martensitic Transformation Strain Field and Elastocaloric Effect in Cu-Al-Mn Single Crystal, ICOMAT 2022, Mar. 13-18, 2022, Korea (Virtual).
- [5] Yu Cheng, Yu-Yung Ting, and **Chih-Hsuan Chen***, Superelasticity and Elastocaloric Effect of Ti-rich TiNi Shape Memory Ribbon, 2021 Materials Research Society-Taiwan International Conference (2021 MRSTIC), Nov. 13-17, 2021, Taipei, Taiwan.
- [6] Nian-Hu Lu and **Chih-Hsuan Chen***, Effect of Cyclic Compression on the Superelasticity of $Ti_{40}Zr_{10}Ni_{40}Co_5Cu_5$ Strain Glass Alloy, 2021 Materials Research Society-Taiwan International Conference (2021 MRSTIC), Nov. 13-17, 2021, Taipei, Taiwan.
- [7] **Chih-Hsuan Chen***, Yue-Jin Chen, "Martensitic Transformations and Shape Memory Characteristics of $(TiZrHf)_{50}Ni_{25}Co_{10}Cu_{15}$ High Entropy Shape Memory Alloy", TMS 2019 Annual Meeting & Exhibition (TMS-2019), Mar. 10-14, 2019, San Antonio, Texas, USA. (*Invited*)
- [8] Nian-Hu Lu and **Chih-Hsuan Chen***, "Characteristics of Shape Memory Ribbons for Actuation Applications", The 15th Int'l Conf. Automation Technology (Automation 2018), Dec. 6-8, 2018, Taichung, Taiwan.
- [9] **Chih-Hsuan Chen***, Shyi-Kaan Wu and Yen-Cheng Wang, "Martensitic Transformations and Shape Memory Characteristic of Ti-rich $Ti_{51.9}Ni_{48.0}Si_{0.1}$ Shape Memory Ribbons", European Symposium on Martensitic Transformations (ESOMAT-2018), Aug. 27-31, 2018, Metz, France.
- [10] Yue-Jin Chen, **Chih-Hsuan Chen***, "Martensitic Transformations in High Entropy Shape Memory Alloys", Int'l Conf. Key Eng. Mater., Mar. 16-18, 2018, Osaka, Japan.
- [11] Yue-Jin Chen, **Chih-Hsuan Chen***, "Investigations on Pseudo-binary TiZrHfNiCoCu High Entropy Shape Memory Alloys", Int'l Union on Materials Research Societies – Int'l Conf. in Asia (IUMRS-ICA), Nov. 5-9, 2017, Taipei, Taiwan.
- [12] **Chih-Hsuan Chen***, Yen-Cheng Wang, Shyi-Kaan Wu and Yue-Jin Chen, "Transformation Behaviors and Shape Memory Properties of Ti-rich TiNi Shape Memory Ribbons", Int'l Union of Mater. Res. Soc.-Int'l Conf. in Asia (IUMRS-ICA), Nov. 5-9, 2017, Taipei, Taiwan.
- [13] Nien-Ti Tsou*, **Chih-Hsuan Chen**, "A Tool of Microstructure Analysis for Shape Memory Alloys", Int'l Conf. on Martensitic Transformations, 2017(ICOMAT-2017), July 9-14, Chicago, USA.
- [14] **Chih-Hsuan Chen**, Hsin-Kai Wang and Shyi-Kaan Wu*, "XRD and EBSD studies on the microstructural evolution and crystallization behavior of amorphous $Ti_{50}Ni_{25}Cu_{25}$ shape memory ribbon", Int'l Conf. on Martensitic Transformations, 2017(ICOMAT-2017), July 9-14, Chicago, USA.
- [15] **Chih-Hsuan Chen**, Shyi-Kaan Wu* and Shih-Hang Chang, "Martensitic Transformation and the Shape Memory Effect in Aged $Ti_{50.6}Ni_{39.4}Cu_{9.8}Si_{0.2}$ Melt-spun Ribbons", Int'l Conf. on Martensitic

Transformations, 2014(ICOMAT-2014), July 6-11, Bilbao, Spain.

- [16] **Chih-Hsuan Chen** and Shyi-Kaan Wu*, "Electron Backscattering Diffraction Studies on Self-accommodation of R-phase in a $Ti_{50.3}Ni_{48.2}Fe_{1.5}$ Ternary Shape Memory Alloy", Int'l Union of Mater. Res. Soc.-Int'l Conf. on Electronic Mater., 2014 (IUMRS-ICEM 2014), Jun. 10-13, Taipei, Taiwan.
- [17] **C. H. Chen**, S. K. Wu*, and S. Y. Cheng, "Nanoindentation Studies on Precipitation Hardening of Ti-rich TiNi Shape Memory Ribbons", 2013 Shape Memory and Superelastic Technologies Conf. (SMST-2013), May 20-24, Prague, Czech Republic.