

SPHERIC Xi'an 2022 International Workshop



Mar 28th – Apr 2nd , 2022



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西安印象

Conference Notice^(First)

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

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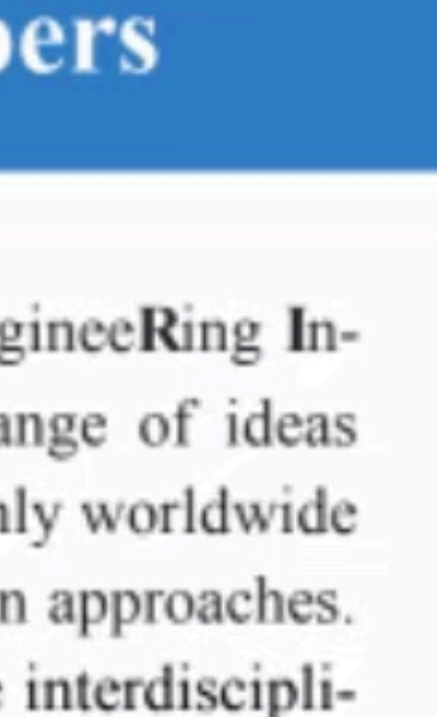
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SPHERIC, the Smoothed Particle Hydrodynamics rEsearch and engineeRING In-

ternational 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 In-

ternational Workshop (SPHERIC Xi'an 2022).

Characteristics of SPHERIC

(1) Concentrated Theme

More than 100 participants will focus on the conference theme of particle method,

including the latest theoretical processes, practical applications and developments

in any potential field, which are not limited to SPH method.

(2) Impressive Discussion Time

All presentations of this workshop will be given in the same room. Each speaker

gives his/her academic talk in 13 minutes. After a group of presentations, speakers

will be asked to sit at the front desk and accept questions and discussions from

the audiences and invited experts.

(3) Hands-on Training Day

The contents on Training Day include lectures and hands-on practices. It is not only

a chance for SPH beginners and researchers to get primary understanding of the

fundamental method and its applications, but also an opportunity for experienced

SPH developers and users to share their insights and ideas.

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Conference Organization

Local Organization Committee

Prof. Fei Xu (Northwestern Polytechnical University) **Chair** Prof. Guiyong Zhang (Dalian University of Technology)

Prof. Moubin Liu (Peking University) **Co-chair** Prof. Zhongguo Sun (Xi'an Jiaotong University)

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

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

Dr. Pengnan Sun (Sun Yat-sen University) Prof. Dan Huang (Hohai University)

Dr. Yang Yang (Northwestern Polytechnical University) Prof. Ting Ye (Jilin University)

Dr. Zhe Ji (Northwestern Polytechnical University) Dr. Min Luo (Zhejiang University)

Prof. Xiong Zhang (Tsinghua University) Dr. Xiufeng Yang (Beijing Institute of Technology)

Prof. Xu Han (Hebei University of Technology) Dr. Chi Zhang (Technical University of Munich)

Prof. Decheng Wan (Shanghai Jiao Tong University) Dr. Dianlei Feng (Tongji University)

Scientific Committee

Dr. Renato Vacondio (University of Parma, Italy) **Chair** Prof. Ha Bui (Monash University, Australia)

Prof. Ben Rogers (University of Manchester, UK) **Vicechair** Prof. Peter Eberhard (University of Stuttgart, Germany)

Dr. Nathan Quinlan (National University of Ireland, Galway, Ireland) Prof. Rouhollah Fatehi (Persian Gulf University, Iran)

Prof. David Le Touzé (Ecole Centrale de Nantes, France) Prof. Alexandre Tartakovsky (Pacific Northwest National Laboratory, USA)

Prof. Stefano Sibilla (Univ. of Pavia, Italy) Prof. Daniel Price (Monash University, Australia)

Dr. Xiangyu Hu (Technical University of Munich, Germany) Prof. Moncho Gómez-Gesteira (Universidade de Vigo, Spain)

Prof. Rade Vignjevic (Brunel University of London, UK) Prof. Moubin Liu (Peking University, China)

Dr. Antonio Souto Iglesias (UPM, Madrid, Spain) Prof. Aman Zhang (Harbin Engineering University, China)

Prof. Alex Crespo (Universidade de Vigo, Ourense, Spain) Prof. Fei Xu (Northwestern Polytechnical University, China)

Dr. Matthieu de Lefè (NEXTFLOW Software, Nantes, France) Dr. Giuseppe Bilotto (Istituto Nazionale di Geofisica e Vulcanologia, Italy)

Dr. Salvatore Marrone (CNR-INM, Rome, Italy) Dr. Raj Das (RMIT University, Australia)

Dr. Angelo Tafuni (New Jersey Institute of Technology, US) Dr. Steven Lind (University of Manchester, UK)

Prof. Abbas Khayyer (Kyoto University, Japan) Dr. Georgios Fourtakas (The University of Manchester, UK)

Prof. Damien Violeau (EDF, Chatou, France) Prof. Marco Ellero (Basque Center for Applied Mathematics, Spain)

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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.

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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 must 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** or (b) **Practical SPH Applications**. Please assign your contribution to at least 3 of 27 **Workshop Topics**.

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 to 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

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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 B: 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

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