

**Dongyang Li, PhD, PEng, FCAE, MEASA, FInstP, FIMMM**  
**Department of Chemical and Materials Engineering, University of Alberta**

## 1. EDUCATION:

Ph.D., Metallurgical Engineering, 1995, McGill University, Montreal, Canada

Ph.D., Materials Physics, 1990, University of Science and Technology Beijing, China

M.Sc., Condensed Matter Physics, 1985, Sun Yat-sen University, Guangzhou, China

B.Sc., Solid Mechanics, 1982, University of Science and Technology China, Hefei, China

## 2. POSITIONS HELD

07/2005 - present	Professor	Department of Chemical & Materials Engineering, University of Alberta, Edmonton, AB, Canada
07/2002 – 06/2005	Associate Professor	Department of Chemical & Materials Engineering, University of Alberta, Edmonton, AB, Canada
01/1998 – 06/2002	Assistant Professor, NSERC Industrial Research Chair	Department of Chemical & Materials Engineering, University of Alberta, Edmonton, AB, Canada
08/1995 – 12/1997	Postdoctoral Associate	Department of Mater. Sci. and Eng., the Pennsylvania State University, PA, USA
07/1990 – 12/1991	Research Associate	Department of Metallurgical Engineering, McGill University, Montreal, QC, Canada
1985- 1986	Lecturer	Department of Physics, South China Univ. of Tech., Guangzhou, China

## Others

2005 - Present	Adjunct Professor	Dept. of Bio-medical Engineering, University of Alberta
08/2023 -	Adjunct Professor	Department of Mechanical, Materials and Aerospace Eng., Illinois Institute of Technology, Chicago
07/2023 -	Adjunct Professor	School of Materials Science and Engineering, Shandong University, Jinan, China
07/2022 -	Adjunct Professor	Department of Civil, Materials, and Environmental Eng., University of Illinois at Chicago
12/2018 - 04/2019	Specially Appointed Professor,	Department of Materials Science and Engineering, Osaka University, Japan
09/2018-07/2019	Visiting Professor	Department of Materials Science and Engineering, National Taiwan University, Taipei, Taiwan
2017 – 2020	Chutian Scholars - Professor Lectures	Wuhan University of Science and Technology, Hubei Province, China
01/2012 – 06/2012	Visiting Professor	Department of Mechanical Engineering, National University of Singapore, Singapore
08/2011 – 12/2011	Visiting Professor	Department of Materials Science and Engineering, Massachusetts Institute of Technology, USA
2014 – 2017	Awardee	100-Talents Program, Taiyuan University of Science and Technology, Shanxi, China
2007 – 2016	Foreign Doctoral Advisor,	Harbin Institute of Technology, China
01-05/2005	Visiting Scientist	Biophysics, Advance Research Center, National Institute of Information and Communications Technology, Japan
07-12/2004	Visiting Associate Professor	Department of Mechanical Engineering, National University of Singapore, Singapore

### 3. Editorial: on editorial board for eighteen international journals

**Associate Editor:** Tribology section, Frontier in Mechanical Engineering

**Editorial board member:** Scientific Reports, Coatings, Metals, Materials (Guest editor), Intl. J. of Corrosion, J. of Biosensors & Bioelectronics, Tribology – Surface, Interfaces and Materials, and .....

**Former Editor-in-Chief:** Intl. J. of Nano and Biomaterials, 04/2009 – 04/2022.

### 4. Teaching Experience

**Wear and Friction of Engineering Materials** (4<sup>th</sup> year undergraduate and graduate) – This course covers fundamentals of interfacial contact, wear modes and characterization, tribo-materials, surface protection, and computational modeling.

**Nanomaterials for bio-medical applications** (4<sup>th</sup> year undergraduate and graduate) – This course covers synthesis of nanostructured materials (bulk, films, nanoparticles), properties and characterization, and bio-medical applications of the nanostructured materials. **Note:** I was invited to offer this course at Harbin Institute of Tech. as well (summer, 2008 – 2015).

• **Solid/liquid and solid/vapour phase transformations** (3<sup>rd</sup> year undergraduate) - This course covers topics of Vapor-Solid and Liquid-Solid interfacial phenomena. V-S and L-S interfacial characteristics and phase transformations are analyzed based on local atomic interactions.

**Structure of Materials** (3<sup>rd</sup> year undergraduate students) – This course covers topics of crystal structure, X-ray diffraction, dislocation theory, and characterization of crystal structure and defects.

**Surface Failure and Surface Engineering** (4<sup>th</sup> year undergraduate, 2012-2015) – This course is developed to introduce wear, corrosion, and surface engineering techniques.

**Advanced thermodynamics of materials** (graduate, 2000 - 2008) - This course covers classic and statistic thermodynamic techniques with emphasis on materials issues.

**Materials Science & Engineering** (2<sup>nd</sup> year undergraduate, 1998 - 2012) – This is an introductory course for 2<sup>nd</sup> year students in the materials engineering program.

**Physical Metallurgy** (3<sup>rd</sup> year undergraduate, 1998 - 2003) – This course covers typical topics of Physical metallurgy.

**Experimental techniques for materials research** (graduate, 2013 - 2016) – This is a joint course, which covers typical experimental techniques for materials research, such as TEM, SEM, AFM, XPS, Auger, SIMS, DSC, etc.

### 5. Fellowships, Honors and Awards

- Fellow, the Canadian Academy of Engineering (FCAE)
- Member, European Academy of Sciences and Arts (MEASA)
- Fellow of the Institute of Physics (FInstP)
- Fellow of the Institute of Materials, Minerals and Mining (FIMMM)
- ScholarGPS® ranking, Dr. Li is named a ScholarGPS Highly Ranked Scholar in the top 0.05% of all scholars worldwide for his lifetime of contributions, and is ranked as #1 scholar in the field of electron work function.
- Metsoc Research Excellence Award, CIM, 2024
- Metal Physics Award, MetSoc, Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2024
- MetSoc Distinguished Materials Scientist Award, 2020, Metallurgy & Materials Society of CIM
- Awardee of Top100 Talent Program, Shanxi, China, 2014-2017.
- Awardee of Chutian Scholars Program - Professor Lectures, Hubei province, China, 2017-2020
- NSERC Industrial Research Chair, 1998-2002, Canada
- Honorary Professorship (Lifetime), Jinan University, Guangzhou, China, 2021

- Specially Appointed Professor, 2019, Osaka University, Japan
- Awardee of National Major High-end Foreign Talents Program (2018, 2020, 2023), the Ministry of Science and Technology, China.
- MOST Fellowship, awarded by the Ministry of Science and Technology, R.O.C (Taiwan), 2018/2019
- RWTH Aachen – University of Alberta Senior Research Fellow, 2020
- JMST2020 Excellent Article Award (J. of Mater. Sci. & Technol.), 2020
- Best Paper Award, 5th International Conference of Theoretical and Applied Nanoscience and
- Best Paper Award, Nanotechnology (TANN'21) May 23 -25, 2021, Niagara Falls, Canada.
- Ken Ludema Best Paper Award, 18th Intl. Conf. on Wear of Materials, Philadelphia, USA, 2011.
- Best Paper Award, Canadian Materials Science Conference 2008
- Imperial Oil University Research Award, 2000 – 2015
- Best Paper Award, Intl. Conf. on Mater. Sci., Nov., 1989

## 6. Research Areas

Dr. D.Y. Li has conducted extensive research in materials science & engineering with focus on tribo-materials and wear control in a wide range of topics: 1) the correlation between the electron behaviour and material properties, and development of electron work function – based methodology for material design towards Electronic Metallurgy; 2) develop hybrid high-entropy ferrous alloys against wear in oil sands mining and pipeline systems; 3) advanced tribo-materials, wear and corrosion control, 4) computational materials science and tribology, 5) bacteria-metal surface interaction, and photocatalytic films. Since joined University of Alberta, Dr. Li has developed a highly recognized Wear and tribo-materials program. He has in excess of 500 scientific publications including 460+ referred journal publications. Dr. Li is an invited contributor for authoritative handbooks/encyclopaedias (Elsevier, Springer, ASM International). The following are research subjects of his studies:

### Development of electron work function (EWF) – based methodology for material design:

- Correlation between work function and mechanical and electrochemical properties of materials
- Work function, surface adhesion behavior, and the affinity of materials for bacterial biofilms
- Electron work function for nano-tribological diagnosis
- Interfacial work function and interfacial bond strength of materials
- EWF-based new framework for material design and modification
- EWF mapping (AFM) and corresponding mapping of other properties for material manipulation.

### Materials behavior in surface tribological failure processes:

- High-entropy materials for wear control and components in small modular nuclear reactors
- Novel tribo-materials with structural hierarchy and self-stress adjusting capability
- Surface alloying and nanocrystallization for enhanced resistances to corrosion, wear and corrosive wear
- Shape memory alloy – based pseudoelastic tribo-materials, including alloys and composites
- Dislocation dynamics and effects of strain rate on wear in aggressive environments
- Corrosion-wear synergy, high-T wear and control using rare-earth elements
- Quantitative determination of interfacial bond strength of protective coatings and composites

### Computational materials science and surface processes

- First-principles calculation of electron work function and corresponding material and interfacial properties
- Computational studies on complex carbides and high-entropy ceramic materials
- Molecular dynamic simulation of structure evolution and the mechanical behavior of nano-material systems
- First-principles and MD modeling of growth and properties of corrosion inhibitor – induced protective films
- Microtubule motion, the coordination of biological motors and related statistic problems
- Investigate wear, corrosive wear and friction using a micro-scale dynamic model (MSDM)
- Phase-field modeling microstructure evolution, and simulation of textural growth

Biological surface interactions and materials

- Interaction between bio-films and surface of implant materials and related electronic mechanisms
- Reduction in electron activity by surface nanocrystallization of implants to diminish bio-films' adherence
- Surface nanocrystallization with anti-bacteria agents for control bacterial biofilms on solids
- Investigation of dynein protein-microtubule interaction for potential nano-bio-machine systems
- Self-organization sliding of microtubules driven by biological motors

Surface phenomena related to photocatalytic nanotubular films and techniques

- *in situ* thermo-electrochemical synthesis of TiO<sub>2</sub> nanotubular films for effective solar energy utilization
- Solar spectrum analysis and the efficiency of solar energy conversion based on *in situ* EWF monitoring
- Degradation of toxic organic substances by photocatalytic nanotubular films
- Relation between work function and photocatalytic behavior of element-doped TiO<sub>2</sub> nanotubular films
- Develop an electron work function – light illumination technique for photocatalytic film characterization
- Conductive peptide incorporated TiO<sub>2</sub> nanotubes with improved mechanical and photocatalytic properties

## 7. Refereed Journal Publications

### - Journal Publications

1. P. Aghdasi, D.Y. Li, Electron Work Function guided tailoring of (W<sub>4-x</sub>, M<sub>x</sub>)C<sub>4</sub> /doped Ni matrix Interfacial Bonding: Insights from First-Principles Calculations, **Acta Materialia**, 283 (2025) 120511.
2. D. Bajaj, R. Mehavarnam, X.F. Fang, N.S. Ma, D.Y. Li, D.L. Chen, Achieving superior aluminum-steel dissimilar joining via ultrasonic spot welding: Microstructure and fracture behavior, **Materials Science & Engineering A**, 919 (2025) 147489.
3. Ao Wei, Guijiang Diao, Ruirui Dai, Lingbing Shi, Hai Lin, Dongyang Li, Junfeng Yuan, A new era for applications of multi-principal element alloys in the biomedical field, **Biomaterials Advances**, 172 (2025) 214244.
4. D. Bajaj, A.H. Feng, S.J. Qu, D.Y. Li, D.L. Chen, Orientation-dependent lattice rotation and phase transformation in an additively-manufactured high-entropy alloy, **J. of Mater. Sci. & Tech.**, 227 (2025) 11-25.
5. S.S. Dash, R.C. Fernandes, X. Shang, Y. Zou, H. Peng, X.Q. Jiang, X.F. Fang, N.S. Ma, D.Y. Li, D.L. Chen, Fatigue and deformation mechanisms of ultrasonic spot-welded dissimilar joints of a magnesium alloy to a clad aluminum alloy, **Journal of Magnesium and Alloys**, 2025; <https://doi.org/10.1016/j.jma.2025.03.005>.
6. Guijiang Diao, Dong Zhang, Yunqing Tang, Anqiang He, Yefei Zhou, Zhen Xu, Keyang Chen, Aakash Kumar, Seyed Elias Mousavi, Mingyu Wu, Wengang Chen, D.Y. Li, Mechanical properties and wear behaviors of lightweight Al<sub>3</sub>Ti-based medium-entropy alloys at elevated temperatures, **Wear**, 2025; <https://doi.org/10.1016/j.wear.2025.205953>
7. Ata Radnia, Mostafa Ketabchi, Anqiang He, Dongyang Li, Effects of ECAP and subsequent recovery on microstructure, mechanical, tribological and corrosion properties of Ti-6Al-4V alloy, **J. of Mater. Res. & Tech.**, 35 (2025) 4534-4542.
8. Xiangyang Zhao, Yunqing Tang, Keyang Chen, Yukui Cai, Zhanqiang Liu, Dongyang Li, Bauschinger effect in nano-grinding of 3C-SiC: a molecular dynamics study, **Wear**, 2025; <https://doi.org/10.1016/j.wear.2025.205847>.
9. Wen Wang, Wengang Chen, Haijun Wang, Dongyang LI, Yongkang Wang, Yangrui Ou, Yachao Zhang, Effect of wave-textured composite MAO coating on tribological properties of TC4 Ti alloy for valve tappets, **Ceramic International**, 51 (2025) 12218-12230.
10. Qixuan Fu, Xiang Gui, Gobinda Gyawali, Yang Yang, Dongyang Li, Tengfei Xiang, Meisam Nouri, Shihong Zhang, Improved tribo-corrosion performance of duplex treatment on H13 steel by plasma nitriding and CrAlN coating, **Surfaces and Interfaces**, 56 (2025) 105738.
11. Zuyang Li, Wengang Chen, Dongyang Li, Jiawei Yang, Yao Zhang, Xiaodong Yang, Binggui Dai, Jihao Zhang, Zhaoling Qiu, Frictional wear properties of different nano La<sub>2</sub>O<sub>3</sub> composite FeCoNiCrMo high-entropy alloy coatings under soil conditions, **J. of Mater. Res. & Tech.**, 35 (2025) 6874-6888.
12. Z. Xu, A. Q. He, G. J. Diao, M. Y. Wu, D. Fraser, Jing Li, R. Chung, Ranran Fang, Anatoliy Vorobyev, D.L. Chen, D.Y. Li, Solid-particle erosion resistance of NbC-reinforced AlCrFeNi medium-entropy alloy at ambient and elevated temperatures, **Wear**, accepted, 2025.

13. Junfeng Yuan, Ruirui Dai, Jianhua Yue, Haitao Zhu, Kailiang Lu, Ruwei Geng, Marco Alfano, Abul Fazal Muhammad Arif, Zhiqiang Xu, Dongyang Li, Impact of post-heat treatment on the mechanical and tribological properties of GH4169/V coatings produced by laser cladding, **Wear**, accepted, 2025.  
<https://doi.org/10.1016/j.wear.2025.205829>.
14. Guijiang Diao, Mingyu Wu, Anqiang He, Zhen Xu, Dhruv Bajaj, Daolun Chen, Ranran Fang, Anatoliy Vorobyev, Q.Y. Li, Dongyang Li, Adjusting (AlNi)/(FeCr) ratio to tailor microstructure and properties of A2-B2 dual-phase (AlNi)<sub>x</sub>(FeCr)<sub>100-x</sub> medium-entropy alloys, **J. of Mater. Res. & Tech.**, 34 (2025) 1921-1932.
15. Xiaodong Yang, Wengang Chen, Yao Zhang, Zuyang Li, Jiawei yang, Binggui Dai, Jihao Zhang, Dongyang Li, Zhaoling Qiu, Influence of triangular texture composite MAO coating on the tribological properties of aluminum alloys, **Tribology International**, 201 (2025) 110243.
16. Chen, W.G.; Qiu, Zhaoling; Zhang, Yao; Yang, Xiaodong; Dai, Binggui; Zhang, Jihao; Yang, Jiawei; Li, ZuYang; Li, Dongyang, Study on the corrosion resistance of HEA composite nitriding coating on 65Mn steel by laser melting, **JMEP**, accept, 2025.
17. Junfeng Guo, Kuanwen Chen, Minchen Le, Guan Wang, Guibin Tan, Dongyang Li, Jiangwen Liu, Yongkang Zhang, A study on the scratch behavior and two-body abrasion wear resistance of TiC-modified E690 steel cladding, **Wear**, accepted, 2025. <https://doi.org/10.1016/j.wear.2025.205923>.
18. Yukun Mao, Wengang Chen, Ying Li, Yifan Dai, Wenxuan Guo, Jubang Zhang, Yuhao Wang, Zexiao Wang, Lili Zheng, Dongyang Li & Naiming Lin, Simulation and Experimental Study on Tribological Properties of Herringbone Texture on 42CrMo Bearing Alloy Steel Surface, **JMEP**, 34 (2025) 1364-1377.
19. Meisam Nouri, et al., Critical Factors Governing the Frictional Coefficient in Mg Alloys - Learn from Machine Learning, **Engineering Reports**, accepted, 2025.
20. Guijiang Diao, Yunqing Tang, Anqiang He, Mingyu Wu, Dong Zhang, Doug Fraser, Jing Li, Reinaldo Chung, Dongyang Li, Tune Al/Ti to adjust FCC+L21 hetero-structured Ni-based high-entropy alloys for improved mechanical properties and wear resistance, **Acta Materialia**, 281 (2024) 120399.
21. S.S. Dash, Z.Y. Liu, Y. Zou, D.J. Li, X.Q. Zeng, D.Y. Li, D.L. Chen, Cyclic deformation behavior of an overaged high-pressure die-cast aluminum alloy, **Materials Science & Engineering A**, 915 (2024) 147246.
22. Shangwu Men, Panpan Yang, Gobinda Gyawali, Yang Yang, Dongyang Li, Meisam Nouri, Shihong Zhang, Insight into the corrosion behaviors and mechanism of arc discharge plasma nitrided H13 steel in molten Al-Si, **Applied Surface Science**, 670 (2024) 160584.
23. Xiaodong Yang, Wengang Chen, Yao Zhang, Zuyang Li, Jiawei Yang, Binggui Dai, Jihao Zhang, Dongyang Li, Zhaoling Qiu, Tribological Properties of MAO Coating Deposited on Aluminum Base Bearing Alloy with Different Texture Shapes, **Surface and Coatings Technology**, 492 (2024) 1311912024,
24. Bingyan Duan, Feng Han, Naiming Lin, Meisam Nouri, Zhiqi Liu, Yuan Yu, Qunfeng Zeng, Dongyang Li, Yucheng Wu, Wear performance of CoCrFeMnNi and CoCrFeMnNi-SiC coatings on 0Cr18Ni9Ti stainless steel fabricated by plasma transfer arc cladding, **Tribology International**, 200 (2024) 110163.
25. Yao Zhang, Wengang Chen, Xiaodong Yang, Zuyang Li, Binggui Dai, Jihao Zhang, Jiawei Yang, Dongyang Li, Effect of crescent-shaped texture based on different depths and orientations on the frictional properties of cam tappets, **Journal of Materials Research and Technology**, 31 (2024) 1826-1836.
26. Zhaoling Qiu, Wengang Chen; Dongyang Li; Haijun Wang; Jihao Zhang; Yao Zhang; Yongkang Wang; Xiaodong Yang; Zuyang Li; Binggui Dai, Preparation of large-area superhydrophobic and anti-icing 3D micro-nano-structures using femtosecond Bessel beams with fluorination treatment, **Applied Surface Science**, 664 (2024) 160239.
27. Huanhuan Wang, Naiming Lin, Shuo Yuan, Zhiqi Liu, Yuan Yu, Qunfeng Zeng, Jianfeng Fan, Dongyang Li, Yucheng Wu, Effects of structural improvement, material selection and surface treatment on the tribological performance of key friction pairs in axial piston pumps: A review, **Tribology International**, 198 (2024) 109838.
28. WEI Beichao, CHEN Wengang, GUO Siliang, CHENG Jiahao, YUAN Haoen, ZHOU Yihao, LUO Hai, Dongyang LI, Study on the Tribological Characteristics of Surface Triangular Textured TC4 Alloy Prepared by SLM Technology, **Surface and Coatings Technology**, 482 (2024) 130735.
29. Guijiang Diao, Junfeng Yuan, Anqiang He, Dong Zhang, Aakash Kumar, Ranran Fang, Anatoliy Vorobyev, Wengang Chen, Dongyang Li, Transformation from D022 to L12 in Al<sub>3</sub>Ti by Fe Addition for Enhanced Wear Resistance, **Lubricants**, 12 (2024) 3988.
30. Jipeng Jiang, D.Y. Li, Shaoqiang Li, Yunjin Lai, Assessment on oxidation behaviors of high chromium white iron matrix composite in high temperature air environment, **Composites Communications**, 48 (2024) 101920.



31. Guijiang Diao, Mingyu Wu, Zhen Xu, Q.Y. Li, Dongyang Li, Manipulating A2/B2 microstructure via adjusting Al/Ni ratio in cost-effective Fe-based AlNiFeCr alloys for controllable strength-plasticity combination, **Materials Characterization**, 210 (2024) 113845.
32. Jianguo Zheng, Ranran Fang, Zhaoyi Xu, Tianle Lv, Dongyang Li, and Anatoliy Vorobyev, Impact dynamics of water droplets on oil-covered dielectrowetting substrate: Effects of oil film thickness and surface wettability, **Applied Surface Science**, 659 (2024) 159886.
33. Z. Xu, D.Y. Li, G. J. Diao, M. Y. Wu, D. Fraser, Jing Li, R. Chung, Q.Y. Li, Effects of NbC addition on mechanical and tribological properties of AlCrFeNi medium-entropy alloy, **Tribology International**, 194 (2024), 109486.
34. Z. Xu, Y.Q. Tang, A.Q. He, W.G. Chen, D.L. Chen, D.Y. Li, Opposite Bauschinger effect on wear and machining of high-entropy alloy AlCoCrFeNi, **Metall. Mater. Trans. A**, 55 (2024) 2098–2115.
35. Jie Li, Huanhuan Hong, Lei Sun, Yang Yang, Dongyabg Li, Shihong Zhang, Argon ion sputtering bridging plasma nitriding and GLC film deposition: Effects on the mechanical and tribological properties, **Surface and Coatings Technology**, 479 (2024) 130559.
36. S.S. Dash, S. Biswas, H. Peng, X.Q. Jiang, D.Y. Li, D.L. Chen, Deformation behavior of dissimilar ultrasonic spot-welded joints of a clad 7075 aluminum alloy to galvanized high-strength low-alloy steel, **Materials Science & Engineering A**, 894 (2024) 146179.
37. Guijiang Diao, Anqiang He, Mingyu Wu, Yuqing Tang, W.G. Chen, Q.Y. Li, Dongyang Li, Lightweight Al3Ti-based medium-entropy alloys with well-balanced strength and ductility, **Scripta Materialia**, 242 (2024) 115928.
38. Lin Wu, Naiming Lin, Kai Yan, Weihua Wang, Yuan Yu, Qunfeng Zeng, Dongyang Li, Yucheng Wu, Numerical simulation on high-speed and heavy-load wear behavior of CoCrNi and CoCrFeMnNi alloys, **Tribology International**, 192 (2024) 109277.
39. Wangpeng Wu, Guangrui Xie, Lei Sun, Yang Yang, Huanhuan Hong, Shihong Zhang, Dongyang Li, A study on adsorption, dissociation, penetration, and diffusion of nitrogen on and in  $\alpha$ -Ti via First-principles calculations, **Vacuum**, 221 (2024) 112856.
40. Xin Lei, Naiming Lin, Shuo Yuan, Chenqing Liu, Meisam Nouri, Zhiqi Liu, Yuan Yu, Qunfeng Zeng, Guanshui Ma, Dongyang Li, Yucheng Wu, Combining laser surface texturing and double glow plasma surface chromizing to improve tribological performance of Ti6Al4V alloy, **Surface & Coatings Technology**, 478 (2024) 130418.
41. MAO, Yukun; Chen, Wen-Gang; Li, Ying; Dai, Yifan; Guo, Wenxuan; Zhang, Jubang; Wang, Yuhao; Wang, Zexiao; Zheng, Lili; Li, Dongyang, Simulation and experimental study on tribological properties of herringbone texture on cemented carbide surface, **JMEPEG**, 2024, <https://doi.org/10.1007/s11665-023-09092-w>.
42. Fenger Sun, Guowei Zhang, Hong Xu, Dongyang Li, and Yizheng Fu, Theoretical Analysis of Stacking Fault Energy, Elastic Properties, Electronic Properties, and Work Function of MnxCrCoFeNi High-Entropy Alloy, **Materials**, 17 (2024) 4378. <https://doi.org/10.3390/ma17174378>.
43. ZHOU Yihao, CHEN Wengang, CHENG Jiahao, GUO Siliang, WEI Beichao, YUAN Haoen, Dongyang Li, Effect of Laser Texture Shape Spacing on Friction and Wear Characteristics of Monocrystalline Silicon, **Surface Technology**, 53 (2024)127-139.
44. Jie Li, Lei Sun, Jinming Xie, Yang Yang, Dongyang Li, and Shihong Zhang, Catalytic Growth of High-performance Graphite-like Carbon Films on a Nitrided Substrate: Experimental Study and First-Principles Calculations, **ACS Appl. Mater. Interfaces**, 15 (2023) 49814–49825.
45. Mingyu Wu, Rui Ken Sim, Anqiang He, Guijiang Diao, Wengang Chen, Daolun Chen, Dongyang Li, Mechanisms underlying the influence of Co and Ti on the microstructure, mechanical and wear properties of A2/B2 typed AlCrFeNi alloy, **Journal of Alloys and Compounds**, 569 (2023) 172070.
46. Mingyu Wu, Rui Ken Sim, Anqiang He, Guijiang Diao, Daolun Chen, Dongyang Li, Enhancing Mechanical Performance and Wear Resistance of Co-free B2/A2 CrFeNiAl Alloy via Cr and Ti Adjustment, **MRS Bulletin**, 2023, DOI: 10.1557/s43577-023-00624-2.
47. Jing Luo, Ziran Liu, Dongyang Li, Electronic and strain-elimination effects of solute–vacancy interaction in molybdenum, **J. of Appl. Phys.**, 133 (2023) 125106.
48. Wengang Chen, Jiahao Cheng, Dongyang Li, Hongyan Chen, Siliang Guo, Yihao Zhou, Haoen Yuan, Beichao Wei, Effect of spherical crown texturing and ionized sulfur infiltration on the tribological performance of piston-cylinder liner, **Tribology International**, 189 (2023) 108969.
49. Huanhuan Wang, Naiming Lin, Meisam Nouri, Zhiqi Liu, Yuan Yu, Qunfeng Zeng, Guanshui Ma, Jianfeng Fan, Dongyang Li, Yucheng Wu, Improvement in surface performance of stainless steel by nitride and carbon-based

- coatings prepared via physical vapor deposition for marine application, **J. of Mater. Res. & Technl.**, 27 (2023) 6021-6046.
50. P. Aghdasi and D.Y. Li, Work of Adhesion Analysis for Metal-Substituted  $W_4C_4$  Carbides in Cobalt Matrix, **Langmuir**, 39 (2023) 18746–18756.
  51. Jinming Xie, Jie Li, Qixuan Fu, Wangpeng Wu, Yang Yang, Dongyang Li, Shihong Zhang, Graphite-like carbon films catalytically grown on a carburized substrate with an antenna structure at the interface: Experiments and first-principles calculations, **Applied Surface Science**, 639 (2023) 158095.
  52. G.J. Diao, A.Q. He, Y.Q. Tang, M.Y. Wu, D. Zhang, W.G. Chen, D.L. Chen, D.Y. Li, Effects of Al and Ti on microstructure, mechanical properties and wear resistance of  $TiXCrFe_2Ni_2$  alloys, **Mater. Sci. and Eng. A**, 879 (2023) 145242.
  53. Yefei ZHOU, Yu Tian, Shuo Meng, Silong ZHANG, Xiaolei XING, Qingxiang YANG, Dongyang LI, An open-source tribometer with high repeatability and reliability: development and performance assessment, **Tribology international**, 184 (2023) 108421.
  54. Wentao Jiang, Hao Lu, Xuemei Liu, Haibin Wang, Dongyang Li, Chao Liu, Mingsheng Wang, Xiaoyan Song, Outstanding high-temperature oxidation- and wear- resistance of WC based cermets. **Journal of Materials Science & Technology**, 155 (2023) 33-46.
  55. G.J. Diao, Mingyu Wu, Anqiang He, Zhen Xu, Seyed Elias Mousavi, and D.Y. Li, Manipulate A2/B2 structures in  $AlCrFeNi$  alloys for improved mechanical properties and wear resistance, **Lubricants**, 11 (2023) 392.
  56. Junfeng Gou, Jinbao Guo, Jieyu Zhu, Jiawen Yao, Dongyang Li, You Wang, Jiangwen Liu, Yang Yang, Effect of graphene on the microstructure, mechanical properties and wear behavior of plasma sprayed  $Al_2O_3$ - $Cr_2O_3$  coating, **Intl. J. of Appl. Ceramic Technl.**, 2023. <https://doi.org/10.1111/ijac.14562>.
  57. S.S. Dash, Z.Y. Liu, Y. Zou, D.J. Li, X.Q. Zeng, D.Y. Li, D.L. Chen, Strengthening mechanisms and work hardening in a heterostructured cast aluminum alloy under compressive loading: Correlation with nanomechanical properties, **Journal of Alloys and Compounds**, 968 (2023) 171844.
  58. Jipeng Jiang, D.Y. Li, Effect of 211 MAX phase  $Ti_2AlC$  in situ formed  $TiCx$  on properties of high chromium white iron, **Materials Letters**, 352 (2023) 135112.
  59. D. Zhang, D.Y. Li, A further look at the nano/micro-indentation method for measuring and ranking Young's modulus and hardness of materials, **Physica Scripta**, 98 (2023) 095936.
  60. Jipeng Jiang, Shibo Li, Wenbo Yu, Yang Zhou, Dongyang Li, Oxidation behavior of high Cr white iron composites reinforced with two types of  $TiC$  in air at 600C, **J. of Mater. Res. & Technl.**, 25 (2023) 5982-5989.
  61. D. Bajaj, Z. Chen, S.J. Qu, A.H. Feng, D.Y. Li, D.L. Chen, Distinct origins of deformation twinning in an additively-manufactured high-entropy alloy, **Additive Manufacturing**, 74 (2023) 103716.
  62. D D. Bajaj, A.H. Feng, S.J. Qu. Chen, D.Y. Li, 'Deformation behavior of 3D-printed high-entropy alloys: A critical review, **Advanced Engineering Materials**, 2023 <https://doi.org/10.1002/adem.202300615>.
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#### - Patents:

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- P2. D.Y. Li, Y.Q. Tang, Ruiliang Liu, Dong Zhang, Tiger Tang, "**Complex and high-entropy carbides**", A full patent application has been filed by Weir minerals (Australia),  
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