

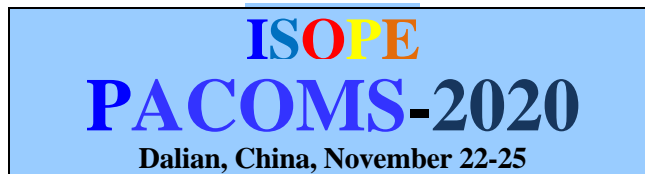
November 22-25, 2020  
Dalian, China

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<http://www.isopec.org/conferences-symposia-and-workshops/>

The Fourteenth (2020) ISOPE  
*Pacific-Asia*  
*Offshore Mechanics Symposium*  
Online Video/Virtual

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*Updated*  
*Technical Program*

Invited and Peer-reviewed Papers from:  
Australia, Singapore, Russia, UK, USA, Japan, Korea,  
China

Hydrodynamics, CFD,	Offshore Wind Turbine
Coastal Dynamics, CFD	Wave Energy Converters
Flow-Induced Vibrations	Arctic and Environment
Offshore, Ocean Technology	Surface, Underwater Vehicles
Pipeline & Seabed Soil	Impact, Risk, Safety

*Organized by:*

ISOPE International Organizing Committee (IOC) and Local Organizing Committee (LOC): Dalian University of Technology

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*Hosted by:*

PACOMS-2020 Dalian Secretariat and IOC  
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**The 31st (2021) International  
Ocean and Polar Engineering Conference**

**Rhodes (Rodos), Greece  
June 20-25, 2021**

***Call For Papers***

Abstract Deadline: **November 20, 2020**  
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## Welcome to PACOMS-2020 Dalian

We greatly appreciate the excellent responses and help we have received from colleagues around the North America, Oceania, Europe and Asia in the successful organization of the 14th ISOPE Pacific/Asia Offshore Mechanics Symposium (PACOMS-2020), Dalian, China, November 22–25, 2020. The symposium features 19 sessions of peer-reviewed papers and invited papers from Asia, Oceania, North America and Europe. This year's focus is on LNG, FLNG, Bunkering, EEDI, Green ship, Underwater Tunnel Bridge, CFD, Offshore and Wind Energy, Offshore and Arctic Technologies.

The purposes of the ISOPE conference are to:

- promote technological progress and activities, international technological transfer and cooperation, and opportunities for engineers to maintain and improve technical competence; and
- provide a timely international forum for technical activities, cooperation, opportunity and fellowship among researchers and engineers,

by developing focused session topics with peer-reviewed papers accepted through rigorous review, establishing high international standards for publication and worldwide distribution and promoting regional cooperation among the Pacific/Asian countries.

The International Society of Ocean and Polar Engineers (ISOPE) has already held 60 successful international meetings:

- The *Annual ISOPE Conference* has been held with the world's largest technical program of its kind with refereed papers since 1992. It started in Edinburgh, 1991, and rotated among Europe, Asia and N. America; most recently in Honolulu, 2019.
- Additional specialty and regional symposia:
  - 1st (1990) *European Offshore Mechanics* (EUROMS–90), Trondheim.
  - 1st (1990) *Pacific/Asia Offshore Mechanics* (PACOMS–90), Seoul.
  - 1st (1995) *Ocean Mining* (OMS–95), Tsukuba.
  - 1st (1996) *Intl Deep-Ocean Tech and Wksp, IDOT-96*, Los Angeles.
  - 1st (2003) *High Performance Materials*, Honolulu.
  - 1st (2005) *Advanced Natural Gas Transport*, Seoul.
  - 1st (2007) *Nanotechnology*, Lisbon.
  - 1st (2007) *Strain-Based Design*, Lisbon.
  - 1st (2008) *Frontier Energy Resources Tech.*, Vancouver.
  - 1st (2009) *Sloshing Dynamics and Design*, Osaka.
  - 1st (2010) *Renewable Energy & Environment*, Beijing.
  - 1st (2010) *Arctic Science and Technology*, Beijing.
  - 1st (2010) *Arctic Steel*, Maui, Hawaii
  - 1st (2012) *Tsunami and Safety*, Rhodes
  - 1st (2012) *Asset Integrity*, Rhodes
  - 1<sup>st</sup> (2013) *Hi Mn/ Cryogenic Materials*, Anchorage
  - 1<sup>st</sup> (2016) *Underwater Technology*, Rhodes
  - 1<sup>st</sup> (2018) *Environment-Assisted Cracking*, Sapporo
  - 1<sup>st</sup> (2020) *Advance Ship Technology*, Shanghai

On behalf of PACOMS Executive Committee, International Organizing Committee and Local Organizing Committee, we would like to express our appreciation to the financial sponsors and welcome participants to the PACOMS-2020 Symposium in Dalian, China.

**Jin S. Chung, Bin Teng, Dezhi Ning**  
Co-Chairs, The 14th ISOPE PACOMS-2020 Symposium

# TECHNICAL PROGRAM

PACOMS-2020 Dalian

The Fourteenth (2020) ISOPE  
*Pacific-Asia*  
*Offshore Mechanics Symposium*  
Dalian, China, November 22-25, 2020



The ISOPE PACOMS-2020 Symposium Proceedings with peer-reviewed papers in PDF files will be available on USB drive (530 pp.) — paginated — during the symposium and later for worldwide post-conference order from ISOPE: ISBN 978-1-880653-83-8; ISSN 1946-004X.

All ISOPE publications are indexed by Scopus, EI (Compendex), Thomson Scientific and Technical Proceedings (ISTP), Google scholar and others.

UPDATED SYMPOSIUM PROGRAM WITH SESSION / PAPER LIST:  
Updated at

<http://www.isopec.org/conferences-symposia-and-workshops/>  
<http://www.isopec.org/proceedings/>

## SUNDAY November 22

## MONDAY November 23

*All presentations are online video Presentation format;  
Beijing Time Zone*

8:30		
1. OPENING PLENARY SESSION		<del>Meijing Hall, 3F</del>
10:00		
2. COASTAL HYDRODYNAMICS I		<del>Meijing Hall, 3F</del>
3. OCEAN, WIND ENERGY & ENVIRON I		<del>Liangchen, 3F</del>
12:20	Not in 2020	
PACOMS Lunch		<del>Blue Diamond, 1F</del>
13:30		
4. COASTAL HYDRODYNAMICS II		<del>Meijing, 3F</del>
5. OCEAN, WIND ENERGY & ENVIRON II		<del>Liangchen, 3F</del>
15:50		
6. COASTAL HYDRODYNAMICS III		<del>Meijing, 3F</del>
7. OCEAN, WIND ENERGY & ENVIRON III		<del>Liangchen, 3F</del>

19:00 Not in 2020  
PACOMS Executive Committees ~~The Blue Restaurant, 2F~~

## **TUESDAY November 24**

08:30  
8. COASTAL HYDRODYNAMICS IV ~~Meijing, 3F~~  
9. OFFSHORE WIND, OCEAN ENERGY, ENVIRON IV ~~Liangchen, 3F~~

10:50  
10. HYDRODYNAMICS I ~~Meijing, 3F~~  
11. OCEAN TECHNOLOGY I ~~Liangchen, 3F~~

14:00  
12. HYDRODYNAMICS II ~~Meijing, 3F~~  
13. OCEAN TECHNOLOGY II ~~Liangchen, 3F~~

16:20  
14. VOTEX-INDUCED-VIBRATIONS. ~~Meijing, 3F~~  
15. SOIL & PIPELINES ~~Liangchen, 3F~~

## **WEDNESDAY November 25**

08:30  
16. ARCTIC SHIPPING ~~Meijing, 3F~~  
17. OCEAN VEHICLES I: Navigation, Safety 1 ~~Liangchen, 3F~~

10:00  
18. HYDRODYNAMICS III ~~Meijing, 3F~~  
19. OCEAN VEHICLES II: Navigation, Safety 2 ~~Liangchen, 3F~~

11:30  
20. HYDRODYNAMICS IV ~~Meijing, 3F~~  
21. OCEAN VEHICLES III: Navigation, Safety 3 ~~Liangchen, 3F~~



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Prof. Dezhi Ning, (Co-chair), Dalian Univ of Tech, China

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## TECHNICAL PROGRAM

### The Fourteenth (2020) ISOPE *Pacific-Asia* *Offshore Mechanics Symposium*

### PACOMS-2020 Dalian

Dalian, China, November 22-25, 2020

~~All technical session and function events will take place at Soluxe Heyi Hotel Dalian, Dalian, China. Onsite registration will commence on Sunday, November 22.~~ The changes on titles or authors the PACOMS-2020 International Organizing Committee (IOC) received in writing before [September 25, 2020](#) are reflected in this program. Final corrections will be updated in the Symposium Proceedings (**ISBN 978-1-880653-83-8, ISSN 1946-004X**). Proceedings USB of peer-reviewed papers (**530 pp.**) in 21 technical sessions will be available from ISOPE during and after the Symposium.

PACOMS Symposium proceedings are **indexed by Engineering Index, EI Compendex, Scopus**. Further updates will be posted on [www.isopec.org](http://www.isopec.org).



*All presentations are online in video format*

### SUNDAY November 22

18:30-20:00

Blue Diamond, 1F

Welcome Reception by Dalian University of Technology  
[Not in 2020]

**Time Zone: Beijing Time**

**PACOMS 1990 Seoul to 2020 Dalian**  
Jin S Chung, ISOPE, Cupertino, California, USA

### MONDAY November 23

#### 1. OPENING/GENERAL SESSION

**Monday**      **November 23**      **08:30**      ~~Meijing Hall, 3F~~

Chair: Dezhi Ning, Dalian University of Technology, China

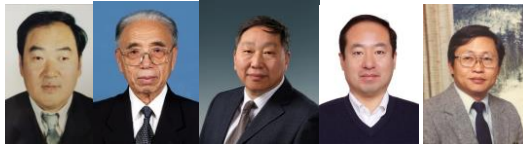
**Welcome to ISOPE PACOMS-2020 Dalian**



Prof. Yucheng Li, Dalian University of Technology, China

**2020 ISOPE PACOMS-Award Presentations**

Prof. Yucheng Li presents 2020 ISOPE PACOMS-Award plaques to:  
PACOMS-2020 Co-chairs : Prof. Bin Teng and Prof. Dezhi Ning



**Zhang Li Teng Ning Chung**

**PACOMS-2020 Keynote Address**

***Advances in Submerged Floating Tunnel Research***

**Prof. Huaqing Zhang**, Vice President and Chief Engineer, Research Institute for Water Transport Engineering, M.O.T., Tianjin, China

**Introduction** by Bin Teng, Dalian University of Technology, China

**2. COASTAL HYDRODYNAMICS I**

**Monday November 23 ~~10:00~~ ~~Meijing Hall, 3F~~**

Chair:

P20-123

**Experimental Study on Formation and Evolution of Sand Waves under Periodic Flows**

Zhipeng Zang, Yuxin Sun, Lingyun Li, Mengyu Wang, Tianjin University, China

P20-128

**Responses of Morphological Stability to Tidal Inlet Width of a Shallow Coastal Lagoon**

Xin Cong, Cuiping Kuang, Zhichao Dong, Tongji University; , Lixin Gong, Huixin Liu, Lei Zhu, The Eighth Geological Brigade of Hebei Geological Prospecting Bureau, China

**3. OCEAN, WIND ENERGY & ENVIRONMENT I**

**Monday November 23 ~~10:00~~ ~~Liangchen, 3F~~**

Chair:

P20-125

**Electricity Production Performance of Passive Wave Energy Converters for Offshore Tension Leg Platform**

Yang Yu, Zhenmian Li, Jianxing Yu, Lixin Xu, Tianjin University, China

P20-129

**Impacts of Artificial Islands on the Hydrodynamics and Migration of Green Algae of Jinneng Bay in Summer**

Dan Wang, Cuiping Kuang, Tongji University; Jie Gu, Shanghai Ocean University; Zhichao Dong, Lulu Yu, Tongji University, China

**4. COASTAL HYDRODYNAMICS II**

Monday November 23 ~~13:30~~ ~~Meijing, 3E~~

Chair:

P20-180

**Determination of Chloride Diffusion Coefficient of Interfacial Transition Zone in Coastal Concrete Structures Based on Experimental and Numerical Methods**

Xue-li Ju, Lin-jian Wu, Ming-wei Liu, Li Guan, Yuan-fei Ma, Chongqing Jiaotong University, China

P20-190

**Effects of Biological Characteristics of Flexible Vegetation on Wave Attenuation**

Yiran Wang, Sudong Xu, Boyi Xie, Wen Xie, Jia Zhou, Mengxiao Xu, Southeast University, China

P20-177

**Numerical Simulation of Flood Disasters in the Zhujiajian Island**  
Junping Liu, Lulu He, Wei Han, Feifeng Cao, Zhejiang University of Technology; Wei Chen, Zhejiang Ocean University, China

**5. OCEAN, WIND ENERGY & ENVIRONMENT II**

Monday November 23 ~~13:30~~ ~~Liangchen, 3E~~

Chair:

P20-253

**Transient Response of a Spar-type Floating Offshore Wind Turbine with Fractured Mooring Lines under Stochastic and Freak Wave Scenarios**

Yan Li, Tianchang Yin, Xiaoyi Liu, Liqin Liu, Yougang Tang, Tianjin University, China

P20-165

**Nonlinear Wave Scattering and Energy Harvesting by a Submerged Fluid-filled Piezoelectric Membrane**

Chunrong Liu, Xiamen University of Technology, China

P20-169

**Study on Hydrodynamic Efficiency of a Multi-float Wave Energy Converting Device**

Wei Peng, Yingnan Zhang, Chang Liu, Hohai University; Renwen Chen, Nanjing University of Aeronautics and Astronautics; Yanjun Liu, Shandong University, China

P20-230

**Power Maximising Control of Heaving Point Absorber Wave Energy Converters Using Quadratic Damping Force**

Yifeng Gu, Boyin Ding, Nataliia Y. Sergiienko, University of Adelaide, Australia

P20-231

**Parameter Optimization in Wave Energy Converter by a Differential Evolution Algorithm**

Zechen He, Dezhi Ning, Ying Gou, Dalian University of Technology, China

P20-244

**Influence of Narrow Gap Wave Resonance on a Dual-Floater System with WECs and Breakwaters**

Hengming Zhang, Binzhen Zhou, Harbin Engineering University, China; Jun Zang, University of Bath, UK; Ke Sun, Harbin Engineering University, China

**6. COASTAL HYDRODYNAMICS III**

Monday            November 23    ~~15:50~~            **Meijing, 3F**

Chair:

P20-161

**Application of BIM Technology in the Whole Life Cycle of Waterway Engineering**

Chang Ge, Sudong Xu, Yingmeng Zhong, Wen Xie, Guan hong Su, Qiwei Xiong, Southeast University, China

P20-178

**Investigations of Wave Spatial Transformation over a Submerged Shoal based on High Order Spectral Method**

Jian Hao, Jinxuan Li, Shuxue Liu, Lei Wang, Dalian University of Technology, China

P20-252

**Numerical Study on Wave Forces on a Perforated Comb-type Breakwater at Water Levels below the Superstructure**

Zhuo Fang, Lu Sun, Transport Planning and Research Institute; Zhipeng Zang, Yinghui Tian, Tianjin University; Rong Wang, Ran Tao, China Harbour Engineering Co, China

**7. OFFSHORE WIND, OCEAN ENERGY, ENVIRONMENT III: Wind Turbine**

Monday            November 23    ~~15:50~~            **Liangchen, 3F**

Chair:

P20-122

**Wind Farm Layout Optimization of Offshore Wind Turbines at Gulf of Maine Using a Gaussian Wake Model**

Xiaosen Xu, Florida Institute of Technology, USA; Lin Du,  
Ningbo University, China

P20-183

**Time-Domain Response of a Semi-Submersible Floating Wind  
Turbine with Trussed Slender Structures**

Yingyi Liu, Changhong Hu, Shigeo Yoshida, Kyushu University,  
Japan

**TUESDAY November 24**

**8. COASTAL HYDRODYNAMICS IV**

Tuesday November 24 ~~08:30~~ ~~Meijing, 3F~~

Chair:

P20-193

**Unsupervised-Learning Approach to current Profile  
Characterisation for Extreme Response Analysis**

Jasper Joseph Hunt, Michael Binsar Lubis, Mehrdad Kimiaei,  
University of Western Australia, Australia

P20-110

**Three-dimensional Simulation of Sediment Transport in Tidal  
Channels in Radial Sand Ridge Sea Area under Gales**

Xinggong Wang, Nanjing Hydraulic Research Institute; Wei  
Xiong, Zhejiang Keepsoft Information&Technology Corp;  
Chunhui Li, Nanjing University of Information Science &  
Technology; Xiaoyan Fu, Hohai University, China

P20-194

**Profile Evolution Analysis of Gravel Beach**

Bin Li, Kezhao Fang, Dalian University of Technology; Jiawen  
Sun, National Marine Environment Monitoring Center; Zhongbo  
Liu, Zaijin You, Dalian Maritime University, China

P20-202

**Study on the Hydrodynamic Factors on Fujiangsha Waterway  
of the Yangtze River with the Effect of 12.5m Deep-water  
Channel Project and Sea Level Rise**

Nini Zhang, Kai Yin, Sudong Xu, Yanhua Yang, Southeast  
University, China

P20-248

**MPS-DEM Coupled Method for Fluid-Structure Interaction  
with Free surface Flows**

Fengze Xie, Guanyu Zhang, Decheng Wan, Shanghai Jiao Tong  
University, China

**9. OFFSHORE WIND, OCEAN ENERGY,**

## ENVIRONMENT IV

Tuesday November 24 ~~08:30~~ ~~Liangchen, 3F~~

Chair:

P20-210

**Investigation of Motions of a Floating Wind Turbine Foundation with Multiple Moonpools**

Lei Tan, Tomoki Ikoma, Katsuhide Fujishima, Yasuhiro Aida, Koichi Masuda, Nihon University, Japan

P20-171

**Numerical Modelling of Wave Interaction with a Monopile Foundation of a Wind Turbine Combined with a Torus-type Multi-chamber Oscillating Water Column device**

Peiwen Cong, Bin Teng, Dalian University of Technology, China; Wei Bai, Manchester Metropolitan University, UK; Dezhi Ning, Dalian University of Technology, China

P20-102

**Experimental Study on Hydrodynamic responses of a Semi-submersible Fish Farm**

Songchen Yu, Peng Li, Hongde Qin, Zhijing Xu, Harbin Engineering University, China

## 10. HYDRODYNAMICS I: Waves & CFD

Tuesday November 24 ~~10:50~~ ~~Meijing, 3F~~

Chair:

P20-107

**Effects of Circumferential Location-Defects on the Cloaking Phenomenon in Multiple Truncated Cylinders**

Zhigang Zhang, Guanghua He, Shuang Liu, Weihai, Zhengxiao Luan, Weijie Mo, Harbin Institute of Technology, China

P20-137

**Wave Loads on the Large Vertical Cylinder with the Conformal Mapping and Series Expansion Method**

Huiqu Fan, Quanming Miao, China Ship Scientific Research Center, China; Allan Ross Magee, National University of Singapore, Singapore

P20-220

**Numerical Simulations of Flows around a Surface-Piercing Flat Plate**

Luyu Chen, Weiwen Zhao, Decheng Wan, Shanghai Jiao Tong University, China

P20-160

**Numerical Study on the Effect of Incident Wave Period on Wave Force of Vertical Breakwater**

Xinyu Han, Meng Ning, Sheng Dong, Ocean University of  
China, China

## 11. OCEAN TECHNOLOGY I

Tuesday          November 24      ~~10:50~~          ~~Meijing 3F~~

Chair:

P20-150  
**Influence of Wave-dissipating Platform Construction on the  
Environment at Shengsi, Zhoushan**  
Chenhao Mao, Zhejiang Ocean University; Binyu Wang, Guangxi  
Vocational and Technical College of Communication; Ni Yunlin, Gu  
Yifan, Zeng Hao, Wei Chen, Zhejiang Ocean University, China

P20-151  
**Offshore Vibro-flotation with Stone Column under Extreme Wave  
Condition**  
Ran Tao, China Harbour Engineering Co; Xiao-tao Hua, Rui-yi  
Huang, Xian-dao Feng, CCCC Second Harbour Engineering Co,  
China

P20-152  
**Numerical Investigation of Wave and SFT Interaction in Time  
Domain**  
Ruijia Jin, Ocean University of China; Huaqing Zhang, Baolei Geng,  
Tianjin Research Institute for Water Transportation Engineering,  
China

P20-198  
**Harmonic Oscillations Study on Hull Motion and Payload  
Pendulation of the Offshore Large Crane Vessel**  
Pin Tang, Xun Meng, Dejiang Li, Ocean University of China, China

## 12. HYDRODYNAMICS II: Water Entry & Impact

Tuesday          November 24      ~~14:00~~          ~~Meijing 3F~~

Chair:

P20-127  
**Numerical Simulation on the Cavity Dynamics and Multiphase  
Flow Field Characteristics for Water Entry of Revolution Body**  
Hui Liu, Bo Zhou, Zhifei Wu, Yaoyu Han, Zongkai Yao, Dalian  
University of Technology, China

P20-134  
**Water Entry of a Cone into Calm Water in 3DOFs Free Fall  
Motion**  
Bang-Wei Liu, Shi-Li Sun, Hui-Long Ren, Harbin Engineering  
University, China

P20-147  
**Hydrodynamic Performance Analysis of Swinging and Rotating  
Cylinder Based on Magnus Effect**  
Yu Wang, Yang Han, Yang Liu, Zuo Tian Zhang, Harbin  
Engineering University, China

P20-174  
**A Two Dimensional Simulation of the Coupled Motion of Two Side-by-side Ships**  
Shengtao Chen, Zhouyuan Xu, Dalian Maritime University, China

P20-200  
**Experimental Analysis of the Effect of Entrapped Air on Liquid Impact**  
Z.J. Wei, L.M. Shen, X.P. Du, Z.M. Wang, G.J. Zhai, Dalian University of Technology, China

P20-214  
**Effects of Side Wall and Fluid Viscosity on Near-trapping of Four-cylinder Structure**  
Chong Ji, Sheng-chao Jiang, Dalian University of Technology, China

### 13. OCEAN TECHNOLOGY II

Tuesday      November 24      14:00      ~~Meijing 3E~~

Chair:

P20-132  
**Probabilistic Robustness Assessment for a TLP under Mooring Failure Considering Uncertainties**  
Yang Yu, Jingyi Wu, Jianxing Yu, Lixin Xu, Shuai Hao, Siyuan Cheng, Tianjin University, China

P20-170  
**Damage Identification of Mooring Lines Using RBF Neural Network**  
Tiange Wang, Min Zhang, Ocean University of China; Hao Ji, China Renewable Energy Engineering Institute; Qichen Liao, POWERCHINA Huadong Engineering Corp, China

### 14. VOTEX-INDUCED-VIBRATIONS.

Tuesday      November 24      16:20      ~~Meijing 3E~~

Chair:

P20-185  
**Experimental Investigation on Seabed Beating and Vortex-induced Vibration of Flexible Pipeline Span**  
Hongjun Zhu, Honglei Zhao, Southwest Petroleum University, China

P20-219  
**Numerical Investigations of VIV of a Flexible Cylinder in Oscillatory Flows by Thick Strip Model**

Di Deng, Weiwen Zhao, Decheng Wan, Shanghai Jiao Tong University, China

P20-249

**Numerical Study of Vortex-Induced Vibrations of a Vertical Tensioned Riser under Different Periods of Platform Motion**

Hao Hu, Di Deng, Decheng Wan, Shanghai Jiao Tong University, China

**15. SOIL & PIPELINES**

Tuesday          November 24      ~~16:20~~          ~~Liangchen, 3F~~

P20-156

**A Study on Feasibility of the Method of Sampling and Cone Penetration Test**

Kazuo Tani, Tsuyoshi Ikeya, Daisuke Inazu, Tokyo University of Marine Science and Technology, Japan

P20-176

**Effects of Statistical Characteristics for Deep-sea Sediments on Lateral Buckling of HPHT Pipelines**

Yu-min Shi, Fuping Gao, Institute of Mechanics, CAS; Jian-tao Liu, You-sheng Zhu, China Oilfield Services Limited, China

P20-251

**Numerical Study on Seafloor Liquefaction around a Trenched Pipeline in Random Sea Conditions**

Zuodong Liang, Qingdao University of Technology, China; Dong-Sheng Jeng, Griffith University, Australia

**WEDNESDAY November 25**

**16. ARCTIC SHIPPING I**

Wednesday          November 25      ~~08:30~~

Chair:

P20-158

**Numerical Analysis of the Hydrodynamic Performance for Propeller-Ice-Water Coupling Interaction in the Brash Ice Channel**

Liang Li, Dengcheng Liu, Shen Wu, China Ship Scientific Research Center, China

P20-163

**Research on Mechanism of Polar Resonance Ice-breaking**

Huiling Dai, Jicai Lang, Fuzhen Pang, Yu Wang, Harbin Engineering University, China

P20-235

**Hydroelastic Response of Ice Sheet with a Gap**

Qingwen Kuang, Chongwei Zhang, Dezhi Ning, Robert Mayon, Dalian University of Technology, China



P20-143

**Design Value Estimation Based on Hindcast Current Speed in the Barents Sea**

Zhenkun Liao, Sheng Dong, Zhifeng Wang, Shanshan Tao,  
Ocean University of China, China

P20-206

**Effect of Ice Load on Towing Cable of Geophysical Exploration Ship**

Wei Wang, Zhonghao Ren, Gang Ma, Harbin Engineering University; Dongsheng Qiao, Yu Qin, Dalian University of Technology, China

P20-232

**A Study on Ship Resistance in Ice Floes**

Yuxin Han, Hongxia Li, Zhiyuan Li, Yi Huang, Shunying Ji,  
Dalian University of Technology, China

P20-245

**The Numerical Study of the Propeller Performance with Ice Blockage**

Hu shi-liang, Diao feng, Wu Shen, China Ship Scientific Research Center, China

**17. OCEAN VEHICLES I: Navigation, Safety 1:**

Wednesday      November 25      ~~08:30~~      ~~Liangchen, 3F~~

Chair:

P20-222

**Wigley Hull Design Optimization Based on Artificial Neural Network and Genetic Algorithm**

Zhiqiang Liu, Xinwang Liu, Decheng Wan, Shanghai Jiao Tong University, China

P20-189

**Extreme Value Analysis of Section Load on a Ship in Irregular Waves**

Hai-Yang Wang, Marine Design and Research Institute of China; Hao Cheng, Shi-Li Sun, Harbin Engineering University; Yi-Mei Xia, Si-Yuan Cai, Marine Design and Research Institute of China, China

P20-221

**Experimental and Computational Investigations of KCS Wave Breaking with Trim and Sinkage Variation**

Wentao Wang, Shanghai Jiao Tong University; Gengyao Qiu, China Ship Scientific Research Center; Jianhua Wang, Decheng Wan, Shanghai Jiao Tong University, China

P20-227

**Influence of Moonpool on Towing Resistance of Nuclear Power Platform**

Yihua Liu, Hongxia Li, Yi Huang, Dalian University of Technology, China

P20-201

**Sensitivity Analysis of Traffic Efficiency in Restricted Waterways Considering Deceleration**

Jiahui Huang, Hongbo Wang, Zhiwen Tan, Guangdong Ocean University, China

**18. HYDRODYNAMICS III: Metocean**

Wednesday November 25 ~~10:00~~ ~~Meijing, 3E~~

Chair:

P20-126

**Trends in the Landfall Locations of Tropical Cyclones in China and Its Association with the Enhancing Western Pacific Warm Pool during Recent Decades**

Qun Zhou, Lixin Wei, National Marine Environmental Forecasting Center, China

P20-142

**Wind and Wave Simulation during Typhoon Soulik (2013) Based on Different Empirical Typhoon Wind Models and SWAN Wave Model**

Yijie Gong, Sheng Dong, Zhifeng Wang, Ocean University of China, China

P20-228

**Experimental Investigations on the Flow Field of the Internal Solitary Wave over the Gentle Slope**

Shao-dong Wang, Hui Du, Gang Wei, Xin-long Wang, Jun-nan Xu, National University of Defense Technology, China

P20-233

**SAR Image Simulation of Internal Waves Generated by Underwater Vehicles under Rough Sea Surface**

Xin-long Wang, Gang Wei, Hui Du, Shao-dong Wang, National University of Defense Technology, China

**19. OCEAN VEHICLES II: Navigation & Safety 2**

Wednesday November 25 ~~10:00~~ ~~Liangchen, 3E~~

Chair:

P20-224

**Analysis of Resonance Characteristics of FSRU and LNG Ship under Side by Side Operation**

Wenjun Shen, Hanbao Chen, Yunpeng Jiang, Feng Gao, Tianjin  
Research Institute for Water Transport Engineering, M.O.T,  
China

P20-215

**Physical Mechanisms of Risk Sources and Classification of Risk  
Modes for Sea Ice Disasters on Marine Engineering Structures**

Ning Xu, Shuai Yuan, Yuxian Ma, National Marine  
Environmental Monitoring Center; Dayong Zhang, Dalian  
University of Technology; Yuan Chen, Xueqin Liu, Wenqi Shi,  
Lina, National Marine Environmental Monitoring Center, China

P20-237

**Split-Time Method Validation for Estimation of Probability of  
Ship Capsizing**

Chen Yang, Hongxia Li, Xiaoyu Zhou, Yi Huang, Dalian  
University of Technology, China

**20. HYDRODYNAMICS IV:**

Wednesday      November 25      ~~11:30~~      ~~Meijing 2F~~

**Chair:**

P20-223

**Uncertainty Analysis of Ship Model Resistance Tests: without  
and with Rudder**

Weimin Chen, Li Zhang, Jianting Chen, Shanghai Ship and  
Shipping Research Institute, China

P20-188

**Analytical Solution for Wave Reflection by a Horizontal  
Perforated Plate Wave Absorber Using Quadratic Pressure  
Drop Condition**

Shu-yue He, Yong Liu, Yang Zhao, Ocean University of China,  
China

P20-211

**The Numerical Study of the Layout and Interference of Multi  
Thruster after the Ship**

Shucheng Zhai, Yang Ma, Dengcheng Liu, China Ship Scientific  
Research Center, China

P20-111

**Wave Heading Effects on Gap Resonance with Energy  
Dissipation**

Hui Liang, Kie Hian Chua, Hongchao Wang, Technology Centre  
for Offshore and Marine, Singapore

P20-247

**CFD Study of Free Surface Effects on Flows around a  
Surface-Piercing Cylinder**

Songtao Chen, Weiwen Zhao, Decheng Wan, Shanghai Jiao  
Tong Univeresity, China

P20-250

**Comparative Study of Trimaran's Resistance Optimization by  
Potential/Viscous-Flow Methods**

Nina Wang, Xinwang Liu, Decheng Wan, Shanghai Jiao Tong  
University, China

**21. OCEAN VEHICLES III: Navigation, Safety 3**

Wednesday      November 25      ~~11:30~~      ~~Liangzhen, 3E~~

**Chair:**

P20-195

**Experimental Research on the Dynamic Characteristics of a  
Deep-sea Nodule Collector Track**

Jun Li, Hongping Tang, Cheng He, Changsha Research Institute  
of Mining and Metallurgy Co, China

P20-153

**Accelerated Erosion Test of Viscoelastic Anticorrosive Coating  
on Hydraulic Steel structures**

Liqin Zeng, Mingwei Liu, Yuanfei Ma, Chenhao Zhu,  
Chongqing Jiaotong University, China

P20-133

**Hydroelasticity Forecasting Method for Ship Motion and Load  
under Short-Crested Waves**

Hao-yun Tang, Xinxin Wu, Baijun Tian, Dalian Maritime  
University; Qign Wan, Dalian shipbuilding industry Co, China

P20-226

**Maritime Collision Risk Analysis with Geographical  
Parameters in Busan Harbor**

Seung-Gi Gug, Dimantha Harshapriya, Hae-Sang. Jeong, Korea  
Maritime & Ocean University, Korea

P20-135

**Development and Application of a PZT-based Pipeline Structure  
Damage Detection System**

Shi Yan, Jianxin Wu, Xuenan Wang, Shenyang Jianzhu  
University, China

P20-130

**Study on the Influence of Thickness Effect on 3D Crack-tip  
Plastic Zone Size under Biaxial Loading**

Baidong Lin, Jingjie Chen, Yi Huang, Dalian University of  
Technology, China

P20-218

**Numerical Investigation on Hydrodynamics of a Deep  
Submergence Rescue Vehicle**

Cong Ye, Liushuai Cao, Decheng Wan, Shanghai Jiao Tong  
University, China



## GENERAL INFORMATION

### PACOMS-2020 Symposium *Virtual/Online Presentation*

#### PLACE AND DATE

Dalian, China, November 22-25, 2020

#### HOTEL RESERVATION BOOKING FORM

Not for PACOMS-2020 Symposium

#### SYMPOSIUM REGISTRATION FORM

Download from [www.isopec.org](http://www.isopec.org)

#### Welcome Reception

Not in 2020.

#### Symposium Banquet

Not in 2020.

#### LANGUAGE

The language for the conference is English. No translation service is arranged.

#### AIR TRAVEL (not in 2020)

Dalian is the host city of PACOMS-2020. The venue hotel has 200 guest rooms and suites. The hotel is conveniently located just 16 km from Zhoushuizi International Airport and 30 minutes by taxi.

#### CURRENCY EXCHANGE, CASH MACHINE, ATM

Pay attention to the exchange rate fluctuation. (US\$1 = CNY6.80 as of September 1, 2020).

PACOMS-2020 ADVANCE REGISTRATION FEES except non-presenting authors and non-authors (if received before September 11)

**REGISTRATION. Use the Advance Registration Form from [www.isopec.org](http://www.isopec.org)**

Register directly through ISOPE, California, USA: Fax **1-650-254-2038** or [meetings@isopec.org](mailto:meetings@isopec.org). Payment of the registration fees should be made only in US dollars.

**DEADLINE** for Advance Symposium Registration:

**1) Register when submitting the manuscript for review for one presenter per paper:** No cancellation refund granted.

**2) September 18, 2020 for others.**

Complete and send this Registration Form with correct payment amount in US\$. The fee-paid participants will receive confirmation. If received after the deadline, the sender registers on site with a surcharge of US\$150.

**Registration after the deadline below costs additional US\$150.**

Complete this form with correct amount to reach ISOPE by applicable deadlines.

Download our form from:

<http://www.isopec.org/conferences-symposia-and-workshops/>

All persons attending the symposium are required to register, pay the appropriate fee, and get a symposium badge. Registration fees are as follows:

Category	Advance Registration Fee (US \$)*	
	Received before the Deadlines	
<input type="checkbox"/> Author, Co-authors	550	_____
<input type="checkbox"/> Session or Symposium Chair, Co-Chair	550	_____
<input type="checkbox"/> ISOPE Member	500	_____
<input type="checkbox"/> ISOPE member with new application (incl. 2019 membership fee and 1-year journal issues)	640	_____
<input type="checkbox"/> Non-Member	700	_____
<input type="checkbox"/> Spouses (no additional charge)	Free	_____
<input type="checkbox"/> Full-time Student with 2018 ID Card	400	_____
<input type="checkbox"/> PACOMS Banquet for the Registered	Free	_____
<input type="checkbox"/> PACOMS Banquet (spouse, non-author)	<del>Free</del>	_____
<input type="checkbox"/> Reserve a Seat for Symposium Tour	Free	_____

Free  
Free

\* The fee in this table is for the advance-registered participants. The Symposium registration fee *includes* Reception, PACOMS Banquet, tea breaks, and the symposium proceedings.

<http://www.isopec.org/conferences-symposia-and-workshops/>

#### REGISTRATION CANCELLATIONS

Request for cancellation of registration by non-authors must be received in writing by **September 27, 2020** only will be granted a refund minus US\$150 US processing charge.

#### REGISTRATION BADGE

Registration badges are required for admittance to all the symposium activities, including the reception and banquet.

#### ON-SITE SYMPOSIUM REGISTRATION

Participants who miss the advance registration may register at the Symposium Registration Desk, but there is US\$150 surcharge. The registration desk will be open during the following hours:

Sunday, Oct.14	17:00-18:30
Monday, Oct.15	08:00-18:00
Tuesday, Oct.16	08:00-18:00
Wednesday, Oct.17	08:00-12:00

#### ISOPE PUBLICATION

##### ISOPE PUBLICATION ORDER

A PACOMS-2020 Symposium Proceedings (USB, ISBN 978-1-880653-83-8, ISSN 1946-004X) is included in the symposium registration fees. A single-volume proceedings in USB (606 pp.) can also be ordered by email, fax or air mail at:

\$100 (ISOPE Member \$80) plus \$30 Express USB drive shipping & handling.

Ordered from ISOPE, 495 North Whisman Road, Suite 300, Mountain View, California 94043-5711, USA: FAX 1-650-254-2038; [orders@isopec.org](mailto:orders@isopec.org) .

Advance payment is required. MasterCard, VISA, AMEX card, bank wire-transfer or U.S. bank checks in US Dollar *payable to ISOPE* will be accepted. (Download the ISOPE Publication Order Form from [www.isopec.org](http://www.isopec.org) > Orders or email to [orders@isopec.org](mailto:orders@isopec.org) for publication order form.)

**Individual papers of all ISOPE conference, symposium, journal** can be ordered clicking:  
<https://www.onepetro.org> or from [www.isopec.org](http://www.isopec.org)

**PACOMS-2020 HEADQUARTERS** Ara Hall, 8F

18:30 – 20:00 Sunday November 22

**WELCOME RECEPTION** Not in 2020 Not in 2020  
**18:30-20:00 Sunday, November. 22** Blue Diamond, 1F

**PACOMS SYMPOSIUM BANQUET** Not in 2020  
**19:00-21:00 Tuesday November 24** Blue Diamond, 1F

**PPT TEST 08:00** daily **Session Rooms**  
A ~~power point~~ projector connected to PC (~~Read Author Information form~~) and screen is set up during 08:00-17:00 (Nov. Oct. 15-17) in the session rooms.

**INTERNATIONAL PARTICIPANTS AND VISA APPLICATION**  
~~International authors, participants or attendees who need help (except financial) can contact: Dr. Chongwei Zhang, DUT, PACOMS-2020 Local Secretariat Email: [chongweizhang@dlut.edu.cn](mailto:chongweizhang@dlut.edu.cn)~~

~~Entry Visa to Dalian. See details at the electronic government for foreigners: <https://www.visaforchina.org/>  
Details of Visa application may be dependent upon each Embassy of the People's Republic of China at the area of the participant's residence.~~

**PACOMS-2020 Local Secretariat** ([dzning@dlut.edu.cn](mailto:dzning@dlut.edu.cn)) will assist, if the request for invitation letter is received by **September 10, 2020**.

**CLIMATE**  
The November weather in Dalian is a little cool, temperature ranges 4°C~15°C. Overcoat or windbreaker is suggested.

**About Dalian**  
please go to <http://en.dl.gov.cn/>





# TECHNICAL PROGRAM

## PACOMS-2020 Dalian

Dalian, China, November 22-25, 2020

Download the Advance Registration Form from  
<http://www.isopec.org/conferences-symposia-and-workshops/>  
> PACOMS-2020.

*Forthcoming ISOPE Meetings*

## ISOPE-2021 Rhodes

The 31st (2021) International  
Ocean and Polar Engineering Conference  
*Online/Virtual*

Rhodes (Rodos), Greece, June 20-25, 2021  
Abstract Deadline: November 20, 2020

Online Abstract Submission  
<http://www.isopec.org/online-submission/> and  
Technical Program  
<http://www.isopec.org/conferences-symposia-and-workshops/>

Call For Papers on [www.isopec.org](http://www.isopec.org)

Including additional ISOPE symposia, focus sessions:

*AI Digitalization*  
*Arctic Science and Tech Arctic, Cryogenic Materials -*  
*Offshore Wind and Ocean Energy Environment- Remote*  
*Sensing Hydrodynamics, CFD NWT ANN Digital Deep-*  
*Ocean Coastal Sloshing - Tsunami Underwater Technology*  
*LNG/Bunkering Subsea Pipelines Risers Strain Based*  
*Design- High-performance Materials (HPM) Asset Integrity*  
*EAC Green Ship Emission Smart Ship ASV, USV*

## ISOPE-2022 Conference

In-place (face-to-face), Shanghai, June

## 15th PACOMS-2022 Symposium

To be announced

## ISOPE-2023 Conference

Canada, USA or Korea: To be announced



International Society of  
Offshore and Polar Engineers  
P.O. Box 189  
Cupertino, CA 95015-0189, USA  
Fax: 1-650-254-2038  
[meetings@isopec.org](mailto:meetings@isopec.org); [www.isopec.org](http://www.isopec.org)