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EDUCATION

- **September 2016—August 2022** **Ph.D.**, Mechanical and Electronic Engineering
China University of Petroleum (East China)
 - **September 2014—June 2016** **Master** of Mechanical and Electronic Engineering
China University of Petroleum (East China)
Take the Successive Postgraduate and Doctoral Program in 2016
 - **September 2010—June 2014** **Bachelor** of *Mechanical design, manufacturing and automation*
China University of Petroleum (East China)
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PUBLICATIONS

- **Qiang Sun**, Yonghong Liu, Zhiping Shen, et.al. A combined thermal spallation and melting technology by plasma jet for deep geothermal and hard rock reservoirs. *SPE Journal*. <https://doi.org/10.2118/212263-PA>
- **Qiang Sun**, Yonghong Liu, Yancong Han, et.al. A novel experimental method of investigating anode-arc-root behaviors in a DC non-transferred arc plasma torch. *Plasma Sources Science and Technology*, 2020, 29(2): 25008. <https://doi.org/10.1088/1361-6595/ab652e>
- Xiaolong Wang, Yonghong Liu, Yanzhen Zhang, **Qiang Sun**, Zhen Li, Yang Shen. Characteristics of plasma channel in powder-mixed EDM based on monopulse discharge. *International Journal of Advance Manufacturing Technology*, 2016, 82(5-8): 1063-1069.
- Xiaolong Wang, Yonghong Liu, Hang Dong, **Qiang Sun**, Yang Shen, Renjie Ji. A three-step model for submicron W/O emulsion formation in a transitional-phase inversion process. *Journal of Dispersion Science and Technology*, 2016, 37(8): 1186-1191.
- Dege Li, Yi Cao, Hang Dong, Xinlei Wu, **Qiang Sun**, Chi Ma, Bingfang Huang, Shokoufeh Rastar, Gunther Wittstock, Yonghong Liu, Yanzhen Zhang. Pneumatic conveying printing based on super hydrophobic surface. *Advanced Materials Interfaces*, 2020, 7(9): 1902131.
- Peng Liu, Yonghong Liu, Zhiqian Huang, Baoping Cai, **Qiang Sun**, Xiaoxuan Wei, Chao Xin. Design optimization for subsea gate valve based on combined analyses of fluid characteristics and sensitivity. *Journal of Petroleum Science and Engineering*, 2019, 182: 106277.
- Peng Liu, Yonghong Liu, Xiaoxuan Wei, Chao Xin, **Qiang Sun**, Xinlei Wu. Performance analysis and optimal design based on dynamic characteristics for pressure compensated subsea all-electric valve actuator. *Ocean Engineering*, 2019, 191:1064568.
- Dege Li, Yi Cao, Bingfang Huang, Molong Han, Xinlei Wu, **Qiang Sun**, Chao Zheng, Lilong Zhao, Chi Ma, Hui Jin, Xiaolong Wang, Yonghong Liu, Yanzhen Zhang. Active femtoliter droplet generation in microfluidics by confined interface vibration. *Langmuir*, 2021, 37(3): 1297-1305.
- Dege Li, Bingfang Huang, Yi Cao, Molong Han, Xinlei Wu, **Qiang Sun**, Chi Ma, Lilong Zhao, Peng Liu, Chao Zheng, Hang Dong, Xiaolong Wang, Yonghong Liu, Yanzhen Zhang. Confined interface vibration for femtoliter droplets generation and manipulation. *Nano Select*, 2021, 2(2):338-345.

- Zengkai Liu, Yonghong Liu, Ju Li, Baoping Cai, **Qiang Sun**, Xinyan Han. Research on Expert System for Fault Diagnosis of Subsea Blowout Preventer. *International Journal of Control and Automation*, 2014, 7(1):1-10.
- Xinlei Wu, Yonghong Liu, Xuexin Zhang, Hang Dong, Chao Zheng, Fan Zhang, **Qiang Sun**, Hui Jin, Renjie Ji. Sustainable and high-efficiency green electrical discharge machining milling method. *Journal of Cleaner Production*, 2020,274:123040.
- Dege Li, Haoren Li, Guodong Yang, Jide Wang, Bingfang Huang, Xinlei Wu, **Qiang Sun**, Chi Ma, Yonghong Liu, Yanzhen Zhang. Subharmonic resonance and antiresonance characteristics for high-frequency confined interface vibration inkjet printing. *Physics of Fluids*, 2022,34(3):032104.
- Dege Li, Haoren Li, Guodong Yang, Yi Cao, Bingfang Huang, Xinlei Wu, **Qiang Sun**, Chi Ma, Yu Zhou, Yonghong Liu, Yanzhen Zhang. Mechanisms of inkjet printing in a liquid environment. *Journal of Fluid Mechanics*, 2022, 948: A40.
- Hang Dong, Yonghong Liu, Ming Li, Yu Zhou, Tong Liu, Dege Li, **Qiang Sun**, Renjie Ji. Experimental investigation of water-in-oil nanoemulsion in sinking electrical discharge machining. *Materials and Manufacturing Processes*, 2019, 34(10): 1129-1135.
- Hang Dong, Yonghong Liu, Tong Liu, Ming Li, Yu Zhou, Dege Li, **Qiang Sun**. Water-in-oil nanoemulsion dielectric for both rough and finishing electrical discharge machining. *International Journal of Advance Manufacturing Technology*, 2019, 104(1-4): 1485-1495.
- Hang Dong, Yonghong Liu, Ming Li, Zhou Yu, Tong Liu, Dege Li, **Qiang Sun**, Yanzhen Zhang, Renjie Ji. Sustainable electrical discharge machining using water in oil nanoemulsion. *Journal of Manufacturing Processes*, 2019, 46: 118-128.
- Dege Li, Jianchao Li, Kaixin Wang, Guodong Yang, Yi Cao, Bingfang Huang, Xinlei Wu, **Qiang Sun**, Chi Ma, Lilong Zhao, Peng Liu, Yonghong Liu, Yanzhen Zhang. Dry-jet wet spinning and encapsulating for preparing multifunctional fibers based on anti-Rayleigh-Plateau-Instability solution. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 2022, 638:128240.
- Chi Ma, Yonghong Liu, Changlong Li, Hang Dong, Dege Li, Xinlei Wu, Peng Liu, **Qiang Sun**, Hui Jin, Fan Zhang. Mechanical properties of carbon steel by compound arc and vibration shock forging-rolling. *Journal of Manufacturing Processes*, 2020,60:11-22.
- Renjie Ji, Hui Jin, Yonghong Liu, Tiancong Dong, Fan Zhang, Lilong Zhao, Xinlei Wu, **Qiang Sun**, Peng Liu, Hang Dong, Chi Ma, Dege Li, Baoping Cai. Efficient preparation of nanoparticle-reinforced nickel-based composite coating with highly preferred (220) orientation. 2020, 33(1):1-18.

PATENTS

- Yonghong Liu, **Qiang Sun**, Qingyun Li, et.al. Multi-path combined high-low voltage plasma rock-breaking drill bit, drill bit apparatus and drilling method. *American Patent*. No.: US 11085245 B2
- Yonghong Liu, **Qiang Sun**, Qingyun Li, et.al. Multi-path combined high-low voltage plasma rock-breaking power source and drilling system. *American Patent*. No.: US 11268326 B2
- Yonghong Liu, **Qiang Sun**, Qingyun Li, et.al. Multi-path combined high-low voltage plasma rock-breaking drilling method, drill bit for drilling and drill bit apparatus for drilling. *American Patent*. No.: US 11293231 B2
- Yonghong Liu, **Qiang Sun**, Yancong Han, et.al. High-energy pulsed self-rotation plasma perforation method. *Chinese Patent*. No.: ZL 202110777723.2
- Yonghong Liu, **Qiang Sun**, Yancong Han, et.al. Plasma rock-breaking bit electrodes low-consuming method. *Chinese Patent*. No.: ZL 202110641505.6
- Yonghong Liu, **Qiang Sun**, Yancong Han, et.al. Plasma rock-breaking high chip removal system. *Chinese Patent*. No.: ZL 202011597985.2

AWARDS AND HONORS

- Energy Equipment Innovation Design Competition For China Postgraduate, Special Award, 2020
- The 5TH China Graduate On Equipment Innovation Design Competition, Second Prize, 2018
- The 4TH China Graduate On Equipment Innovation Design Competition, Second Prize, 2017
- Excellent student scholarship

RESEARCH PROJECTS

- Multi-path combined high-low voltage plasma rock-breaking and drilling method. National Natural Science Foundation of China. No.: 51774316, Jan. 2018—Dec. 2021
- Replace SAGD wellhead equipment under pressure with high energy plasma jet and electric discharge milling technology. Horizontal project from Xinjiang Oil Field, Sep. 2018—Aug. 2019
- Fundamental research of high efficiency rock breaking and drilling technology by high-energy plasma. Fundamental Research Funds for the Central Universities, Sep. 2018—Dec. 2019