

LELE LIU

PH.D., ASSOCIATE RESEARCHER

1. KEY LABORATORY OF GAS HYDRATE, MINISTRY OF NATURAL RESOURCES

QINGDAO INSTITUTE OF MARINE GEOLOGY

CHINA GEOLOGICAL SURVEY

2. LABORATORY FOR MARINE MINERAL RESOURCES

PILOT NATIONAL LABORATORY FOR MARINE SCIENCE AND TECHNOLOGY (QINGDAO)

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PILOT NATIONAL LABORATORY FOR MARINE SCIENCE AND TECHNOLOGY (QINGDAO)

I. EARNED DEGREES

Ph.D. 2013	Institute of Mechanics, Chinese Academy of Sciences Engineering Mechanics (Soil Mechanics and Geotechnical Engineering)
BS 2008	Department of Hydraulic Engineering, Tsinghua University Water Conservancy and Hydropower Engineering

II. EMPLOYMENT HISTORY

2017-present	Associate Researcher	Qingdao Institute of Marine Geology
2017-2018	Visiting Scholar	Georgia Institute of Technology
2013-2016	Assistant Researcher	Qingdao Institute of Marine Geology

III. HONORS AND AWARDS

A. PROVINCIAL AWARDS

2018	Ocean Engineering Science and Technology Award (Sixth Accomplisher) Second Prize, China Association of Oceanic Engineering
2018	Qingdao Science and Technology Award (Fifth Accomplisher) First Prize, Qingdao Municipal Peoples Government

B. INSTITUTE AWARDS

2018	Outstanding Member of Communist Party
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IV. RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITIES

A. PUBLISHED BOOKS, BOOK CHAPTERS, AND EDITED VOLUMES

A1. Books

No data.

A2. Refereed Book Chapters

2018	<i>Demystifying Fiery Ice – 100 Questions of Fiery Ice Knowledge</i> Chapters 4 and 6, China Meteorological Press
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A3. Edited Volumes

No data.

B. REFEREED PUBLICATIONS AND SUBMITTED ARTICLES

Note: asterisks indicate corresponding authors and names of advisees are in boldface.

B1. Published and Accepted Journal Articles (Refereed)

1. Lele Liu, Nengyou Wu*, Changling Liu*, Qingguo Meng, Haitao Tian, Yizhao Wan, Jianye Sun (2020). Maximum sizes of fluids occupied pores within hydrate-bearing porous media composed of different host particles. *Geofluids*, accepted.
<https://doi.org/10.1155/2020/8880286>
2. **Zhun Zhang**, Chengfeng Li, Fulong Ning*, Lele Liu*, Jianchao Cai, Changling Liu, Nengyou Wu, Daigang Wang (2020). Pore fractal characteristics of hydrate-bearing sands and implications to the saturated water permeability. *Journal of Geophysical Research: Solid Earth*, 125. <https://doi.org/10.1029/2019JB018721>
3. Lele Liu*, **Zhun Zhang**, Chengfeng Li, Fulong Ning, Changling Liu, Nengyou Wu, and Jianchao Cai* (2020). Hydrate growth in quartzitic sands and implication of pore fractal characteristics to hydraulic, mechanical, and electrical properties of hydrate-bearing sediments. *Journal of Natural Gas Science and Engineering*, 75.
<https://doi.org/10.1016/j.jngse.2019.103109>
4. Daigang Wang, Yong Li, Changling Liu, Linsen Zhan, Hailong Lu*, Chengfeng Li, Jianye Sun, Qingguo Meng, and Lele Liu (2020). Study of hydrate occupancy, morphology and microstructure evolution with hydrate dissociation in sediment matrices using X-ray micro-CT. *Marine and Petroleum Geology*, 113.
<https://doi.org/10.1016/j.marpetgeo.2019.104138>
5. Lin Dong*, Yanlong Li*, Hualin Liao*, Changling Liu, Qiang Chen, Gaowei Hu, Lele Liu, and Qingguo Meng (2020). Strength estimation for hydrate-bearing sediments based on triaxial shearing tests. *Journal of Petroleum Science and Engineering*, 184.
<https://doi.org/10.1016/j.petrol.2019.106478>
6. Changling Liu*, Yanlong Li, Lele Liu, Gaowei Hu, Qiang Chen, Nengyou Wu, and Qingguo Meng (2019). An integrated experimental system for gas hydrate drilling and production and a preliminary experiment of the depressurization method. *Natural Gas Industry*, 39(6): 143-150. (In Chinese with an English abstract)
7. Lin Dong, Yanlong Li, Changling Liu*, Hualin Liao*, Guoqi Chen, Qiang Chen, Lele Liu, and Gaowei Hu (2019). Mechanical properties of methane hydrate-bearing interlayered sediments. *Journal of Ocean University of China*, 18(6): 1344-1350.
<https://doi.org/10.1007/s11802-019-3929-z>
8. Lele Liu*, Sheng Dai, Fulong Ning, Jianchao Cai*, Changling Liu, and Nengyou Wu (2019). Fractal characteristics of unsaturated sands – implications to relative permeability in hydrate-bearing sediments. *Journal of Natural Gas Science and Engineering*, 66: 11-17.
9. Lele Liu, **Zhun Zhang**, Fulong Ning, Chengfeng Li, Jianchao Cai, Daigang Wang, Changling Liu*, and Nengyou Wu (2019). A fractal model for the relative permeability prediction of hydrate-bearing sediments. *SCIENTIA SINICA Physica, Mechanica & Astronomica*, 49(3): 034615. (In Chinese with an English abstract)
10. Chengfeng Li, Changling Liu*, Gaowei Hu, Jianye Sun, Xiluo Hao, Lele Liu, and Qingguo

- Meng (2019). Investigation on the Multiparameter of Hydrate-Bearing Sands Using Nano-Focus X-Ray Computed Tomography. *Journal of Geophysical Research: Solid Earth*, 124. <https://doi.org/10.1029/2018JB015849>
11. **Hongyuan Zhang**, Lele Liu*, Changling Liu, Chengfeng Li, Qingguo Meng, Shijun Zhao, and Chen'an Li (2018). Experimental investigation on permeability of hydrate bearing sediments based on pressure pulse method. *Journal of Experimental Mechanics*, 33(2): 263-271. (In Chinese with an English abstract)
12. Xuhui Zhang*, Dashuang Luo, Xiaobing Lu, Lele Liu, and Changling Liu (2018). Mechanical properties of gas hydrate-bearing sediments during hydrate dissociation. *Acta Mechanica Sinica*, 34(2): 266-274.
13. Xuhui Zhang*, Jia Lin, Xiaobing Lu, Lele Liu, Changling Liu, Mingyao Li, and Yewang Su (2018). A hypoplastic model for gas hydrate-bearing sandy sediments. *International Journal for Numerical and Analytical Methods in Geomechanics*, 42(7): 931-942.
14. Daigang Wang, Chenchen Wang, Chengfeng Li, Changling Liu, Hailong Lu*, Nengyou Wu*, Gaowei Hu, Lele Liu, and Qingguo Meng (2018). Effect of gas hydrate formation and decomposition on flow properties of fine-grained quartz sand sediments using X-ray CT based pore network model simulation. *Fuel*, 266: 516-526.
15. Jiaxin Sun, Fulong Ning*, Hongwu Lei, Xuerui Gai, Maecelo Sanchez, Jingan Lu, Yanlong Li, Lele Liu, Changling Liu, Nengyou Wu, Yong He, and Ming Wu (2018). Wellbore stability analysis during drilling through marine gas hydrate-bearing sediments in Shenhu area: A case study. *Journal of Petroleum Science and Engineering*, 170: 345-367.
16. Lanchang Xing*, Yu Qi, Tai Zhu, Lin Chen, Changling Liu, Qingguo Meng, and Lele Liu (2018). Joint detection of the electrical and acoustic response characteristics of methane hydrate bearing sediments: apparatus development and experimental study. *Advances in New and Renewable Energy*, 6(2): 1-10. (In Chinese with an English abstract)
17. Lele Liu*, **Hongyuan Zhang**, Changling Liu, Yanlong Li, and Chengfeng Li (2017). Pressure pulse-decay method and its application to permeability measurement of hydrate-bearing sediments. *Marine Geology & Quaternary Geology*, 37(5): 159-165. (In Chinese with an English abstract)
18. Lele Liu*, Xiaobing Lu, Xuhui Zhang, and Bin Du (2017). Numerical simulations for analyzing deformation characteristics of hydrate-bearing sediments during depressurization. *Advances in Geo-Energy Research*, 1(3): 135-147.
19. Yanlong Li, Gaowei Hu*, Changling Liu, Nengyou Wu, Qiang Chen, Lele Liu, and Chengfeng Li (2017). Gravel sizing method for sand control packing in hydrate production test wells. *Petroleum Exploration and Development*, 44(6): 1016-1021.
20. Yanlong Li, Changling Liu*, Lele Liu, Meng Huang, and Qingguo Meng (2017). Triaxial shear test and strain analysis of unconsolidated hydrate-bearing sediments. *Natural Gas Geoscience*, 28(3): 383-390. (In Chinese with an English abstract)
21. Yanlong Li, Changling Liu*, Lele Liu, Qiang Chen, and Gaowei Hu (2017). Mechanical properties of methane hydrate-bearing unconsolidated sediments. *Journal of China University of Petroleum*, 41(3): 105-113. (In Chinese with an English abstract)
22. Meng Huang, Hongxian Shan*, Lele Liu, Yanlong Li, Yonggang Jia, and Changling Liu (2017). Triaxial Test of unconsolidated sediment containing methane hydrate. *Journal of Xi'an Shiyou University (Natural Science Edition)*, 32(1): 31-36, 43. (In Chinese with an

English abstract)

23. Yu Qi, Lanchang Xing*, Changling Liu, Qiang Chen, and Lele Liu (2017). Design and development of an impedance analyzer based on the virtual instrument technique. *Electronic Measurement Technology*, 40(6): 19-24. (In Chinese with an English abstract)
24. Lanchang Xing*, Yu Qi, Changling Liu, Yanfeng Geng, Chenquan Hua, Qingguo Meng, and Lele Liu (2017). Development of electrical-acoustic-thermal multi-parameter joint test system. *Experimental Technology and Management*, 34(11): 78-85. (In Chinese with an English abstract)
25. Lele Liu*, Xuhui Zhang, Changling Liu, and Yuguang Ye (2016). Triaxial shear tests and statistical analyses of damage for methane hydrate-bearing sediments. *Chinese Journal of Theoretical and Applied Mechanics*, 48(3): 720-729. (In Chinese with an English abstract)
26. **Hongyuan Zhang**, Lele Liu*, Changling Liu, Jianye Sun, Qingguo Meng, and Shijun Zhao (2016). Advances in experimental investigations on seepage characteristics of hydrate-bearing sediments and feasibility of transient pulse method. *Advances in New and Renewable Energy*, 4(4): 272-278. (In Chinese with an English abstract)
27. Yanlong Li, Changling Liu*, Lele Liu (2016). Damage statistic constitutive model of hydrate-bearing sediments and the determination method of parameters. *Acta Petrolei Sinica*, 37(10): 1273-1279. (In Chinese with an English abstract)
28. Yanlong Li, Changling Liu*, Lele Liu, Meng Huang, Jianye Sun, and Chengfeng Li (2016). Key issues for triaxial test of hydrate-bearing sediment. *Advances in New and Renewable Energy*, 4(4): 279-285. (In Chinese with an English abstract)
29. Yanlong Li, Lele Liu, Changling Liu*, Jianye Sun, Yuguang Ye, and Qiang Chen (2016). Sanding prediction and sand-control technology in hydrate exploitation: a review and discussion. *Marine Geology Frontiers*, 32(7): 36-43. (In Chinese with an English abstract)
30. Lele Liu*, Xiaobing Lu, and Xuhui Zhang (2015). A theoretical model for predicting the spatial distribution of gas hydrate dissociation under the combination of depressurization and heating without the discontinuous interface assumption. *Journal of Petroleum Science and Engineering*, 133: 589-601.
31. Xuhui Zhang*, Lele Liu, Junbing Zhou, Xiaobing Lu, Shuyun Wang, Changling Liu, and Yuguang Ye (2015). A model for the elastic modulus of hydrate-bearing sediments. *International Journal of Offshore and Polar Engineering*, 25(4): 314-319.
32. Lele Liu*, Xuhui Zhang, Changling Liu, Jian Zhang, and Yuguang Ye (2015). A meso-mechanical mixed model for equivalent modulus of elasticity of hydrate bearing sediment. *Chinese Journal of Underground Space and Engineering*, 11(S2): 425-428, 442. (In Chinese with an English abstract)
33. Lele Liu*, Jianye Sun, Changling Liu, and Yuguang Ye (2015). Experimental and numerical study on the hydrate dissociation front induced by depressurization in unconsolidated sediment. *Geoscience*, 29(5): 1234-1241. (In Chinese with an English abstract)
34. Lele Liu*, Xiaobing Lu, and Xuhui Zhang (2015). On the hydrate dissociation front evolution in simulation experiment of depressurization mining. *Journal of Experimental Mechanics*, 30(4): 469-476. (In Chinese with an English abstract)
35. Jianye Sun, Lele Liu, Xiaowen Wang, Feifei Wang, and Changling Liu* (2015). Experimental study on the replacement of methane hydrate in sediments with CO₂. *Natural Gas Industry*, 26(8): 56-62. (In Chinese with an English abstract)

36. Lele Liu*, Xiaobing Lu, and Xuhui Zhang (2014). Numerical analysis on evolution of natural gas hydrate decomposition region in hydrate-bearing sediment. *Acta Petrolei Sinica*, 35(5): 941-951. (In Chinese with an English abstract)
37. Xuhui Zhang*, Xiaobing Lu, and Lele Liu (2014). Advances in natural gas hydrate recovery methods. *Progress in Geophysics*, 29(2): 858-869. (In Chinese with an English abstract)
38. Lele Liu*, Xiaobing Lu, and Xuhui Zhang (2013). An experimental study of seepage front due to methane hydrate dissociation by depressurization in sandy sediments. *Natural Gas Industry*, 33(11): 130-136. (In Chinese with an English abstract)
39. Lele Liu*, Xiaobing Lu, and Xuhui Zhang (2013). Numerical study on porous media's deformation due to natural gas hydrate dissociation considering fluid-solid coupling. *Natural Gas Geoscience*, 24(5): 1079-1085. (In Chinese with an English abstract)
40. Lele Liu*, Xuhui Zhang, and Xiaobing Lu. Review on the permeability of hydrate-bearing sediments. *Advances in Earth Science*, 27(7): 733-746. (In Chinese with an English abstract)

B2. Conference Presentation with Proceedings (Refereed)

1. **Zhun Zhang**, Lele Liu, Changling Liu, Fulong Ning, Zhichao Liu, and Yanlong Li (2018). Mechanical behaviors, mechanisms, and strengths of hydrate-bearing sediments. *National Conference on Solid Mechanics, 2018* (accepted)
2. Lele Liu*, **Hongyuan Zhang**, Changling Liu, Chengfeng Li, Jianye Sun, and Qingguo Meng (2017). Determining the permeability of hydrate-bearing slity-fine sands with water transient flow. *CGS/SEG International Geophysical Conference, 2017* (accepted)
3. Peng Li, Xuhui Zhang*, Xiaobing Lu, Lele Liu, and Changling Liu (2016). Study on gas hydrate dissociation in small bodies of hydrate-bearing sediments under water-heating condition. *International Ocean and Polar Engineering Conference, 2016* (accepted)
4. Lele Liu*, Chengfeng Li, Changling Liu, Jian Zhang, and Yuguang Ye (2015). Macro and micro experiments on mechanical properties of hydrate-bearing sediments. *The Chinese Congress of Theoretical and Applied Mechanics, 2015* (accepted)

B3. Other Refereed Material

No data.

B4. Submitted Journal Articles (with date of submission)

1. **Zhun Zhang**, Lele Liu*, Chengfeng Li, Jianchao Cai, Fulong Ning, Qingguo Meng, and Changling Liu. Fractal analyses on electrical properties of hydrate-bearing porous media based on Archie's law. *Journal of Petroleum Science and Engineering*, PETROL19355, submitted in 01/2020

C. OTHER PUBLICATIONS AND CREATIVE PRODUCTS

C1. Patents

1. Lele Liu, Changling Liu, Zhun Zhang, Chengfeng Li, and Jianchao Cai. A method to calculate pore-area fractal dimension of fluid-occupied pores within hydrate-bearing sediments. National invention patent, ZL201711011461.9, 2020
2. Lele Liu, Changling Liu, Yuguang Ye, Qiang Chen, and Gaowei Hu. Experimental simulation

- device and method for multi-physics field evolution during natural gas hydrate production. National invention patent, ZL201610074731.X, 2018
3. Lele Liu, Changling Liu, Gaowei Hu, and Qiang Chen. Experimental measuring device and method for hydrate saturation and specimen permeability during natural gas hydrate dissociation. National invention patent, ZL201610073996.8, 2018
 4. Lele Liu. A device for precise determinations of the hydrate saturation change in a small volume specimen. National utility model patent, ZL201721615625.4, 2017
 5. Lele Liu, Changling Liu, Xiangyuan Yuan, Xiwu Cai, Liangtao Xu, Gaowei Hu, and Qiang Chen. A pressure chamber with a metal drainage tube for triaxial shear tests on hydrate-bearing sediments. National utility model patent, ZL201720267842.2, 2017
 6. Lele Liu, Changling Liu, Yuguang Ye, Qiang Chen, and Gaowei Hu. A device for simulating multi-physics field evolution during natural gas hydrate production. National utility model patent, ZL201620108177.8, 2016
 7. Lele Liu, Changling Liu, Gaowei Hu, and Qiang Chen. A device for measuring hydrate saturation and specimen permeability during natural gas hydrate dissociation. National utility model patent, ZL201620106469.8, 2016
 8. Zhun Zhang, Changling Liu, Lele Liu, Fulong Ning, Chengfeng Li, Qingguo Meng, and Yanlong Li. X-ray CT combined device and method for experimental measurements of fluids and solids production from hydrate-bearing sediments. National invention patent, ZL201811105353.2, 2019
 9. Zhun Zhang, Changling Liu, Lele Liu, Fulong Ning, Chengfeng Li, Qingguo Meng, and Yanlong Li. An X-ray CT combined device for permeability measurements of hydrate-bearing sediments. National utility model patent, ZL201821547381.5, 2019
 10. Zhun Zhang, Changling Liu, Lele Liu, Fulong Ning, Chengfeng Li, Qingguo Meng, and Yanlong Li. An X-ray CT combined experimental cell for measurements of fluids and solid production from hydrate-bearing sediments. National utility model patent, ZL201821547362.2, 2019
 11. Changling Liu, Hailong Lu, Lele Liu, and Yanlong Li. Monitoring device and method for sands production in wells during gas recovery from hydrate deposits in the laboratory. National invention patent, ZL201610070178.2, 2019
 12. Changling Liu, Lele Liu, Qingdao Meng, Zhun Zhang, and Chengfeng Li. A multi-probe measuring system for Low-field Nuclear Magnetic Resonance testing on natural gas hydrates. National utility model patent, ZL201721636975.9, 2018
 13. Changling Liu, Lele Liu, Yanlong, and Yuanping Li. A laboratory simulating method for drilling and production of natural gas hydrates. National invention patent, ZL201610169792.4, 2018
 14. Yanlong Li, Nengyou Wu, Changling Liu, Chengfeng Li, Haojia Liu, Qiang Chen, and Lele Liu. A visualized evaluation system for hydrate formation and blocking in screens. National utility model patent, ZL201820327181.2, 2018
 15. Yanlong Li, Changling Liu, Nengyou Wu, Gaowei Hu, Lele Liu, and Chengfeng Li. A simulating chamber and corresponding testing method for sands production during gas recovery from hydrate deposits. National invention patent, ZL201710261572.9, 2018
 16. Yanlong Li, Changling Liu, Gaowei Hu, Lele Liu, and Qiang Chen. An experimental device and corresponding method for simulating fine-grain particles migration in dissociated zone

- during gas recovery from marine hydrate deposits. National invention patent, ZL201610871343.4, 2018
17. Gaowei Hu, Changling Liu, Jun Cheng, Qiang Chen, and Lele Liu. An experimental device for measuring wave velocity and electromagnetism damping of hydrate-bearing sediments. National invention patent, ZL201610071504.1, 2018
 18. Changling Liu, Lele Liu, Xiangyan Yuan, Xiwu Cai, Yanlong Li, and Qingguo Meng. An chamber for stress sensitivity evaluation of permeability in hydrate-bearing sediments. National utility model patent, ZL201720269627.6, 2017
 19. Changling Liu, Yanlong Li, Lele Liu, Nengyou Wu, and Jianye Sun. An experimental device for sands migration through gravels zone in hydrate deposits. National utility model patent, ZL201720345213.7, 2017
 20. Changling Liu, Yanlong Li, Jun Cheng, Chengfeng Li, and Lele Liu. An X-ray computed tomography applicative device for measuring electrical resistivity of hydrate-bearing sediments in the laboratory. National utility model patent, ZL201720479287.X, 2017
 21. Yanlong Li, Changling Liu, Nengyou Wu, Gaowei Hu, Lele Liu, and Chengfeng Li. A chamber for simulating sands production from hydrate-bearing sediments. National utility model patent, ZL201720421660.6, 2017
 22. Changling Liu, Hailong Liu, Lele Liu, and Yanlong Li. A one-dimensional device for simulating sands production in wells for gas recovery from hydrate deposits. National utility model patent, ZL201620101741.3, 2016
 23. Changling Liu, Lele Liu, Yanlong Li, Gaowei Hu, and Qiang Chen. A visualized device for risk evaluation of gas hydrate reformation in a production well. National utility model patent, ZL201620102672.8, 2016
 24. Changling Liu, Lele Liu, Yuanping Li, Yanlong Li, Yuguang Ye, Gaowei Hu, and Qiang Chen. A pilot scale apparatus for gas recovery from hydrate deposits. National utility model patent, ZL201620228589.5, 2016
 25. Changling Liu, Shijun Zhao, Jianye Sun, and Lele Liu. An experimental device for simulating hydrate production by carbon dioxide replacement method. National invention patent, ZL201410208708.6, 2016
 26. Changling Liu, Lele Liu, Jun Cheng, Qiang Chen, and Qingguo Meng. A multi-function triaxial shear apparatus and corresponding method for hydrate-bearing sediments. National invention patent, ZL201410486670.9, 2014
 27. Changling Liu, Lele Liu, Jun Cheng, Qiang Chen, and Qingguo Meng. A multi-function triaxial shear apparatus for hydrate-bearing sediments. National utility model patent, ZL201420543715.7, 2014

C2. Other material

1. Qingdao Institute of Marine Geology. A software for the porous fluid flow simulation by using the lattice Boltzmann method ("LBMpoflow" for short). National software copyright, 2020SR0448700, 2020
2. Qingdao Institute of Marine Geology. A software for the stochastic simulation of gas hydrate nucleation and growth in porous media ("PMHyGrowth" for short). National software copyright, 2019SR0851778, 2019

D. PRESENTATIONS

D1. Keynote Addresses and Plenary Lectures

No data.

D2. Invited Conference and Workshop Presentations

No data.

D3. Conference and Workshop Presentations

11/2019 CHINA ROCK 2019, Section 18 Prevention and Control of Marine Engineering and Geohazards, Beijing, CHN

08/2017 CCTAM 2017, Section MS031 Marine Soil Mechanics, Beijing, CHN

06/2017 ICGH9, Section 10.B Gas Hydrate Production Geomechanical Modeling, Denver, US

04/2017 CGS/SEG IGC 2017, Section 52 Solid Earth, Qingdao, CHN

06/2016 FIERY ICE 2016 Workshop, Honolulu, US

11/2015 CYCRE 2015, Section 4 Soil Deformation and Sedimentation, Wuhan, CHN

08/2015 CCTAM 2015, Section MS27 Marine Soil Mechanics and Underwater Structure Stability, Shanghai, CHN

D4. Invited Seminar Presentations

No data.

D5. Other Presentations

No data.

E. GRANTS AND CONTRACTS

E1. As Principal Investigator

Title of Project: *Evolution of pore structures and response of hydraulic properties within hydrate-bearing silty deposits during depressurization induced production (No. 41872136)*

Agency/Company: National Natural Science Foundation of China

Total Fund (RMB): 660,000

Role: PI

Collaborators: Jianchao Cai, China University of Geosciences (Wuhan)

Period of Contract: 1/1/2019 - 31/12/2022

Candidate's Share: 77.3% (¥510,000)

Title of Project: *Evolution of natural gas hydrate dissociation front in unconsolidated sediments by depressurization (No. 11402131)*

Agency/Company: National Natural Science Foundation of China

Total Fund (RMB): 250,000

Role: PI

Collaborators: NA

Period of Contract: 1/1/2015 - 31/12/2017

Candidate's Share: 100%

Title of Project: *Experimental studies and testing technique developments on hydrate-bearing sediments (No. DD20190221)*

Agency/Company: China Geological Survey

Total Fund (RMB): 21,310,000

Role: PI

Collaborators: NA

Period of Contract: 1/1/2019 - 31/12/2021

Candidate's Share: 100%

Title of Project: *Experimental studies on recovery method and its safety of natural gas hydrates (No. GZH201500304)*

Agency/Company: China Geological Survey

Total Fund (RMB): 13,000,000

Role: PI

Collaborators: NA

Period of Contract: 1/1/2015 - 31/12/2015

Candidate's Share: 100%

E2. As Co-Principal Investigator

Title of Project: Responses of hydrate deposits around a production well and their control strategies during gas recovery from gas hydrate (No. 2018YFE0126400)

Agency/Company: Ministry of Science and Technology of the People's Republic of China

Total Fund (RMB): 3,150,000

Role: Co-PI

Collaborators: Fulong Ning (PI), China University of Geosciences (Wuhan); He'en Zhang (Co-PI), CNPC Offshore Engineering Company Limited

Period of Contract: 1/1/2020 - 31/12/2022

Candidate's Share: ~17% (¥ 520,000)

Title of Project: *Testing technique developments and experimental studies on natural gas hydrates (No. DD20160216)*

Agency/Company: China Geological Survey

Total Fund (RMB): 26,950,000

Role: Vice-PI

Collaborators: Changling Liu (PI), Qingdao Institute of Marine Geology

Period of Contract: 1/1/2016 - 31/12/2018

Candidate's Share: ~35% (¥ 9,430,000)

E3. As Senior Personnel or Contributor

Title of Project: *Application demonstration of target zone evaluation and selection technique for natural gas hydrate production (No. 2017YFC0307602)*

Agency/Company: Ministry of Science and Technology of the People's Republic of China

Total Fund (RMB): 1,900,000

Role: Contributor

Collaborators: Gaowei Hu (PI), Qingdao Institute of Marine Geology
Period of Contract: 1/7/2017 - 31/12/2020

Title of Project: *Characteristics of hydrate-bearing sediments and mechanisms of fluid and solid production (No. QNLM2016ORP0203)*

Agency/Company: Pilot National Laboratory for Marine Science and Technology (Qingdao)

Total Fund (RMB): 1,000,000

Role: Contributor

Collaborators: Fulong Ning (PI), China University of Geosciences (Wuhan); Changling Liu (Co-PI), Qingdao Institute of Marine Geology

Period of Contract: 1/4/2017 - 31/3/2020

Title of Project: *Effects of pore structures on the permeability of hydrate-bearing sediments (No. 41506082)*

Agency/Company: National Natural Science Foundation of China

Total Fund (RMB): 200,000

Role: Contributor

Collaborators: Chengfeng Li (PI), Qingdao Institute of Marine Geology

Period of Contract: 1/1/2016 - 31/12/2018

Title of Project: *Critical pressure difference prediction for sands production during gas recovery from hydrate deposits by depressurization (No. 41606078)*

Agency/Company: National Natural Science Foundation of China

Total Fund (RMB): 240,000

Role: Contributor

Collaborators: Yanlong Li (PI), Qingdao Institute of Marine Geology

Period of Contract: 1/1/2017 - 31/12/2019

E4. Pending Proposals

No data.

F. OTHER SCHOLARLY AND CREATIVE ACCOMPLISHMENTS

No data.

G. SOCIETAL AND POLICY IMPACTS

No data.

H. OTHER PROFESSIONAL ACTIVITIES

No data.

V. TEACHING

A. COURSES TAUGHT

No data.

B. INDIVIDUAL STUDENT GUIDANCE

B1. Ph.D. Students

B1-a. Graduated

No data.

B1-b. In Process

1. Mr. Zhun Zhang (BS, China University of Geoscience, Wuhan)
Starting date: September 2017
Expected graduation date: June 2021
Research: hydraulic properties of hydrate-bearing sediments

B2. M.S. Students

B2-a. Graduated

1. Mr. Hongyuan Zhang (BS, China University of Petroleum, Huadong)
Starting date: September 2015
Graduation date: June 2017
Research: hydraulic properties of hydrate-bearing sediments

B2-b. In Process

No data.

B3. Undergraduate Students

No data.

B4. Service on thesis or dissertation committees

No data.

B5. Mentorship of postdoctoral fellows or visiting scholars

No data.

C. OTHER TEACHING ACTIVITIES

No data.

VI. SERVICE

A. PROFESSIONAL CONTRIBUTIONS

A1. Editorial Board memberships

No data.

A2. Society Offices, Activities, and Memberships

International Society for Soil Mechanics and Geotechnical Engineering, corresponding member
Geological Society of China, member

A3. Organization and Chairmanship of Technical Sessions, Workshops and Conferences

No data.

A4. Technical Journal or Conference Referee Activities

Journal reviewer: Geophysical Research Letters; Journal of Natural Gas Science and Engineering; Journal of Petroleum Science and Engineering; Marine and Petroleum Geology; Arabian Journal of Geosciences; Advances in Geo-Energy Research; REM-International Engineering Journal; Chinese Journal of Theoretical and Applied Mechanics (In Chinese); SCIENCE CHINA Physics, Mechanics & Astronomy (In Chinese); Journal of Guilin University of Technology (In Chinese).

Conference proceeding reviewer: No data.

A5. Proposal Panels and Reviews

No data.

A6. Other Involvement

No data.

B. PUBLIC AND COMMUNITY SERVICE

No data.

C. INSTITUTE CONTRIBUTIONS

C1. Institute Committee Service

No data.

C2. College Committee Service

No data.

C3. School Committee Service

No data.

C4. Program Development: Research

No data.

C5. Program Development: Academic

No data.

C6. Other Institute Service Contributions

No data.