

# SPHERIC Xi'an 2022 International Workshop

Mar 28<sup>th</sup> – Apr 2<sup>nd</sup> , 2022



大 美 西 安

西安印象

## Conference Notice<sup>(First)</sup>

**Organized by**

Institute for Computation Mechanics and Its Applications,  
Northwestern Polytechnical University, Xi'an, China



<http://www.npuicma.cn/spheric2022>

# SPHERIC Xi'an 2022-Call for Papers

**SPHERIC**, the Smoothed Particle Hydrodynamics rEsearch and engineeRing International Community, stimulates research and facilitates the exchange of ideas among developers and users of SPH. The SPHERIC workshop is the only worldwide event exclusively focusing on SPH methodology and related simulation approaches. It aims to have the SPH method spread internationally, to promote the interdisciplinary application and to integrate the know-how of physicists, mathematicians, IT experts and engineers from academia and industry.

Following the successful holding of SPHERIC International Workshop in Beijing in 2017 and Harbin in 2020, "**2022 Xi 'an SPHERIC International Workshop**" will be held at Northwestern Polytechnical University in Xi'an, China during March 28th – April 2nd of 2022. It is an great honor to invite you to the 2022 Xi'an SPHERIC International Workshop ( **SPHERIC Xi'an 2022** ) .

## Characteristics of SPHERIC

---

### (1) Special Conference Theme

More than 100 participants discussed the same conference theme that is research of particle method, about the latest theoretical developments, practical applications, and the development of any potential applications , which are not limited to SPH method.

---

### (2) Special Discussion Time

The format of the conference is novel and compact. The speakers of each session gave back-to-back academic reports for about 13 minutes each. After each speaker's academic report is completed, all speakers sit at the front desk and accept questions and discussion from the audience.

---

### (3) Special Training Day

The Training Day is suitable for researchers who are familiar with the principles of SPH but are just beginning their work in the field, or want to get a grasp of the practical applications of the method. It is also an opportunity for experienced SPH developers and users to share your insights and ideas.

---

# SPHERIC Xi'an 2022-Call for Papers

## Conference Organization

### Local Organization Committee

Prof. Fei Xu (Northwestern Polytechnical University) **Chair**

Prof. Moubin Liu (Peking University) **Co-chair**

Prof. Aman Zhang (Harbin Engineering University) **Co-chair**

Prof. Hongfu Qiang (Xi'an Hi-tech Institute) **Co-chair**

Dr. Pengnan Sun (Sun Yat-sen University)

Dr. Yang Yang (Northwestern Polytechnical University)

Dr. Zhe Ji (Northwestern Polytechnical University)

Prof. Xiong Zhang (Tsinghua University)

Prof. Xu Han (Hebei University of Technology)

Prof. Decheng Wan (Shanghai Jiao Tong University)

Prof. Guiyong Zhang (Dalian University of Technology)

Prof. Zhongguo Sun (Xi'an Jiaotong University)

Prof. Shaowu Li (Tianjin University)

Prof. Maimaitiming (Xinjiang University)

Prof. Dan Huang (Hohai University)

Prof. Ting Ye (Jilin University)

Dr. Min Luo (Zhejiang University)

Dr. Xiufeng Yang (Beijing Institute of Technology)

Dr. Chi Zhang (Technical University of Munich)

Dr. Dianlei Feng (Tongji University)

### Scientific Committee

Dr. Renato Vacondio (University of Parma, Italy) **Chair**

Prof. Ben Rogers (University of Manchester, UK) **Vicechair**

Dr. Nathan Quinlan (National University of Ireland, Galway, Ireland)

Prof. David Le Touzé (Ecole Centrale de Nantes, France)

Prof. Stefano Sibilla (Univ. of Pavia, Italy)

Dr. Xiangyu Hu (Technical University of Munich, Germany)

Prof. Rade Vignjevic (Brunel University of London, UK)

Dr. Antonio Souto Iglesias (UPM, Madrid, Spain)

Prof. Alex Crespo (Universidade de Vigo, Ourense, Spain)

Dr. Matthieu de Leffe (NEXTFLOW Software, Nantes, France)

Dr. Salvatore Marrone (CNR-INM, Rome, Italy)

Prof. Abbas Khayyer (Kyoto University, Japan)

Prof. Damien Violeau (EDF, Chatou, France)

Prof. Ha Bui (Monash University, Australia)

Prof. Peter Eberhard (University of Stuttgart, Germany)

Prof. Rouhollah Fatehi (Persian Gulf University, Iran)

Prof. Alexandre Tartakovsky (Pacific Northwest National Laboratory, USA)

Prof. Daniel Price (Monash University, Australia)

Prof. Moncho Gómez-Gesteira (Universidade de Vigo, Spain)

Prof. Moubin Liu (Peking University, China)

Prof. Aman Zhang (Harbin Engineering University, China)

Prof. Fei Xu (Northwestern Polytechnical University, China)

Dr. Giuseppe Bilotta (Istituto Nazionale di Geofisica e Vulcanologia, Italy)

# SPHERIC Xi'an 2022-Call for Papers

## Keynote Speakers

① **Dongdong Wang** (Xiamen University )

Topic: Galerkin and Collocation Meshfree Methods: Convergence Measuring and Applications.

---

② **Lin Fu** (Hong Kong University of Science and Technology )

Topic: SPH for Fluid Dynamics and Beyond

---

③ **Ha Bui** (Monash University )

Topic: Advances in SPH and its Applications for Solving Complex Problems in Geomechanics

## Training Day

The Training Day will be split into two Morning Lectures and two afternoon Hands-on Practice sessions. Make sure you sign up for the Training Day during registration.

---

### Morning Lectures

① **Dr. Pengnan Sun** (Sun Yat-sen University )

His lecture aims to introduce the fundamentals of SPH, together with some latest developed numerical techniques and results.

② **Dr. Chi Zhang** (Technical University of Munich )

His lecture will review state-of-the-art algorithms for the multi-physics applications of the SPH method, and carry out a brief overview of the theory and fundamental of the SPH methods implemented in SPHinXsys library.

---

### Hands-on Practice Session with nanoFluidX

**Dr. Zhe Ji**(Northwestern Polytechnical University ) & Application Experts from Altair China

In the first sub-session, Zhe will be giving overviews regarding SPH backgrounds and the recently developed features in the software nanoFluidX.

In the second sub-session, the attendees will be able to install individual software packages, setup case file and learn how to use the job submitting system on the cloud with state-of-the-art GPU hardware.



# SPHERIC Xi'an 2022-Call for Papers

## Workshop Topics

Research of particle method, about the latest theoretical developments, practical applications, and the development of any potential applications are heartily welcomed, which are not limited to SPH method.

**Workshop Topics** include, but are not limited to:

### (a) Fundamental SPH Research

1. Convergence, consistency and stability
2. Boundary conditions
3. Adaptivity and variable resolution
4. Coupling to other methods
5. Free surfaces and moving boundaries
6. Solids and structures
7. Multiple continua and multi-phase flow
8. Fluid-structure interaction
9. Viscosity and turbulence
10. Incompressible flow
11. Thermal and energy
12. Complex physics
13. High-performance computing
14. Hardware acceleration
15. Pre-processing and visualization
16. Alternative and novel formulations  
(FVPM, MPS, RSPH, etc.)

### (b) Practical SPH Applications

17. Applicability to industry
18. Hydraulic applications
19. Maritime and naval architecture applications
20. Biomechanics and Medical Devices
21. Geotechnical applications
22. Microfluidics
23. Astrophysics
24. Aeronautics
25. Impact dynamics
26. Solids and Fracture Mechanics
27. Disaster simulations

## Abstract submission

Abstracts should be 1-page long and must include one illustrative figure outlining the quality of the results. A comparison to reference solutions will be appreciated. The abstract should be submitted before **November 15th, 2021** in **PDF** format via email to **spheric2022@163.com**. The email should have **SPHERIC 2022 Abstract - "Last Name of Corresponding Author"** as object and also state: Whether the abstract refers to (a) Fundamental SPH Research or (b) Practical SPH Applications. Please assign your contribution to at least 3 of 27 **Workshop Topics**.

# SPHERIC Xi'an 2022-Call for Papers

## Final paper submission

After notification of abstract acceptance, authors should prepare a full 6-8 pages paper. It is important NOT to put any page number on the paper. It is also recommended not to spend too much space on standard SPH equations on the paper, since readers are assumed to already know basics of SPH. At least one author is expected to register for the Workshop and present the paper. Papers with no registered authors will not be published. Papers should be submitted before **January 25th, 2022** in **PDF** format via email to **spheric2022@163.com**.

**Note:** The final paper is for evaluation and communications within attendees, the **copyright** belongs to the author for further submission.

The template of abstract and paper can be found on <http://www.npuicma.cn/spheric2022/>

---

## Award

### (1) Libersky Student Prize

Student authors, who would like to sign up for the student prize, should indicate it when submitting the final paper.

### (2) Best-paper Prize

The Best-Paper Prizes are awarded for full papers selected by the Scientific Committee. The authors or presenters are not limited to students.

### (3) Recommended publication

A few selected papers (6-8 papers, including those won prizes and awards) will be recommended for publication to peer-viewed Journal AMS.

**To be eligible for these awards, the authors must be the first author of the paper, present the work and attend the closing ceremony.**

---

## Review process

Abstracts will be reviewed by at least three SPH experts. Notification of acceptance for publication will be given on or before **December 15th, 2021**. The quality of the abstract will be assessed using averaged ratings for 3 equally important criteria:

- (1) Novelty
- (2) Applicability & impact
- (3) Accuracy and improvements over other methods

# SPHERIC Xi'an 2022-Call for Papers

## Registration & Payment

Since the epidemic situation of COVID-19 in March, 2022 is not clear, we now have two plans.

**Plan A:** Participants in China attend on-site, while participants outside China attend online;

**Plan B:** All the participants attend on-site.

The specific plan will be decided before the Announcement of selected abstracts (December 15th, 2021)

### Plan A :Registration Fees for participants **in China (on-site)**

	Non-Student	Student
Early-Bird (Before Jan 15th, 2022)	2,600 RMB	1,300 RMB
Regular (Before Mar 15th, 2022)	3,200 RMB	1,600 RMB
On-site (Mar 28th, 2022)	3,800 RMB	1,900 RMB
Training Day	400 RMB	
Conference dinner for accompanying person	300 RMB	

### Plan A :Registration Fees for participants **outside China (online)**

	Non-Student	Student
Early-Bird (Before Jan 15th, 2022)	\$150	\$75
Regular (Before Mar 15th, 2022)	\$250	\$100
On-site (Mar 28th, 2022)	/	/
Training Day	\$25	

## Contact us

**Fax:** +86 029 88493705

**Tel:** +86 13709189764 Dr. Yang Yang

+86 15929951976 Dr. Zhen Dai

+86 13572953790 Prof. Fei Xu

**Email:** spheric2022@163.com

**Add:** 127 West Youyi Road, Beilin District, Xi'an Shaanxi, 710072, P. R. China.

**Web:** <http://www.npuicma.cn/spheric2022/>

**WeChat Official Accounts:**

