



## Smoothed Particle Hydrodynamics European Research Interest Group

### Minutes of the Steering Committee meeting

17 November , 2017

CNR-INSEAN, Roma

#### SC members present:

Ben Rogers, University of Manchester, UK (chair)  
Stefano Sibilla, Università di Pavia, Italy (secretary)  
Renato Vacondio, Università di Parma, Italy (newsletter editor)  
Andrea Colagrossi, CNR-INSEAN, Italy  
Matthieu de Lefte, Nextflow Software, France  
Xiangyu Hu, Technische Universität München, Germany  
David Le Touzé, École Centrale de Nantes, France  
Nathan Quinlan, NUI Galway, Ireland  
Antonio Souto-Iglesias, Universidad Politecnica de Madrid, Spain  
Damien Violeau, EDF R&D, France

#### Also present:

Pablo Loren-Aguilar, University of Exeter, UK (via Skype)

#### Apologies:

Alex Crespo, Universidade de Vigo, Spain (webmaster)  
Jean-Christophe Marongiu, Andritz Hydro, Switzerland  
Thomas Rung, Technische Universität Hamburg-Harburg, Germany  
Rade Vignjevic, Brunel University, UK

### Specific issues

#### 1. SPHERIC By-Laws

Ben Rogers reports on the discussion held by the working group on the By-Laws (B. Rogers, S. Sibilla, D. Le Touze, D. Violeau and P. Eberhard). The group worked on a draft initially prepared by Peter Eberhard and most of the open issues were solved. All decisions regarding the SC election (nomination of candidates, electorate, electoral system and voting system) were instead postponed to a discussion within the full SC.

All the SC agrees on the principle of a continuous renewal of the committee, possibly with an election to be held every year at the workshop. The term of service of a SC member should be fixed in 5 years: transitional provisions in the By-Laws should determine the end of service of the current SC members. Indicatively, 3 SC members should be elected each year.

Concerning the electorate, three different choices are evaluated:

1. all the workshop participants;
2. all the SPHERIC members;
3. all the SC members.

The majority of the SC (8 votes) votes for an electorate made up of all the SPHERIC members.

Concerning the voting system, two different choices are evaluated:

1. vote in person at the SPHERIC Workshop;
2. electronic vote in a selected period.

The majority of the SC (8 votes) votes for a system based on the vote in person.

Indicatively, candidates to the SC should be eligible if they have a permanent position in an institution which is member of SPHERIC and if they fulfill one of the following requirements:

- having already been a member of the SC;
- having organized a SPHERIC workshop;
- having organized a special issue on SPH or related themes on a peer-reviewed scientific journal;
- having been a member of the scientific committee;
- having provided leadership to one of the grand challenges defined by SPHERIC.

To define all the details on the electoral system of the SC, the SC will hold in winter 2018 a conference call via Skype to agree on the final form of the By-Laws proposal.

## **2. Change of SPHERIC acronym meaning**

During the Beijing workshop held in October, the question of the meaning of the acronym of SPHERIC has been raised once again, because the role, scope and breadth of activities of SPHERIC is more and more international expanding outside its original European focus.

The SC agrees on shifting the focus of SPHERIC from an European perspective to a really international and worldwide one: this shift should be obtained by keeping the SPHERIC name, which is widely recognized, modifying its meaning.

After a discussion, the majority of the SC (6 votes) agrees to redefine the acronym of SPHERIC as “SPH rEsearch & engineeRing International Community”: this name will be included in the By-Laws.

## **3. Wikipedia entry on SPH**

Antonio Souto and Andrea Colagrossi show the draft of the new Wikipedia page on SPH, with entries on the generalities of the method and on its applications to Astrophysics, Fluid mechanics and Solid mechanics. Noting that the numbers of Google Scholar citations on SPH and Lattice Boltzmann Method are similar, they propose that the Wikipedia page on SPH should tend to have approximately the same size as the one on LBM. The development of the page could be based on the contents of two of the main review works, namely Joe Monaghan’s 2005 review paper and Damien Violeau’s book.

Some links to the main review papers and to the SPHERIC website and to the annual workshop web page should also be added. Damien Violeau suggest also to add a specific entry on stability and convergence, which is an issue which usually brings some criticism on the SPH method.

Finally, Ben Rogers suggest that Mathieu De Leffe join the group which develops the page, to add greater awareness to the perspectives and expectations of an industrial person interested in adopting SPH.

#### **4. Joe Monaghan Prize**

Andrea Colagrossi reports on the nominated papers for the 2<sup>nd</sup> Monaghan prize, which will be assigned at the 2018 Galway workshop. Eligible papers should published in 2011-2015 and represent a clear advance in one of the five SPHERIC Grand Challenges: 6 nominated papers have been received from 12 nominators, 8 from SC members, 1 from a scientific committee member and 3 from other SPHERIC members. All the papers seem eligible, although they cover only the Grand Challenges 1 & 2 (Convergence & Boundary conditions).

Andrea Colagrossi will send an email to the whole SPH community, reminding that the choice will be made by vote of the participants during the first two days of the 2018 Galway workshop. Announcement of the winner will be given at the workshop banquet.

#### **5. Grand Challenges**

Ben Rogers reports that Alex Crespo found that some of the Grand Challenges are very well explained on the SPHERIC Web pages, while others are not. This is especially true for GC 4 & 5 (Coupling & Industrial applicability) where very little information is present.

Renato Vacondio suggests that the GC page should be expanded and transformed in a moderated forum, where everybody could be free to send his/her comments to the GC leader, who administrates the page and publishes the comments. The moderated forum could be embedded in the main SPHERIC Web page or linked to it.

#### **6. Reflections on Ourense 2017**

The SC finds that the format of the 2017 Ourense Workshop, where only one panel discussions was held, was more easily manageable and worked well: it will be therefore confirmed for the 2018 Galway Workshop.

#### **7. Student Prize and Abstract Assessment**

Damien Violeau observes that the abstract sent by the Libersky Student Prize winner in Ourense had been initially rejected by the Scientific Committee, and was included in the papers to be presented at the workshop only because of the withdrawal of other accepted papers: in his opinion, this fact poses a question either on the adequacy of the selection process of abstract, or on the voting system adopted for the Student Prize.

Ben Rogers shows some considerations by José Cercos-Pita on the bias of the marks for an abstract selection process in a conference: this analysis has been applied also to the data of the 2017 prize vote, and shows that possible alternatives can be envisaged in the averaging and normalization of the marks given by the reviewers/Scientific Committee, both for abstract selection and student prize choice.

The SC discusses whether to open the vote for the Student Prize to all the Workshop attendees; however, it is generally felt that a prize assigned by the Workshop Scientific Committee may have a higher relevance.

For the voting procedure, a deeper analysis should be performed before the SC takes a decision on a possible modification of the present method to normalize marks: Ben Rogers will therefore send to José Cercos-Pita data on previous evaluations to gain additional knowledge on the adequacy of the whole process. Ben Rogers also suggests to raise the number of reviewers of each abstract from three to four, in order to reduce the effects of reviewer subjectivity. The SC agrees.

## **8. Reflections on Beijing 2017**

Ben Rogers reports on the SPHERIC Beijing Workshop held in October. The organization of the 4-day event by Moubin Liu and his team proved to be excellent. The Training Day was attended by 55 people.

A few shortcomings were noted: some Authors made their presentations without submitting any paper, the quality of the presentations was rather variable, and many papers focused more on applications of existing codes rather than on the development of the SPH method. It must be noted that, at present, people working on SPH in China are in general within small groups, with the notable exception of the research group in Harbin.

## **9. Newsletter – update, modernization & logo**

Renato Vacondio proposes to update the format of the Newsletter, using the Adobe InDesign software for publishing. He can ask a professional to provide the template: the Authors may then submit their contributions in a free format, which could be later fit to the newsletter format. He also suggests a slight update of the SPHERIC logo (in terms of colour, font, etc...), in order to cope better with the new format. The SC agrees that the ERCOFTAC word in the logo is not really necessary to maintain the ERCOFTAC affiliation and could be removed. Moreover, a specific software (like MailChimp) could help manage the mailing list of the Newsletter.

The whole cost of the new software of the Newsletter may be around 1500€ for the development of the Adobe InDesign template and 300€ per year for the management of the mailing list. As SPHERIC has no specific funding apart from the workshop leftover, Parma University may take charge of these costs and get a free registration for the next two SPHERIC workshops. The SC agrees.

## **10. Journal special issues**

David Le Touzé will be the guest editor of a special issue of Computer and Fluids on “Theoretical, numerical and computational advances of the SPH method for solving fluid problems”. The issue will be a “virtual special issue”, in the sense that papers will undergo the normal review process of the

journal and, once accepted, will be tagged as belonging to the special issue. In this way, the papers will be published on regular journal issues, although tagged as belonging to the special one, and the special issue will have no limits to the number of papers. Up to now, 5 to 10 people have anticipated their possible contribution to the special issue.

A second special issue on SPH will be hosted by the Coastal Engineering Journal, with Abbas Khayyer as guest editor. The deadline is set on January 1<sup>st</sup>, 2018. Title: "SPH for Coastal and Ocean Engineering"

## **Galway 2018 workshop**

### **1. Current situation of the workshop preparation**

Nathan Quinlan reports on the workshop organization.

Three Keynote speakers have been identified: David Le Touzé, Natasha Flyer (National Center for Atmospheric Research, Boulder, CO, USA) and Stefan Hickel (Delft University, ERCOFTAC Chair) as guest ERCOFTAC keynote speaker.

For the banquet, two options have been devised: Claregalway Castle (30 mins from Galway), Boat trip to the lake + dinner at Glenlo Abbey.

The foreseen budget is balanced, with €38.4k costs (23.5 k€ catering, 2.1 k€ venue, 4.8 k€ keynote speaker travel expenses, 8 k€ printed material) and 38.4 k€ incomes (35.4 k€ registration fees with a forecast of 100 attendees, 2 k€ ERCOFTAC contribution, 1 k€ Failte Ireland contribution).

The important dates will be the following: announcement early December 2017, abstract submission deadline 23/2, announcement of selected abstracts 30/3, early registration 13/4, paper submission 11/5, training day 25/6, workshop 26-28/6.

The format will be the same of the 2017 Workshop in Ourense: the 60 papers will be presented in thematic sessions from 9 to 17; one discussion panel will be held on Tuesday; the banquet will be confirmed on the 2<sup>nd</sup> day. The 3<sup>rd</sup> keynote lecture will be given after lunch on the 3<sup>rd</sup> day, while the Libersky Prize winner will be announced just before the workshop closure. The runners-up of the Libersky Prize will be awarded a prize as "Highly commended papers".

The theme of the discussion panel on the 1<sup>st</sup> day will be "Stepping through time: where are we going with SPH?", with a panel composed by Damien Violeau, Andrea Colagrossi, Pablo Loren-Aguilar, Mathieu De Leffe plus someone from the Scientific Committee to be decided.

The morning talks of the training day will be given by Salvatore Marrone (topic: introduction to SPH) and by Matteo Antuono (topic:  $\delta$ -SPH); as usual, the afternoon will include a practical session by the Dual SPHysics team (Ben Rogers, Alex Crespo)

## **Exeter 2019 workshop**

Pablo Loren-Aguilar reports on the 2019 workshop organization.

Tentatively, the workshop dates will be 24-27 June 2019, and the workshop will be hosted in the amphitheater of the University of Exeter. The University will be able to offer a campus accommodation for everybody in the students' residence (only 5 min walking from the conference venue) at 420 £ including workshop fees, banquet and accommodation B&B.

Pablo Loren-Aguilar will send some additional feedback and documentation within a few weeks; in any case, the organization of the Exeter workshop will be discussed with a higher level of detail during the SC meeting in Galway.

## **Asian 2019 workshop**

It appeared clear during the SPHERIC Beijing workshop that researchers from China contribute to a large extent to the SPH research in Asia. In order to retain the momentum gained in Beijing, it was proposed during the Workshop to hold a second Asian workshop again in China within two years.

Prof. Aman Zhang from Harbin University, who already was in the LOC of the Beijing workshop, agreed to organize the next Asian workshop in Harbin in December 2019.

The SC decision welcomes the candidature from Harbin, suggesting to avoid the Christmas holidays period for the workshop. A proper abstract review process by the Scientific Committee should be provided in case the number of received abstracts is higher than 40.

The SC agrees that, at present, it is too early to evaluate if it is the case to maintain a frequency of one year for the organization of the European workshop and of two years for the Asian one, or to have an annual event alternating Europe and Asia.

## **Regular issues**

### **1. Update on ERCOFTAC**

ERCOFTAC provided funding to the 2018 Galway workshop.

Although no person from the SC was able to attend the last two ERCOFTAC meetings, the link with ERCOFTAC will be tightened by the newly established ERCOFTAC keynote lecture during the Galway workshop.

### **2. New SPHERIC members**

Ben Rogers is updating the list with the new membership applications and processing them to verify if they meet membership requirements. A number of new applications have been received from China as an outcome of the success of the Beijing workshop.

### **3. New benchmarks**

A new benchmark test case on "2-D Wave interaction with perforated breakwaters", provided by Davide Meringolo and Francesco Aristodemo, is present on the website

Xiangyu Hu will also provide a new benchmark test case on fluid-structure interaction.

#### **4. New website**

The website, where institutions are mapped on a Google Maps basis, has problems in visualizing accesses from China because of the restrictions posed on Google by the Chinese government firewall. The website will be therefore configured in order to identify when an access comes from China and display it on a map image instead of linking to Google Maps.

#### **5. December issue of the newsletter**

The new issue is almost ready and will contain the contributions by Moubin Liu on the Beijing workshop, by the three student prize winners in Beijing and by Antonio Souto on the honorary PhD awarded to Joe Monaghan in Madrid. The issue will contain also the announcement by Andrea Colagrossi on the Monaghan Prize.

Renato Vacondio asked also for two additional contributions by Maine University on erosion and by the Japan National Maritime Institute. These contributions will be included in one of the next two issues.

#### **6. Bibliography database**

The reference list will be updated from the CiteULike online reference manager to the Mendeley online reference manager. A group has been created by Corrado Altomare in the Mendeley social group and is available to Word users; however, one needs to be a user to update and remove references.

#### **7. Scientific committee**

The SC agrees to include in the Scientific Committee:

- Fei Xu (Northwestern Polytechnic University, Xi'an, China) who participated actively to the Beijing workshop and was part of the LOC;
- Pablo Loren-Aguilar (Exeter University, UK), who will be the organizer of the 2019 Exeter workshop;
- Aman Zhang (Harbin University, China), who will be the organizer of the 2019 Asian workshop.