Curriculum Vitae

Huiling DUAN (段慧玲)

BEng, MEng, Ph.D.

Ph.D., Boya Chair Professor, Chang Jiang Chair Professor
Member, Chinese Academy of Sciences
International Fellow, Canadian Academy of Engineering
Fellow, American Society of Mechanical Engineers
Director, Faculty of Engineering, Peking University
Dean, College of Engineering, Peking University

Office Address:
ENN Engineering Building 3007, Peking University
Beijing, 100871, P.R. China
Office Telephone:
+86-10-62753228, Fax: +86-10-62756607
Email:
hlduan@pku.edu.cn
Researcher ID:
http://www.researcherid.com/rid/C-3517-2012
Google Scholar:
https://scholar.google.com.hk/citations?hl=zh-CN&user=iQlwTD8AAAAJ
Homepage:
http://duan-lab.pku.edu.cn/

Huiling DUAN (段慧玲)

Date of Birth: May 25, 1970. **Sex**: Female. **Nationality**: Chinese.

Research Interests

- Multiscale modeling of advanced materials by crystal plasticity and homogenization scheme.
- Interfacial interaction between fluids and solids with functional surface microstructures.
- Microstructural design and fabrication methodology of functional composites and advanced materials.

Education

- 2001.09-2005.06: Ph.D. student in Department of Mechanics and Engineering Science, Peking University, China. Received Ph.D. degree in June 2005.
- 1995.09-1998.03: Postgraduate student in Department of Mechanical Engineering of Northeastern Petroleum University, China. Received MEng degree in March 1998.
- 1987.09-1991.07: Undergraduate student in Department of Mechanical Engineering of Northeastern Petroleum University, China. Received BEng degree in July 1991.

Professional Background

- 2025.03-Present: **Founding Director**, Faculty of Engineering, Peking University, China.
- 2023.12-Present: **Boya Chair Professor**, College of Engineering, Peking University, China.
- 2020.01-Present: **Dean**, College of Engineering, Peking University, China.
- 2018.06-2019.12: **Associate Dean & Executive Dean**, College of Engineering, Peking University, China.
- 2013.09-2018.09: **Chairman**, Department of Mechanics and Engineering Science, College of Engineering, Peking University, China.
- 2015.01-Present: **Chang Jiang Chair Professor**, Ministry of Education of China.
- 2013.05-2014.12: **Tenured Associate Professor**, Department of Mechanics and Engineering Science, College of Engineering, Peking University.
- 2011.09-2011.10: **Visiting Professor**, University of Paris-EST Marne-La-Vallee, Paris.
- 2011.08-2011.08: **Visiting Professor**, Technische Universität Hamburg-Harburg, Germany.
- 2007.12-2013.04: **Associate Professor**, Department of Mechanics and Engineering Science, College of Engineering, Peking University.
- 2006-2007: **Alexander von Humboldt Fellowship**, University of Karlsruhe, Germany.
- 2005-2006: **Royal Society Postdoctoral Fellow**, Cardiff University, UK.
- 1998-2001: **Lecturer**, Northeastern Petroleum University, China.
- 1991-1995: **Mechanical Engineer**, Petroleum Factory of Northeastern Petroleum University.

Selected Distinctions and Awards

- 2025: International Fellow, Canadian Academy of Engineering (CAE).
- 2025: Inaugural Fellow, Chinese Society of Theoretical and Applied Mechanics (CSTAM).
- 2024: The ICCES Wei-zang Chien Award.
- 2023: Member, Chinese Academy of Sciences.
- 2023: National Innovation Award of China.
- 2023: Alexander von Humboldt Research Award of Germany.
- 2023: The ICCES Distinguished Fellow.
- 2022: Contribution Award for the 70th Anniversary of International Student Education at Peking University.
- 2022: "International innovation education program for engineering students", First Prize of Beijing Teaching Achievement Award of Higher Education.
- 2022: Bao-Steel Outstanding Teaching Award, China.
- 2022: Outstandting Adviser for Graduate Students of Beijing.
- 2022: National "March 8th" Pioneer for Chinese Women (the highest honor to outstanding women in China).
- 2020: "Micromechanics of composites with interface effects", Second Prize of State Natural Science Award of China.
- 2020: Fellow, American Society of Mechanical Engineers (ASME).
- 2017: Ten Best Advisers for Graduate Students of Peking University.
- 2016: "Investigation on effective properties of composites with interface effects", First Prize of Natural Science Award by the Ministry of Education of China.
- 2015: China Youth Science and Technology Award
- 2015: Science & Technology Innovation Leader Award, Science and Technology Ministry of China.
- 2014: Outstanding China Young Female Scientist Award (one of the ten recipients).
- 2014: "Chang Jiang" Chair Professor of the Ministry of Education of China.

- 2012: Distinguished Young Scholar, National Natural Science Foundation of China.
- 2011: Science and Technology Award for Young Investigators, CSTAM.
- 2010: Mao Yisheng Outstanding Young Scholar Award, Beijing, China.
- 2009: The Sia Nemat-Nasser Early Career Award (ASME), USA.
- 2007: National Excellent PhD Thesis of China.
- 2006: Alexander von Humboldt Research Fellowship, Germany.
- 2005: Post-doctoral Fellowship of The Royal Society of London, UK.

Journal Editorial Board

- 2025-2027: **Associate Editor**, *Journal of the Mechanics and Physics of Solids*, Elsevier.
- 2023-2025: **Editorial Advisor**, *Journal of the Mechanics and Physics of Solids*, Elsevier.
- 2024-2027: **Deputy Editor**, *Research*, American Association for the Advancement of Science.
- 2024-Present: **Editorial Advisory Board**, *Advanced Intelligent Discovery*, Wiley Online Library.
- 2022-Present: **Advisory Board Member**, *Droplet*, Wiley Online Library.
- 2021-2025: **Advisory Board Member**, *Forces in Mechanics*, Elsevier.
- 2020-Present: **Impact Editorial Board**, *MRS Bulletin*, Springer Nature.
- 2015-Present: **Editorial Advisory Board**, *Engineering Computations*, Emerald Publishing.
- 2015-Present: **Editor**, *Applied Mathematics and Mechanics*, Springer Nature.
- 2015-2025: **Editor**, *Acta Mechanica Sinica*, Springer Nature.
- 2015-2021: **Associate Editor**, *Journal of Engineering Materials and Technology*, ASME.
- 2015-2020: **Editor**, *Acta Mechanica Solida Sinica*, Springer Nature.

Social Services

- 2025-Present: Vice president of Chinese Society of Theoretical and Applied Mechanics (CSTAM).
- 2022-Present: The International Union of Theoretical and Applied Mechanics (IUTAM) Symposia Panel for Solid Mechanics.
- 2022-Present: Executive Committee of Global Engineering Deans Council.
- 2023-2024: Steering Committee of Asian Engineering Deans Summit.
- 2017-2019: Members at Large of ASME Mechanical Department Heads/Chairs Executive Committee, USA.
- 2019-Present: Committee Members of the Association of Women Scientists and Technicians of China.
- 2019-Present: Director of Committee of the Association of Women Scientists of CSTAM.
- 2017-2019: Vice director of Committee of the Association of Women Scientists of CSTAM.
- 2019-2025: Standing Committee Member of CSTAM.
- 2019-2025: Standing Committee Member of Chinese Society of Composites.
- 2014-2019: Committee Member of Chinese Society of Composites.
- 2014-2019: Committee Member of CSTAM.
- 2014-2019: Vice Secretary-General and Member of CSTAM.
- 2012-2019: Member of Fluids/Solids Interaction Committee of CSTAM.
- 2018-Present: Member of Society of Engineering Science (SES).
- 2018-Present: Member of American Physical Society (APS).
- 2008-Present: Member of Materials Research Society (MRS).
- 2009-Present: Member of American Society of Mechanical Engineer (ASME).

Selected Patents (20 from 52 patents)

1. **Duan Huiling**, Li Dandan, Xue Yahui, Lv Pengyu. Microscopic imaging device with controllable position interface. Chinese patent, Ref. no. 201510968906.7, September 24, 2019.
2. Zhang Jiaming, **Duan Huiling**, Ji Qinglei. Microfluidic chip and application in microdroplet generating device. Chinese patent, Ref. no. 201710053913.3, September 24, 2019.
3. Zhang Jiaming, **Duan Huiling**, Ji Qinglei, Li Xiying. Fixture for modular microfluidic chips. Chinese patent, Ref. no. 201710435940.7, January 10, 2020.
4. Zhang Jiaming, **Duan Huiling**, Zhou Zhengyuan, Li Xiying. Microfluidic chip based on 3D printing and application in emulsion generating device. Chinese patent, Ref. no. 201710312209.5, January 10, 2020.
5. Huang Tian-Yun, **Duan Huiling**. 4D micro-nano printing method based on three-dimensional laser direct writing. Chinese patent, Ref. no. 201810151527.2, December 3, 2019.
6. Huang Tian-Yun, **Duan Huiling**, Jin Dongdong. Copolymer gel, 4D micro-nano printing material, and printing test method. Chinese patent, Ref. no. 201810153284.6, August 11, 2020.
7. **Duan Huiling**, Huang Zhongyi, Yang Yuguang, Lv Pengyu. Amphibious propulsion device based on 4D printing technology and its manufacturing method. Chinese patent, Ref. no. 201910879531.5, May 14, 2021.
8. **Duan Huiling**, Liu Dan, Ji Suchun, Huang Jianyong, Lv Pengyu. Biodegradable 3D printing fluorescent material and its preparation method. Chinese patent, Ref. no. 202010062010.3, May 14, 2021.

9. **Duan Huiling**, Ji Suchun, Li Xiying, Chen Qianying, Lv Pengyu. Soft robot and manufacturing method thereof. Chinese patent, Ref. no. 202011419811.7, February 25, 2022.
10. **Duan Huiling**, Liang Jiyong, Lv Pengyu. Tunable dielectric wave-absorbing metamaterials based on microfluidic technology and their preparation method. Chinese patent, Ref. no. 202111460473.6, September 13, 2022.
11. **Duan Huiling**, Zhou Xu, Li Hongyuan, Lv Pengyu, Cao Yufan. Composite propulsor integrating bionic tail fin and water jet. Chinese patent, Ref. no. 202210110165.9, September 13, 2022.
12. **Duan Huiling**, Si Bowen, Li Hongyuan, Lv Pengyu. A retractable hydrofoil mechanism. Chinese patent, Ref. no. 202210109641.5, October 04, 2022.
13. **Duan Huiling**, Li Hongyuan, Shi Zeqi, Tan Xiangkui, Lv Pengyu, Lv Kai, Li Bingzhen, Cheng Ming. Method, device, and apparatus for determining the dimensional parameters of the hydrofoil sructure of transmedium vehicles. Chinese patent, Ref. no. 202211342030.1, March 10, 2023.
14. **Duan Huiling**, Zou Yu, Chen Qianying, Lv Pengyu, Li Hongyuan, Zhao Ni, Li Chaohui. Robot and control method. Chinese patent, Ref. no. 202211274504.3, May 5, 2023.
15. **Duan Huiling**, Li Hongyuan, Jin Jiangjie, Lv Pengyu, Li Bingzhen, Li Chaohui, Liao Mingke, Cheng Ming. Cross-medium vehicle. Chinese patent, Ref. no. 202310444796.9, July 14, 2023.
16. **Duan Huiling**, Li Hongyuan, Zou Yong, Lv Pengyu, Li Bingzhen, Zou Yucheng, Zhou Xu, Du Zengzhi, Cheng Ming. Bionic drag reduction method, device, equipment, and readable storage medium for underwater vehicles. Chinese patent, Ref. no. 202211333361.9, October 10, 2023.
17. **Duan Huiling**, Zhang Kai, Liu Huan. Elastic wave polarization system. Chinese patent, Ref. no. 201811041864.2, March 22, 2024.
18. Ji Qinglei, Liu Ying, **Duan Huiling**, Zhang Jiaming. Adjustable flow pump. Chinese patent, Ref. no. 201711303286.0, April 19, 2024.
19. **Duan Huiling**, Xiang Yaolei, Lv Pengyu, Huang Shenglin. Device for controlling the dissolved gas saturation in liquids. Chinese patent, Ref. no. 201710810946.8, May 31, 2024.
20. Huang Tian-Yun, **Duan Huiling**. Magnetic field excitation control system supporting 4D printing technology and 4D micro-nano printing equipment. Chinese patent, Ref. no. 201810153325.1, July 26, 2024.

Refereed Journal Papers (*corresponding author, 90 from 224 SCI Papers)

Prof. Huiling Duan published more than 220 publications in peer-reviewed journals including Proc. Natl. Acad. Sci., Phys. Rev. Lett., Nature Communications, Science Advances, Advanced Mater., Adv. Appl. Mech., Appl. Mech. Rev., J. Mech. Phys. Solids, J. Fluid Mech., Phys. Rev. B, Acta Mater., Proc. Roy. Soc. A, etc. She now has a Web of Science citations of 7500+ (h-index: 46), and a Google Scholar citations of 10000+.

1. Li Xiying, Zhang Jiaming*, **Duan Huiling***; Enhanced sensitivity and versatile detection: dual-sized microsphere-type pressure sensors for soft robotics and wearable electronics; ***ACS Applied Materials & Interfaces***; 2025, 17(7): 11268-11277.
2. Cao Zi-Yi, Sai Huayang, Wang Weiwei, Yang Kai-Cheng, Wang Linlin, Lv Pengyu, **Duan Huiling**, Huang Tian-Yun*; Bioinspired microhinged actuators for active mechanism-based metamaterials; ***Advanced Science***; 2025, 12(2): 2407231.
3. Sun Bing, Xing Yue, Lv Pengyu, Zhou Jin, Liu Chunqi, **Duan Huiling***, Liang Xiubing*; Concurrent optimization of continuous carbon fiber-reinforced composites with multi-scale components considering the manufacturing constraint; ***Composites Science and Technology***; 2025, 259: 110942.
4. Lv Kai, Lin Enfan, Liu Yongze, Chen Zongbao, Wang Yexian, He Ming, Yan Jiale, Lv Pengyu, Yang Yantao, Li Hongyuan*, **Duan Huiling***; Data-driven optimization of nose profiles for water entry impact load reduction; ***Ocean Engineering***; 2025, 315: 119851.
5. Zhao Feng, Liu Wenbin, Zhang Yin*, **Duan Huiling***; The hierarchical energy landscape of edge dislocation glide in refractory high-entropy alloys; ***Journal of the Mechanics and Physics of Solids***; 2024, 193: 105887.
6. Liu Xiaochao, You Chenxi, Cao Yanlin, Xu Baorui, Yang Yantao, Li Hongyuan, Lv Pengyu, Sun Chao, **Duan Huiling***; Friction drag reduction of Taylor–Couette flow over air-filled microgrooves; ***Journal of Fluid Mechanics***; 2024, 999: A63.
7. Wen Zhixuan, Lv Pengyu, Feng Fan*, **Duan Huiling***; A generalized geometric mechanics theory for multi-curve-fold origami: vertex constrained universal configurations; ***Journal of the Mechanics and Physics of Solids***; 2024, 192: 105829.
8. Chen Ce, Wu Liujun, Fu Jiaqi, Xin Chenyang, Liu Wenbin, **Duan Huiling***; A micromechanical scheme with nonlinear concentration functions by physics-guided neural network; ***Journal of the Mechanics and Physics of Solids***; 2024, 188: 105681.
9. Zhao Feng, Liu Wenbin, Yi Xin, Zhang Yin*, **Duan Huiling***; Multiscale modeling of dislocation-mediated plasticity of refractory high entropy alloys; ***Journal of the Mechanics and Physics of Solids***; 2024, 187: 105640.
10. Ao Yu, Duan Huiling, Li Shaofan*; An integrated-hull design assisted by artificial intelligence-aided design method; ***Computers & Structures***; 2024, 297: 107320.
11. Zhang Xinyu, Zhang Shuai, Yan Zixiang, **Duan Huiling***, Ding Yongkun, Kang Wei*; Mode-coupled perturbation growth on the interfaces of cylindrical implosion: A comparison between theory and experiment; ***Physical Review E***; 2024, 109(3): 035203.

12. Zou Yu, Feng Fan, Liu Ke, Lv Pengyu, **Duan Huiling***; Kinematics and dynamics of non-developable origami; ***Proceedings of the Royal Society A***; 2024, 480(2282): 20230610.
13. Li Qi#, Ma Chao#, He Yunfeng, Lv Pengyu, **Duan Huiling**, Hong Wei*; Fatigue-resistant adhesion through high energy barriers; ***Journal of the Mechanics and Physics of Solids***; 2024, 189: 105722.
14. Sui Haonan, Liu Wenbin, Zhang Yin, **Duan Huiling***; Multi-scale spallation model for single-crystal ductile metals incorporating microscopic mechanism of void nucleation; ***Journal of the Mechanics and Physics of Solids***; 2024, 183: 105520.
15. Yan Jiale, Li Shaofan, Kan Xingyu, Lv Pengyu, Zhang A-Man, **Duan Huiling***; Updated Lagrangian Particle Hydrodynamics (ULPH) modeling for free-surface fluid flows; ***Computational Mechanics***; 2024, 73: 297-316.
16. Wu Liujun, Fu Jiaqi, Sui Haonan, Wang Xiaoying, Tao Bowen, Lv Pengyu, Chen Mohan, Yuan Zifeng, **Duan Huiling***; A data-driven yield criterion for porous ductile single crystals containing spherical voids via physics-informed neural networks; ***Proceedings of the Royal Society A***; 2023, 479(2278): 20230433.
17. Liu Wenbin, Zhao Feng, Yu Long, Cheng Yangyang, **Duan Huiling***; A constitutive framework for micro-to-macroplasticity of crystalline materials under monotonic and cyclic deformation; ***Journal of the Mechanics and Physics of Solids***; 2023, 179: 105383.
18. Ji Songsong, Li Hongyuan, Du Zengzhi, Lv Pengyu, **Duan Huiling***; Influence of interfacial coupled flow on slip boundary over a microstructured surface; ***Physical Review Fluids***; 2023, 8(5): 054003.
19. Zhao Feng, Liu Wenbin, Sui Haonan, Fu Jiaqi, Cheng Yangyang, Zhang Jingyu, **Duan Huiling***; Model for deformation-induced martensitic transformation in irradiated materials; ***Proceedings of the Royal Society A: Mathematical, Physical and Engineering Science***; 2023, 479(2272): 20220633.
20. Liu Wenbin, Cheng Yangyang, Sui Haonan, Fu Jiaqi, **Duan Huiling***; Microstructure-based intergranular fatigue crack nucleation model: Dislocation transmission versus grain boundary cracking; ***Journal of the Mechanics and Physics of Solids***; 2023, 173: 105233.
21. Zhang Jingyu, Ding Shurong, **Duan Huiling***; Modeling of irradiation growth of Zr single crystals with diffusion anisotropy; ***Journal of Nuclear Materials***; 2023, 577: 154295.
22. Du Zengzhi, Li Hongyuan, Cao Yufan, Wan Xia, Xiang Yaolei, Lv Pengyu, **Duan Huiling***; Control of flow separation using biomimetic shark scales with fixed tilt angles; ***Experiments in Fluids***; 2022, 63(10): 158.
23. Chen Qianying, Feng Fan, Lv Pengyu, **Duan Huiling***; Origami spring-inspired shape morphing for flexible robotics; ***Soft Robotics***; 2022, 9(4): 798-806.
24. Sui Haonan, Yu Long, Liu Wenbin, Liu Ying, **Duan Huiling***; Model of void nucleation on grain boundaries in dynamic failure of ductile metals incorporating interface incompatibility; ***Journal of the Mechanics and Physics of Solids***; 2022, 168: 105032.
25. Li Qi, Liu Weixuan, Yang Canhui, Rao Ping, Lv Pengyu, **Duan Huiling**, Hong Wei*; Kirigami-inspired adhesion with high directional asymmetry; ***Journal of the Mechanics and Physics of Solids***; 2022, 169: 105053.
26. Liu Ying, Liu Wenbin, Yu Long, Sui Haonan, Cheng Yangyang, **Duan Huiling***; Size-dependent to size-independent transition in creep of single crystalline Cu micropillars; ***Extreme Mechanics Letters***; 2022, 56: 101843.
27. Li Xiying, Wang Shuang, Lu Lu, Lv Pengyu, **Duan Huiling***; A micromechanical model for phase-change composites; ***Proceedings of the Royal Society A***; 2022, 478(2261): 20220054.
28. Lu Lu, Dang Xiangxin, Feng Fan, Lv Pengyu, **Duan Huiling***; Conical kresling origami and its applications to curvature and energy programming; ***Proceedings of the Royal Society A***; 2022, 478(2257): 20210712.
29. Sui Haonan, Yu Long, Liu Wenbin, Liu Ying, Cheng Yangyang, **Duan Huiling***; Theoretical models of void nucleation and growth for ductile metals under dynamic loading: A review; ***Matter and Radiation at Extremes***; 2022, 7(1): 018201.
30. Liu Wenbin, Chen Lirong, Yu Long, Fu Jiaqi, **Duan Huiling***; Continuum modeling of dislocation channels in irradiated metals based on stochastic crystal plasticity; ***International Journal of Plasticity***; 2022, 151: 103211.
31. Li Hongyuan, Cao Yufan, Wang Xiangyu, Wan Xia, Xiang Yaolei, Yuan Huijing, Lv Pengyu, **Duan Huiling***; Accurate PIV measurement on slip boundary using single-pixel algorithm; ***Measurement Science and Technology***; 2022, 33(5): 055302.
32. Liu Wenbin, Yu Long, Liu Ying, Sui Haonan, Fan Haidong, **Duan Huiling***; Dislocation pile-up polarization model for mechanical properties of polycrystalline metals based on grain boundary resistance variability; ***Journal of the Mechanics and Physics of Solids***; 2022, 160: 104793.
33. Dang Xiangxin, Feng Fan, **Duan Huiling**, Wang Jianxiang*; A theorem on the compatibility of spherical kirigami tessellations; ***Physical Review Letters***; 2021, 128(3): 035501.
34. Zhang Yuan, Tan Xiangkui, Li Xiying, Lv Pengyu, Huang Tianyun, Yang Jianying, **Duan Huiling***; 3D propulsions of rod‐shaped micropropellers; ***Advanced Intelligent Systems***; 2021, 3(11): 2100083.
35. Chen Qianying, Lv Pengyu, Huang Jianyong, Huang Tianyun, **Duan Huiling***; Intelligent shape-morphing micromachines; ***Research***; 2021, 2021: 9806463.
36. Ji Suchun, Li Xiying, Chen Qianying, Lv Pengyu, **Duan Huiling***; Enhanced locomotion of shape morphing microrobots by surface coating; ***Advanced Intelligent Systems***; 2021, 3(7): 2000270.
37. Chen Qianying, Huang Tianyun, Lv Pengyu, Huang Jianyong, **Duan Huiling***; Programmable self-locking micromachines with tunable couplings; ***Advanced Intelligent Systems***; 2021, 3(10): 2000232.

38. Liu Wenbin, Liu Ying, Sui Haonan, Chen Lirong, Yu Long, Yi Xin, **Duan Huiling***; Dislocation-grain boundary interaction in metallic materials: Competition between dislocation transmission and dislocation source activation; ***Journal of the Mechanics and Physics of Solids***; 2020, 145: 104158.
39. Li Hongyuan, Li Zexiang, Tan Xiangkui, Wang Xiangyu, Huang Shenglin, Xiang Yaolei, Lv Pengyu*, **Duan Huiling***; Three-dimensional backflow at liquid-gas interface induced by surfactant; ***Journal of Fluid Mechanics***; 2020, 899(25): A8.
40. Yu Long, Sui Haonan, Liu Wenbin, Chen Lirong, Liu Ying, **Duan Huiling***; A yield criterion for porous crystalline materials with inner pressure; ***International Journal of Solids and Structures***; 2020, 202: 511-520.
41. Liu Wenbin, Liu Ying, Cheng Yangyang, Chen Lirong, Yi Xin, **Duan Huiling***; Unified model for size-dependent to size-independent transition in yield strength of crystalline metallic materials; ***Physical Review Letters***; 2020, 124(23): 235501.
42. Huang Tianyun, Huang Hengwei, Jin DongDong, Chen Qianying, Huang Jianyong, Zhang Li, **Duan Huiling***; Four-dimensional micro-building blocks; ***Science Advances***; 2020, 6(3): eaav8219.
43. Xiang Yaolei, Huang Shenglin, Huang Tianyun, Dong Ao, Cao Di, Li Hongyuan, Xue Yahui, Lv Pengyu, **Duan Huiling***; Superrepellency of underwater hierarchical structures on Salvinia leaf; ***Proceedings of the National Academy of Sciences of the United States of America***; 2020, 117(5): 2282-2287.
44. Chen Lirong, Liu Wenbin, Yu Long, Cheng Yangyang, Ren Ke, Sui Haonan, Yi Xin*, **Duan Huiling***; Probabilistic and constitutive models for ductile-to-brittle transition in steels: A competition between cleavage and ductile fracture; ***Journal of the Mechanics and Physics of Solids***; 2020, 135: 103809.
45. Chen Qianying, Lv Pengyu, Huang Tianyun, Huang Jianyong*, **Duan Huiling***; Encoding smart micro-joints for micro-crawlers with enhanced locomotion; ***Advanced Intelligent Systems***; 2020, 2(3): 1900128.
46. Liu Huan, Zhang Quan, Zhang Kai*, Hu Gengkai, **Duan Huiling***; Designing 3D digital metamaterial for elastic waves: from elastic wave polarizer to vibration control; ***Advanced Science***; 2019, 6(16): 1900401.
47. Liu Wenbin, Chen Lirong, Cheng Yangyang, Yu Long, Yi Xin, Gao Huajian, **Duan Huiling***; Model of nanoindentation size effect incorporating the role of elastic deformation; ***Journal of the Mechanics and Physics of Solids***; 2019, 126: 245-255.
48. Zhang Jiaming*, Ji Qinglei, **Duan Huiling***; Three-dimensional printed devices in droplet microfluidics; ***Micromachines***; 2019, 10(11): 754.
49. Cheng Yangyang, Yu Long, Chen Lirong, Liu Wenbin, Yi Xin*, **Duan Huiling***; Failure of fracture toughness criterion at small scales; ***Physical Review Materials***; 2019, 3(11): 113602.
50. Zhang Jiaming#, Ji Qinglei#, Liu Ying, Huang Jianyong, **Duan Huiling***; An integrated micro-millifluidic processing system; ***Lab on a Chip***; 2018, 18(22): 3393-3404.
51. Yu Long, Xiao Xiazi, Chen Lirong, Cheng Yangyang, **Duan Huiling***; A hierarchical theoretical model for mechanical properties of lath martensitic steels; ***International Journal of Plasticity***; 2018, 111: 135-151.
52. Chen Lirong, Xiao Xiazi, Yu Long, Chu Haijian, **Duan Huiling***; Texture evolution and mechanical behaviour of irradiated face-centred cubic metals; ***Proceedings of the Royal Society A: Mathematical***, ***Physical and Engineering Sciences***; 2018, 474(2210): 20170604.
53. Xiang Yaolei, Huang Shenglin, Lv Pengyu, Xue Yahui, Su Qiang, **Duan Huiling***; Ultimate stable underwater superhydrophobic state; ***Physical Review Letters***; 2017, 119(13): 134501.
54. Xue Yahui, Lv Pengyu, Lin Hao, **Duan Huiling***; Underwater superhydrophobicity: stability, design and regulation, and applications; ***Applied Mechanics Reviews***; 2016, 68(3): 030803.
55. Yu Long, Chen Lirong, Xiao Xiazi, Chen Qianying, **Duan Huiling***; Constitutive relationship of irradiated metallic materials by eshelby formalism and micro-mechanical scheme; ***Journal of Micromechanics and Molecular Physics***; 2016, 1(03n04): 1640006.
56. Yu Long, Xiao Xiazi, Chen Lirong, Chu Haijian, **Duan Huiling***; A micromechanical model for nano-metallic-multilayers with helium irradiation; ***International Journal of Solids and Structures***; 2016, 102: 267-274.
57. Xiao Xiazi, Terentyev Dmitry, Yu Long, Bakaev Alexander, Jin Zhaohui, **Duan Huiling***; Investigation of the thermo-mechanical behavior of neutron-irradiated Fe-Cr alloys by self-consistent plasticity theory; ***Journal of Nuclear Materials***; 2016, 477: 123-133.
58. Li Xiying, Xue Yahui, Zou Mingchu, Zhang Dongxiao, Cao Anyuan*, **Duan Huiling***; Direct oil recovery from saturated carbon nanotube sponges; ***ACS Applied Materials & Interfaces***; 2016, 8(19): 12337-12343.
59. Xiang Yaolei, Xue Yahui, Lv Pengyu, Li Dandan, **Duan Huiling***; Influence of fluid flow on the stability and wetting transition of submerged superhydrophobic surfaces; ***Soft Matter***; 2016, 12(18): 4241-4246.
60. Li Dandan, Xue Yahui, Lv Pengyu, Huang Shenglin, Lin Hao, **Duan Huiling***; Receding dynamics of contact lines and size-dependent adhesion on microstructured hydrophobic surfaces; ***Soft Matter***; 2016, 12(18): 4257-4265.
61. Xiao Xiazi, Song Dingkun, Xue Jianming, Chu Haijian*, **Duan Huiling***; A self-consistent plasticity theory for modeling the thermo-mechanical properties of irradiated FCC metallic polycrystals; ***Journal of the Mechanics and Physics of Solids***; 2015, 78: 1-16.
62. Xiao Xiazi, Song Dingkun, Xue Jianming, Chu Haijian*, **Duan Huiling***; A size-dependent tensorial plasticity model for FCC single crystal with irradiation; ***International Journal of Plasticity***; 2015, 65: 152-167.

63. Terentyev Dmitry*, Xiao Xiazi, Dubinko Andrii., Alexander Bakaev, **Duan Huiling***; Dislocation-mediated strain hardening in tungsten: Thermo-mechanical plasticity theory and experimental validation; ***Journal of the Mechanics and Physics of Solids***; 2015, 85: 1-15.
64. Xue Yahui, Yang Yanbing, Sun Hui, Li Xiying, Wu Shiting, Cao Anyuan*, **Duan Huiling***; A switchable and compressible carbon nanotube sponge electrocapillary imbiber; ***Advanced Materials***; 2015, 27(44): 7241-7246.
65. Xiao Xiazi, Song Dingkun, Chu Haijian, Xue Jianming, **Duan Huiling***; Mechanical properties for irradiated face-centred cubic nanocrystalline metals; ***Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences***; 2015, 471(2177): 20140832.
66. Lv Pengyu, Xue Yahui, Shi Yipeng, Lin Hao*, **Duan Huiling***; Metastable states and wetting transition of submerged superhydrophobic structures; ***Physical Review Letters***; 2014, 112(19): 196101.
67. Xue Yahui, Markmann Jurgen, **Duan Huiling***, Weissmüller Jorg, Huber Patrick*; Switchable imbibition in nanoporous gold; ***Nature Communications***; 2014, 5: 4237.
68. Li Dandan, Li Shichen, Xue Yahui, Yang Yantao, Su Weidong, Xia Zhenhua, Shi Yipeng, Lin Hao*, **Duan Huiling***; The effect of slip distribution on flow past a circular cylinder; ***Journal of Fluids and Structures***; 2014, 51: 211-224.
69. Xue Yahui, Yuan Huijing, Su Weidong, Shi Yipeng*, **Duan Huiling***; Enhanced load-carrying capacity of hairy surfaces floating on water; ***Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences***; 2014, 470(2165): 20130832.
70. Lanza Mario, Bayerl Albin, Gao Teng, Porti Marc, Nafria Montserrat, Jing Guangyin, Zhang Yanfeng, Liu Zhongfan, **Duan Huiling***; Graphene-coated atomic force microscope tips for reliable nanoscale electrical characterization; ***Advanced Materials***; 2013, 25(10): 1440-1444.
71. Wang Mingqing, Wang Yan, Sun Yongjian, Zhang Guoyi, Tong Yuzhen, **Duan Huiling***; Thermo-mechanical solution of film/substrate systems under local thermal load and application to laser lift-off of GaN/sapphire structures; ***International Journal of Solids and Structures***; 2012, 49(13): 1701-1711.
72. Xue Yahui, Chu Shigan, Lv Pengyu, **Duan Huiling***; Importance of hierarchical structures in wetting stability on submersed superhydrophobic surfaces; ***Langmuir***; 2012, 28(25): 9440−9450.
73. Wang Yan, Jörg Weissmüller*, **Duan Huiling***; Mechanics of corrugated surfaces; ***Journal of the Mechanics and Physics of Solids***; 2010, 58(10): 1552-1566.
74. Yi Xin, **Duan Huiling***; Surface stress induced by interactions of adsorbates and its effect on deformation and frequency of microcantilever sensors; ***Journal of the Mechanics and Physics of Solids***; 2009, 57(8): 1254-1266.
75. Wang Yan, Weissmüller Jorg, **Duan Huiling***; Tuning and monitoring of quantum dot growth by an in situ cantilever; ***Physical Review B***; 2009, 79(4): 045401.
76. **Duan Huiling***, Weissmüller Jorg, Wang Yan; Instabilities of core-shell heterostructured cylinders due to diffusions and epitaxy: spheroidization and blossom of nanowires; ***Journal of the Mechanics and Physics of Solids***; 2008, 56(5): 1831-1851.
77. Weissmuller Jorg*, **Duan Huiling***; Cantilever bending with rough surfaces; ***Physical Review Letters***; 2008, 101(14): 146102.
78. **Duan Huiling**, Wang Jianxiang, Karihaloo Bhushan Lal*; Theory of elasticity at the nanoscale; ***Advances in Applied Mechanics***; 2008, 42: 1-68.
79. **Duan Huiling**, Yi Xin, Huang Zhuping, Wang Jianxiang*; A unified scheme for prediction of effective moduli of multiphase composites with interface effects. part I: theoretical framework; ***Mechanics of Materials***; 2007, 39(1): 81-93.
80. **Duan Huiling**, Yi Xin, Huang Zhuping, Wang Jianxiang*; A unified scheme for prediction of effective moduli of multiphase composites with interface effects: part II-application and scaling laws; ***Mechanics of Materials***, 2007, 39(1): 94-103.
81. **Duan Huiling**, Karihaloo Bhushan Lal*; Thermo-elastic properties of heterogeneous materials with imperfect interfaces: Generalized Levin's formula and Hill's connections; ***Journal of the Mechanics and Physics of Solids***; 2007, 55(5): 1036-1052.
82. **Duan Huiling**, Karihaloo Bhushan Lal*; Effective thermal conductivities of heterogeneous media containing multiple imperfectly bonded inclusions; ***Physical Review B***; 2007, 75(6): 064206.
83. **Duan Huiling**, Karihaloo Bhushan Lal*, Wang Jianxiang, Yi Xin; Compatible composition profiles and critical sizes of alloyed quantum dots; ***Physical Review B***; 2006, 74(19): 195328.
84. **Duan Huiling**, Yang Jiao, Yi Xin, Huang Zhuping, Wang Jianxiang*; Solutions of inhomogeneity problems with graded shells and application to core-shell nanoparticles and composites; ***Journal of the Mechanics and Physics of Solids***; 2006, 54(7): 1401-1425.
85. **Duan Huiling**, Karihaloo Bhushan Lal*, Wang Jianxiang, Yi Xin; Effective conductivities of heterogeneous media containing multiple inclusions with various spatial distributions; ***Physical Review B***; 2006, 73(17): 174203.
86. Jing Guangyin, **Duan Huiling**, Sun X. M., Zhang Z. S., Xu J., Li Y. D., Wang Jianxiang, Yu Dapeng*; Surface effects on elastic properties of silver nanowires: Contact atomic-force microscopy; ***Physical Review B***; 2006, 73(23): 235409.

87. **Duan Huiling**, Wang Jianxiang*, Huang Zhuping, Zhong Yiling; Stress fields of a spheroidal inhomogeneity with an interphase in an infinite medium under remote loadings; ***Proceedings of the Royal Society A***; 2005, 461(2056): 1055-1080.
88. **Duan Huiling**, Wang Jianxiang*, Huang Zhuping, Karihaloo Bhushan Lal; Size-dependent effective elastic constants of solids containing nano-inhomogeneities with interface stress; ***Journal of the Mechanics and Physics of Solids***; 2005, 53(7): 1574-1596.
89. **Duan Huiling**, Wang Jianxiang, Huang Zhuping, Karihaloo Bhushan Lal*; Eshelby formalism for nano-inhomogeneities; ***Proceedings of the Royal Society A***; 2005, 461(2062): 3335-3353.
90. **Duan Huiling**, Wang Jianxiang*, Huang Zhuping, Luo Zhenyu; Stress concentration tensors of inhomogeneities with interface effects; ***Mechanics of Materials***; 2005, 37(7): 723-736.

Selected Plenary, Semi-Plenary, Invited and Key-Note Lectures

Dr. Huiling Duan has delivered more than 90 plenary, invited, and keynote talks in IUTAM Symposia, conferences, and universities/research institutes.

1. **Duan Huiling** (2024). Research on underwater flow and sliding boundary mechanics, 13th National Conference on Fluid Mechanics, August 9-13, Harbin, China.
2. **Duan Huiling** (2024). Interfacial flow over hierarchically structured surface: slip boundary, flow separation control, and drag reduction, Micro Flow and Interfacial Phenomena μFIP 2024 Conference, June 20-24, Hongkong, China.
3. **Duan Huiling** (2023). Recent advances on extreme mechanics of metallic materials, The 29th International Conference on Computational & Experimental Engineering and Sciences (ICCES2023), May 26-29, Shenzhen, China.
4. **Duan Huiling** (2023). Design theory and bionic manufacturing of advanced materials and structures, 2023 International Conference on Intelligent Material Design (ICIMD2023), April 28-30, Hangzhou, China.
5. **Duan Huiling** (2022). Research on the mechanics of slip boundary at underwater fluid-solid interface, Chinese Congress of Theoretical and Applied Mechanics, 2021+1, November 5, online.
6. **Duan Huiling** (2022). Slip flow and plastron stability on underwater hierarchically structured surfaces, JFM & FLOW Symposia 2022 in China, June 11, Online.
7. **Duan Huiling** (2019). Integration Study on Structures and Functions of Flexible Micro-robots, Workshop about Theory and Technology of Soft Robots, November 15-17, Wuhan, China.
8. **Duan Huiling** (2019). Integration Study on Structures and Functions of Flexible Micro-robots, Annual Conterence of Chinese Robotics Society, August 10-12, Shenyang, China.
9. **Duan Huiling** (2019). Irradiation hardening and embrittlement in structural materials, International Conference on Advanced Materials Sciences and Engineering, July 22-24, Osaka, Japan.
10. **Duan Huiling** (2019). Irradiation hardening of metallic materials, Plasticity' 19: International Symposium on Plasticity and Its Current Applications, January 3-9, Panama.
11. **Duan Huiling** (2018). Recent advances on mechanical properties of metallic materials under extreme conditions, the 13th World Congress on Computational Mechanics, July 22-27, New York, USA.
12. **Duan Huiling** (2017). Underwater superhydrophobicity: Fundamentals and applications, 2017 CCTAM and the 60th anniversary conference of Chinese Society of Theoretical and Applied Mechanics, August 13-16, Beijing, China.
13. **Duan Huiling** (2017). Superhydrophobicity of micro/nanostructures: Fundamentals and applications, Discussion Forum between Engineering Schools of PKU and HKUST, February 17-19, the Hong Kong University of Science and Technology, Hong Kong, China.
14. **Duan Huiling** (2016). Underwater superhydrophobiciy: Fundamentals and applications, the 24th International Congress of Theoretical and Applied Mechanics, August 21-28, Montreal, Canada.
15. **Duan Huiling** (2016). Mechanical behaviors of irradiated nanocrystals and polycrystals with nanotwins, Plasticity' 16: The Twenty Second International Symposium on Plasticity and Its Current Applications, January 3-9, Hawaii, USA.
16. **Duan Huiling** (2015). Mechanical properties of irradiated single crystals and polycrystals, ASME 2015 Applied Mechanics and Materials Conference, McMAT2015, American Society of Mechanical Engineers, June, Seattle, USA.
17. **Duan Huiling** (2014): Mechanical property of graphene/substrate structure, November 07, Technische Universität Darmstadt, Germany.
18. **Duan Huiling** (2013). Some high performance of graphene based devices. The 41th International Summer School-Conference of Advanced Problems in Mechanics, July 1-6, St. Petersburg, Russia (Plenary Lectures).
19. **Duan Huiling** (2012): Wrinkle free graphene and wetting of hierarchical structures, April 10, Tsinghua University, Beijing, China.
20. **Duan Huiling,** Wang, M. Q. (2012): Thermo-mechanical solution of film/substrate systems under local thermal load and its applications. Symposium of Mechanical Behavior Related to Interface Physics, TMS Annual Meeing & Exhibition, March 11-15, Orlando, USA.
21. **Duan Huiling** (2011): Microstructures and mechanical properties of unconventional cellular materials, August 15, Technical University of Hamburg, Hamburg, Germany.

22. **Duan Huiling** (2010): Theory of effective surface stress/surface tension on complex surface, IUTAM Symposium on Surface Effects in the Mechanics of Nanomaterials and Hetero-structures, August 8-13, Beijing, China.
23. **Duan Huiling** (2010): Microstructures and mechanical properties of natural honeybee combs, July 8, University of California, Berkeley, USA.
24. **Duan Huiling** (2010): Microstructures and mechanical properties of cellular materials –natural honeybee combs, July 12, University of California San Diego, USA.
25. **Duan Huiling** (2010): Mechanics of cellular materials--honeycomb and nanotube bundles. Université Paris-Est Marne-la-Vallée, France.
26. **Duan Huiling**, Wang, Y. (2009). Some applications of surface stress and surface energy--Mechanical properties of nanostructured materials, mechanics of cantilevers and self-organization. 17th American Conference on Crystal Growth and Epitaxy (ACCGE-17), at the Grand Geneva Resort in Lake Geneva, Wisconsin, August 9-14, USA.
27. **Duan Huiling** (2008). Design multi-functional materials by multi-scale modelling. Université Paris-Est Marne-la-Vallée, Paris, France.
28. **Duan Huiling**, Weissmuller, J., Wang Y, Yi, X. (2008): Monitoring of molecule absorption and stress evolutions by In-situ micro-cantilever systems. International Union of Theoretical and Applied Mechanics Symposium "Modelling Nanomaterials and Nano-systems", Aalborg, Denmark.
29. **Duan Huiling** (2007): Morphological evolution of inhomogeneities due to diffusion and epitaxy. International Union of Theoretical and Applied Mechanics Symposium "Scaling in Solid Mechanics", Cardiff, UK.
30. **Duan Huiling** (2006): Mechanical properties of nano-structured materials. Institute of Nanotechnology, Forschungszentrum Karlsruhe, Germany.