



# SPHERIC Beijing International Workshop

17-20 October 2017



Welcome from SPHERIC o



## SPHERIC Beijing International Workshop Opening Address

Peking University, 18<sup>th</sup> October 2017

B.D. Rogers, University of Manchester



# 1st SPHERIC Beijing International Workshop

**17-20 OCTOBER 2017**

Very first workshop outside of Europe will be presented at the banquet

Workshop format:

- 3 days + 1 training day
- all aspects linked to SPH and its applications

Important Dates:

Abstract Submission Deadline: 20<sup>th</sup> July 2017

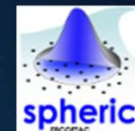
Paper Submission Deadline 30<sup>th</sup> August 2017

Peking University Conference Center.



**SPHERIC Beijing International Workshop**

17-20 October 2017





# WHAT IS SPHERIC?

SPHERIC = SPH European Research Interest Community

SPHERIC is **the international SPH organisation** representing the community of researchers and industrial users of Smoothed Particle Hydrodynamics (SPH).

## AIMS of SPHERIC

- To develop the fundamental basis of SPH
- To discuss current and new concepts
- To foster communication between industry and academia
- To communicate experience in the application of the technology
- To investigate accelerating simulations and visualisation
- To provide access to existing software and methods
- To define benchmark test cases
- To identify future needs of SPH





# HOW DID SPHERIC START?

**In 2005 ...**

There were several research groups in Europe working on SPH.

**BUT, NOBODY WAS TALKING TO EACH OTHER!!!**

Damien Violeau from EDF asked about 10 people from around Europe to attend a meeting

We decided to start a Special Interest Group (SIG) as part of the ERCOFTAC organisation

The first workshop was held in Rome in 2006 and the rest is history ...



# KEY SPHERIC ACTIVITIES

## CORE SPHERIC ACTIVITIES:

- 3-day annual SPHERIC Workshop
- 1-day Training Event
- SPHERIC Benchmark Test Cases
- Newsletters – twice per year
- Special Issues of Journals
- SPHERIC Grand Challenges
- Joe Monaghan Prize

Members of the **SPHERIC Steering Committee** work very hard to keep the organisation active



# SPHERIC WORKSHOPS IN EUROPE

## **SPHERIC Workshops are now well established**

2006	Italy	University of La Sapienza
2007	Spain	Technical University of Madrid
2008	Switzerland	Ecole Polytechnique Fédérale de Lausanne (EPFL)
2009	France	Ecole Centrale de Nantes (ECN)
2010	United Kingdom	University of Manchester
2011	Germany	Technische Universität Hamburg-Harburg (TUHH)
2012	Italy	Monash University (Prato)
2013	Norway	SINTEF
2014	France	EDF R&D and NAME
2015	Italy	University of Parma
2016	Germany	Technische Universität München (TUM)
2017	Spain	Universidade de Vigo, Ourense

**3-days with 120+ delegates + 1-day Training Day**



# TRAINING EVENTS

## **SPHERIC Training Day**

**SPH is new so training new researchers and new users is essential for its progress**

- 2 Specialist Lectures
- Practical session. E.g. using DualSPHysics set up a new case, run SPH, analyse the results

ADD PHOTOS



# 1st SPHERIC Workshop in China

## Reaching out

- SPH is a very big area of activity in Europe
- We have tried to be pro-active in collaborating with institutions around the world
- E.g. University of Manchester has collaborated on SPH with University of Brasilia, National University of Singapore, etc.
- But we have long been aware that there is a great deal of SPH activity in China, Japan, India, Australia, New Zealand that we don't know about
- Hence, this workshop!







# SPHERIC Grand Challenges

**SPH is still a young technique and is very exciting.**

**But for SPH to compete with established techniques SPH must become mature: robust & stable**

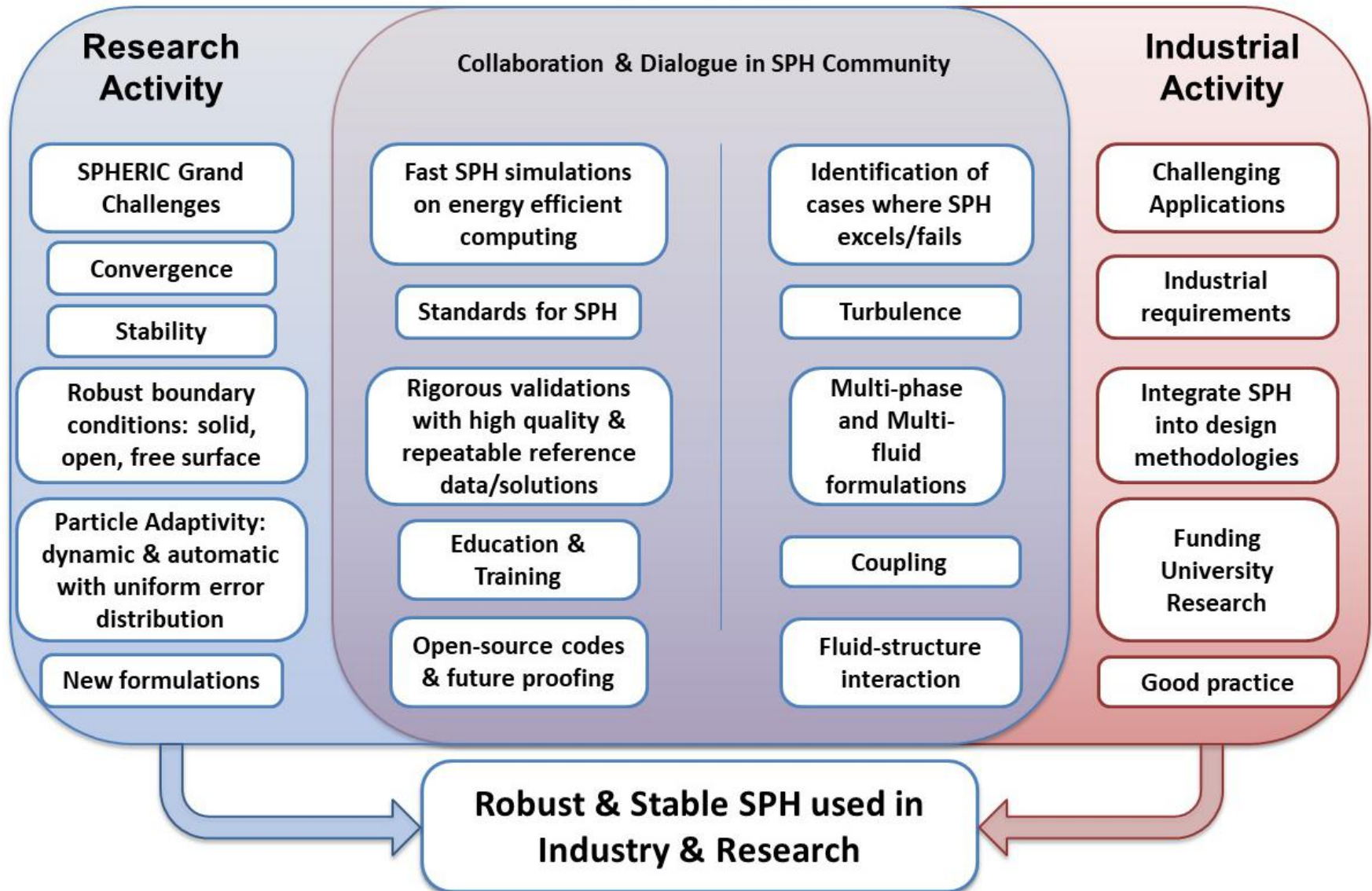
1. Convergence, consistency and stability
2. Boundary conditions
3. Adaptivity
4. Coupling with other methods
5. Industrial applicability

Perfect for **PhD  
Students!!**



# Violeau & Rogers (2016)

## SPH Vision:

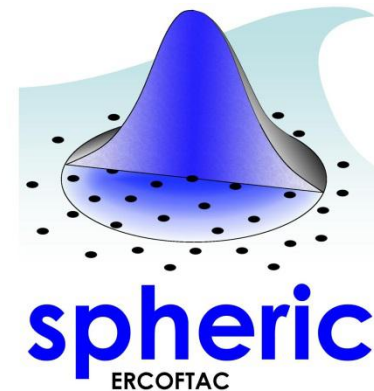
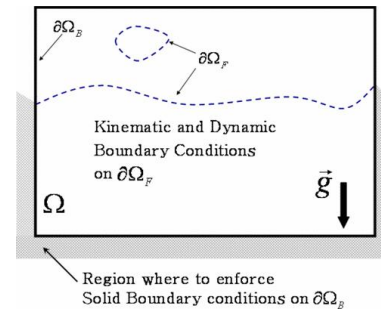
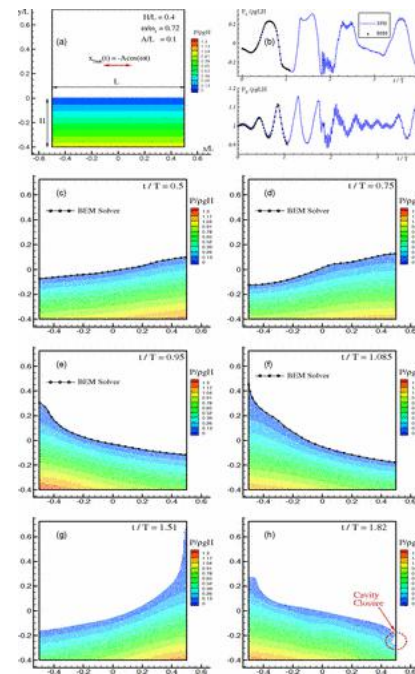


# The Joe Monaghan Prize

SPHERIC awarded the inaugural Joe Monaghan Prize in 2015 to recognise and stimulate breakthrough research on SPH Grand Challenges.



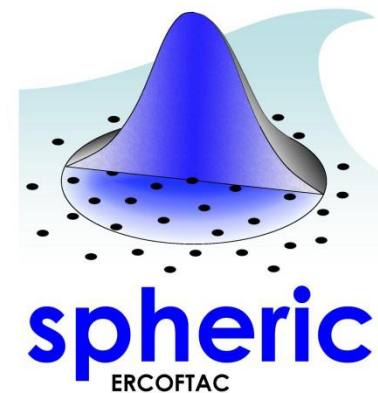
Presented in 2015 to Andrea Colagrossi, Matteo Antuono, and David Le Touzé for ‘Theoretical considerations on the free-surface role in the smoothed-particle-hydrodynamics model,’ Physical Review E 79, 056701 (2009).



# Joe Monaghan Prize 2018 (I)

**The next Joe Monaghan Prize will be presented at the 2018 workshop for clear advance on one of the 5 SPHERIC SPH Grand Challenges:**

1. Convergence, consistency and stability
2. Boundary conditions
3. Adaptivity
4. Coupling with other methods
5. Industrial applicability

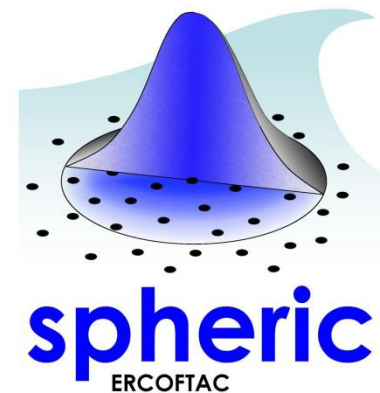


# Joe Monaghan Prize 2018 (II)

**Authors of the winning publication will give an invited lecture at a following SPHERIC Workshop.**

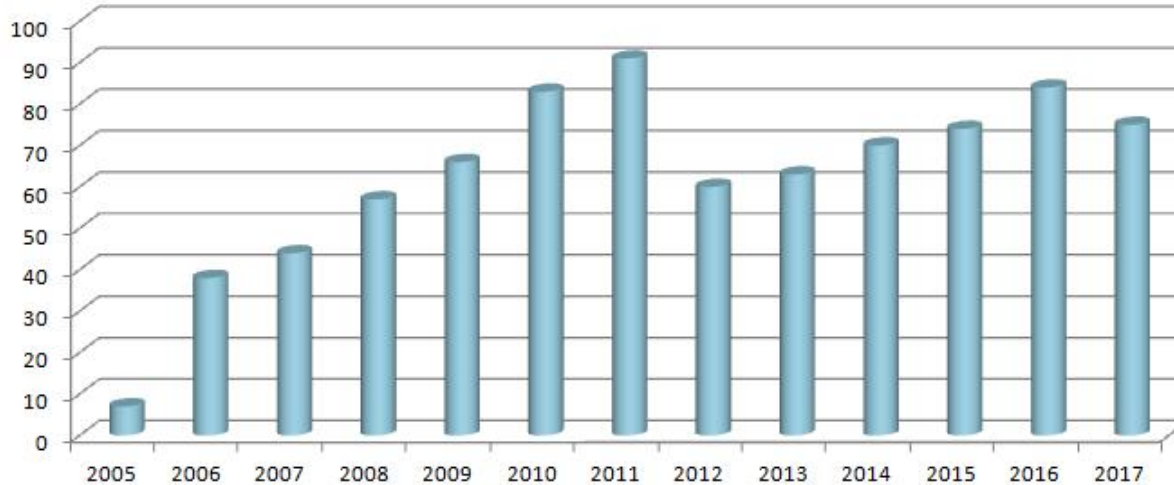
## **Eligibility**

Published in a journal 2011–2015





# Membership



## Becoming a member?

- **Easy, free**, see website: a form to send to the chair
  - Membership is for **institutions**, not individuals
  - Applicant must have a permanent position in the institute he/she represents
  - 3-year membership when entering
- (yes, I know some of you have submitted membership requests in the past 3-4 months they are in my inbox)

Please contact us if you have an idea for an SPH-related activity

## Staying a member

A member of the institution is co-author of a paper submitted to one of the last 3 SPHERIC workshops.

OR/AND

A member of the institution published in the newsletter in the last 3 years.

OR/AND

A member of the institution attended one of the last 3 SPHERIC workshops.



# AIMS OF THIS WORKSHOP

## Now to Beijing!

As we will see in this workshop, SPH has a lot to offer many fields.

The aim of this workshop is:

Bring SPH researchers, users & developers together

Discuss new SPH ideas

Identify areas & problems that need to be solved

Create new SPH networks & friends

**Hopefully, start a new series of SPHERIC-style SPH workshops in and around China**





# SPHERIC Workshop 2018 in Ireland

## Workshop outline

13th edition

Workshop format:

- 3 days + 1 training day, no parallel sessions
- ~59 presentations + a panel discussions + 2 invited keynotes
- all aspects linked to SPH and its applications
- Workshop delegates: ~120

26-28 June 2018



NUI Galway  
OÉ Gaillimh







# Let's start!

***Thank you to Prof. Moubin Liu and the  
Local Organising Team at Peking  
University!!***

***Have a very pleasant and interesting  
workshop!***