

Meeting of UKFN Executive Committee

12:00 Thursday 23 March 2017

Via Webex

AGENDA

1. Agree the **Minutes** of last EC meeting (9/9/16).
2. Review **outstanding actions** from last EC and AB meetings.
3. Discuss **website**:
 - a. development since last meeting
 - b. next stages
 - c. comments from Neil
4. Discuss **SIGs**:
 - a. report on progress of first round SIGs
 - b. allocation of second round SIGs
 - c. monitoring activities and expenditure
 - d. allocation of SIGs to EC members
5. Discuss **SRVs**:
 - a. allocation of first batch
 - b. future batches
 - c. comments from Berend
6. Discuss use of **supplementary fund** from project partners
 - a. uses of the supplementary fund
 - b. comments from Steve (via email)
7. Discuss UKFN **engagement with other UK activities**
 - a. ERCOFTAC
 - take over running of UK Pilot Centre
 - Osborne Reynolds Day
 - relation with UK Fluids Conference
 - interaction with QNET
 - b. konfer
8. Discuss ways to **liaise with EPSRC** effectively
9. Any other business
10. Next meeting

The Executive Committee will be joined by Michael Ward from EPSRC.

MPJ/NCD, 21/3/17

Item 2: Outstanding actions from last EC and AB meetings
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All actions noted in the Minutes of the EC meeting, 9/9/16, have been completed with the exception of the following, which are ongoing:

- Item 1(a), Talks page on website:
We are currently shifting away from streamed talks towards recorded talks, since (i) the latter offer more flexibility and (ii) there were some intermittent reliability issues. Recordings have been made and uploaded, and are available on the UKFN website (<https://ukfluids.net/talks>), for seminars from Cambridge Engineering and DAMTP fluids seminars, as well as ICL Aerodynamics seminars.
ND will continue to pursue more seminar series: the UKFN website has functionality to define RSS feeds if they are not available directly from organisers.
- Item 7(a), AOB, Supplementary funds:
Account has been set up, but the institutions have not yet been approached; this is planned for when specific proposals for use of the funds have been developed.

All actions noted in the Minutes of the AB meeting, 21/9/16, have been completed with the exception of the following ongoing actions:

- Item 2, *.ac.uk* domain name:
ND in process of submitting application via Cambridge UIS (University Information Services) to obtain domain name *fluids.ac.uk*.
- Item 2, advertising jobs on UKFN website
ND will continue to explore with web developer link to *jobs.ac.uk* at appropriate time; meanwhile, positions received from UKFN members are routinely tweeted (and hence appear on UKFN home page) and are included in newsletter.

Item 3: Website

Development since last EC meeting

Home page (<https://ukfluids.net>): Twitter account currently has 202 followers. The feed is regularly used to advertise jobs, conferences, etc with time-critical deadlines.

Registration page (<https://ukfluids.net/register>): users create an account on UKFN by entering personal details, including fluids sub-disciplines, application areas and facilities. They are automatically added to the mailing list. Currently, there are 373 registered users.

SIG pages (<https://ukfluids.net/sig>): entry point is a SIG summary page, listing the institutional members of each of the 41 SIGs and displaying them on a UK map. This links to the set of pages for the individual SIGs, which are still in a simple form. Links to independent SIG websites will appear here.

SRV page (<https://ukfluids.net/srv>): contains summary details (taken from proposals) of the set of 5 SRVs approved to date. When complete, each SIG will provide a short report that will replace the proposal summary.

Talks page (<https://ukfluids.net/talks>): lists the talks from the three RSS feeds currently available (Cambridge and two ICL series). Filtering is available by future, past and recorded talks; recorded talks are searchable by keyword. Further filtering may be incorporated (e.g. month/year for long list of past talks). Recorded talks currently derive from Cambridge Engineering and DAMTP fluids seminars and ICL Aerodynamics talks.

Admin page (<https://ukfluids.net/admin>): now contains set of values and communications document, as well as list of emails sent to the mailing list, principally the newsletters sent to the mailing list (currently, there are 559 recipients on the mailing list).

Editing website content: the two administrators (ND and MJ) can edit much of the content via a series of panels, in particular: adding SIGs; adding members to SIGs; adding RSS feeds; adding talks to RSS feeds.

Other:

The UKFN YouTube channel has been set up

(https://www.youtube.com/channel/UCS63du5FONb5ICQUX_kcXTw)

The UKFN Facebook page has been set up (<https://www.facebook.com/UKFluids/>)

Next stages

Researcher Resources: design of pages in development. Materials on flow control from the AIM (Advanced Instability Methods) network will be used as the initial input to demonstrate how the pages will operate.

SIG individual pages: each SIG has its own dedicated page. This is organised as a series of tabs: currently, there is a Home (overview) tab and a Members tab. The page for those SIGs who have elected to develop their own website will have a link button; while that of SIGs who do not intend to create their own website will have further tabs added, e.g. Outputs. SIGs will also be encouraged to set up their own Twitter account and use this to add news items via the Twitter feed on the Home tab (currently just showing the UKFN feed).

Item 4: Special Interest Groups

First round SIGs

The first 26 SIGs formally began operation on 1st December 2016. Since then 16 out of 26 have held or have fixed a date for their first meeting:

ID	Title	Start	End	Location
25	<i>User's Forum for National Wind Tunnel Facility (15 participants)</i>	24-Jan-17		ICL
10	<i>Fluid mechanics of cleaning and decontamination (25 participants)</i>	26-Jan-17		Cambridge
23	<i>Turbulent skin-friction drag reduction (16 participants)</i>	21-Feb-17		ICL
11	Fluid mechanics of the eye	27-Mar-17	28-Mar-17	ICL
8	Flow instability, modelling and control	29-Mar-17	30-Mar-17	Southampton
13	Low-energy ventilation	29-Mar-17		ICL
12	Granular flows in the environment and industry	30-Mar-17	31-Mar-17	Cambridge
24	Urban fluid mechanics	30-Mar-17	31-Mar-17	Southampton
3	Boundary layers in complex rotating systems	03-Apr-17	04-Apr-17	Cambridge
5	Drop dynamics	03-Apr-17		Oxford
6	Droplet and flow interactions with bio-inspired and smart surfaces	12-Apr-17		Northumbria
17	Multi-scale and non-continuum flows	05-May-17		Edinburgh
21	Particulate matter filtration flows in automotive and marine applications	15-May-17		Coventry
19	Next generation time-stepping strategies for computer simulations of multi-scale fluid flows	18-May-17	19-May-17	ICL
22	Turbulent free shear flows	19-May-17		Leicester
2	Biologically active fluids	12-Jul-17		Birmingham

Second round SIGs

The second batch of 15 SIGs formally began operation on 1st March 2017. Since then 2 out of 15 have fixed a date for their first meeting:

ID	Title	Start	End	Location
34	Non-equilibrium turbulence	23-Mar-17		ICL
39	Sprays in engineering applications: modelling and experimental studies	12-Jun-17	13-Jun-17	Brighton

Monitoring SIG activities and expenditure

We have allocated a maximum spend per SIG over the 3-year period. We expect that some SIGs will under-spend and, if this happens, we would like to have a mechanism to re-allocate the funds for a third round of SIGs.

Should we ask SIGs, once they have had their first meeting, to send us a spending plan for the 3-year period? We could then monitor actual spend against expected spend and re-allocate funds that look likely to remain unused. Such a request would have to be communicated shortly to SIG leaders.

If so, we would expect all SIGs to have a spending plan by September 2017, so that we could review them in October/November 2017.

Such action would be broadly in line with industrial practice, where internal SIGs are regularly monitored for activity, say each quarter, advised on remedial actions if they appear inactive and terminated if there is then insufficient improvement.

Third round SIGs

If some funds become available following the SIG monitoring process, we could launch a third call for SIGs around January 2018.

Allocation of SIGs to EC members

The following provisional allocation is proposed. SIGs to which EC members belong (marked* below) have automatically been allocated to them, plus a selection of the remainder broadly based on areas of expertise.

EC to discuss (a) the proposed allocation and (b) the duties involved, which we anticipate would focus on the SIG's activities in the light of its technical area. ND and MJ would handle the administration of this monitoring.

Anne

- 2 Biologically active fluids
- 4 Challenges in cardiovascular flow modelling
- 5 Drop dynamics
- 9 Fluid dynamics of liquid crystalline materials
- 11* Fluid mechanics of the eye
- 17 Multi-scale and non-continuum flows
- 20* Non-Newtonian fluid mechanics
- 27 Acoustofluidics
- 30* Fluid mechanics of nanostructured materials

Berend

- 10 Fluid mechanics of cleaning and decontamination
- 16* Multiphase flows and transport phenomena
- 21 Particulate matter filtration flows in automotive and marine applications
- 28 Combustion science, technology and applications
- 29 Evolving interfaces in complex flows
- 35 Nuclear thermal hydraulics – advanced modelling, simulation and experimentation
- 38 Smoothed particle hydrodynamics (SPH)
- 39 Sprays in engineering applications: modelling and experimental studies

Neil

- 1 Aeroacoustics
- 6 Droplet and flow interactions with bio-inspired and smart surfaces
- 15* Multicore and Manycore Algorithms to Tackle Turbulent flows (MUMATUR)
- 23 Turbulent skin-friction drag reduction
- 25 User's forum for National Wind Tunnel Facility
- 31 Ground vehicle aerodynamics
- 32 High speed experimental aerodynamics
- 34* Non-equilibrium turbulence

Paul

- 3 Boundary layers in complex rotating systems
- 7* Experimental flow diagnostics (xFD)
- 13* Low-energy ventilation
- 14 Marine hydrodynamics
- 22 Turbulent free shear flows
- 24* Urban fluid mechanics
- 26 Wave-structure interaction
- 40 Surface and internal waves

Steve

- 8* Flow instability, modelling and control
- 12 Granular flows in the environment and industry
- 18* Multi-scale processes in geophysical fluid dynamics
- 19* Next generation time-stepping strategies for computer simulations of multi-scale fluid flows
- 33 Mathematical challenges of nonlinear waves and interfacial dynamics
- 36 Numerical optimisation with fluids
- 37 Quantum fluids
- 41 Wave turbulence

Item 5: Short Research Visits

The first round of successful applications, for the batch ending 31 January 2017, is listed below, in alphabetical order of title.

#	Visitor	Visit title	Visiting	Visit dates
1	Dr Joanna Szmelter, Loughborough	Advancing Atmospheric Models: Aspects of Spatial Discretisation	Dr Nils Wedi, Dr Christan Kühnlein & Prof Piotr Smolarkiewicz, ECMWF	23-28 April 2017
2	Dr Apala Majumdar, Bath	Controlling nematic microfluidics: a merger of modelling, simulation and experiments	Dr Ian Griffiths, Mathematical Institute, University of Oxford	1 March 2017 – 1 March 2018
3	Dr Richard Fu, Northumbria	Exploration of integrated microfluidics with phononics and acoustofluidics based on thin-film platform	Dr Julien Reboud & Dr Rab Wilson, University of Glasgow	10-14 April 2017
4	Dr Chris Keylock, Sheffield	Interrogating local shear effects on coherent structure identification in turbulent flows	Dr Oliver Buxton, Department of Aeronautics, ICL	7 April – 6 May 2017
5	Dr Miguel O. Bernabeu, Edinburgh	Towards a mechanistic understanding of haematocrit changes in tumour vasculature	Prof Helen Byrne, Mathematical Institute, University of Oxford	1 week, April/May 2017

Item 6: Supplementary funds

At the last meeting, the EC discussed the additional cash contributions from project partners pledged in their letters of support. There were two initial suggestions for how the funds might be used: “prizes for PhD students and early career researchers, and facilitating outreach activities”.

The list below outlines some specific ideas for how this money could be used, focusing on prizes and outreach. It is based on the ideas discussed at the EC meeting and at subsequent discussion between MJ/ND and (a) Steve Tobias (23/1/17) and (b) Jaq Saggars, CUED (20/2/17).

Note that if the amount pledged in every letter of support was forthcoming, the total would be around £50,000 over the course of the 3 years.

Prizes

- Competition for engaging images and short videos (*à la* APS Gallery of Fluid Motion) with a short description for Twitter/YouTube/Facebook, judged every 4 months (i.e. as for SRVs).
- Annual UK Fluids Conference: prize for best presentation(s) and poster(s)
- Prize for best doctoral thesis in fluid mechanics

Outreach: published material

- Articles on fluids for mainstream press, preferably with national reach
- Booklet on SIG activities for general audience after 18 months
- Ladybird Expert Books
- New version of van Dyke’s Album of Fluid Motion – website and/or book
- Photographic exhibition
- NSF films remake

Outreach: events and interactive activities

- Public events for a general audience – UKFN stand
- Public lectures
- Schools

Item 7: Other UK activities

ERCOFTAC

David Standingford indicated to MJ earlier this year that he would like to relinquish responsibility for the ERCOFTAC UK Pilot Centre (PCUK) and that it could be appropriate to pass it on to UKFN.

Subsequently, MJ and ND met Julian Hunt and DS at UCL on 28/2/17 to discuss this further, as well as ways ERCOFTAC and UKFN could interact.

Advantages from assuming responsibility for PCUK

- Gives UKFN an immediate connection with an established European network.
- Increases exposure of UKFN within and outside the UK.
- Facilitates interplay between ERCOFTAC SIGs and UKFN SIGs (recall the intention in CfS for UK researchers to lead 25% of ERCOFTAC SIGs by the end of 3 years).

Main points discussed

- Handover
 - Since DS is on the UKFN Advisory Board, he could monitor handover relatively easily
 - A timescale was not discussed, but it would be appropriate to wait until the 2017 events are complete (see below)
- Duties
 - Act as contact point for UK members of ERCOFTAC
 - Organise Osborne Reynolds Day (see below)
 - Organise Industry Day
 - Maintain PCUK pages on ERCOFTAC website
 - Promote ERCOFTAC in UK
- Osborne Reynolds Day
 - OR Day takes place in July¹, and consists mainly of a presentation competition, involving up to 7 pre-selected finalists, plus a poster presentation competition (some keynote lectures also in programme). Its principal purpose is to generate a shortlist of (1-3) UK candidates for the da Vinci prize, which is awarded at the ERCOFTAC Autumn Festival, usually held in October.
 - DS suggested that one way to develop OR Day could be to combine it with the annual UK Fluids Conference. However, this leads to a timing mismatch: OR Day needs to be in July to allow time for the (Europe-wide) da Vinci selection process; meanwhile, Leeds and ICL have settled on September for the UKFC. While the OR Day remains tied to da Vinci prize, its date is essentially fixed; and Leeds/ICL are unlikely to want to change the UKFC date.
 - Suggestions would therefore be welcome on how UKFN could advance the impact of OR Day and/or UKFC, either together or separately.
- Industry and ERCOFTAC
 - General desire to increase industrial involvement.
 - PCUK organises an annual Industry Day.
 - Some UKFN SIGs have industrial contacts, who could be brought into play.
 - Sharing UKFN researcher directory (possibly via konfer) and the PCUK membership list could provide another opportunity for academia and industry to engage.
- QNET Wiki
 - ERCOFTAC runs a repository of test cases targeted at CFD called QNET (http://www.ercoftac.org/products_and_services/wiki/). It is overseen by Wolfgang Rodi at Karlsruhe.

¹ See <http://www.mace.manchester.ac.uk/business/osborne-reynolds-day/> for more details.

- JH and DS suggested contacting Rodi, who may welcome assistance from sub-editors drawn from UKFN SIGs, while at the same time UKFN members could add test cases to QNET and thereby increase exposure for these cases (and contribute to growth of QNET).

konfer

It was not possible to arrange a meeting with konfer (Ben Showers and Joe Marshall) before the EC meeting, but they sent the following status report.

“konfer has been created by NCUB in partnership with the Higher Education Funding Council for England (HEFCE) and Research Councils UK (RCUK) to enable business (in particular SMEs) to easily connect with universities around a subject they are interested in such as expertise, funding or equipment.

[konfer](#) is currently live as an Alpha, and we’ve been working with around 60 universities during the summer of 2016 to improve the data we’re ingesting and to ensure we’re surfacing the best possible information and data for the institution. The Alpha release demonstrates that the concepts and ideas proposed in the project’s original Business Case (including being able to harvest and capture multiple data sources in one place) were technologically achievable.

As we go into our Beta phase of development, we are engaging more closely with business to ensure we understand the user journey and motivations – we want konfer to be a tool that provides a solution for the problems businesses face. We held our first SME workshop in Gateshead at the end of February, and have workshops scheduled in Birmingham, Bournemouth and Manchester throughout April and May. Attendees will be comprised of Local Enterprise Partnerships, Growth Hubs, and mature and start-up companies working across different sectors.

We are aware that the SMEs with which we look to engage will each be at a different stage within their business lifecycle and therefore want different outputs from business-university collaboration. Feedback received so far has suggested that connecting to an appropriate academic/expertise is key, alongside having access to up-to-date funding opportunities to help growth.

It is crucial that user needs drive the technical and design development of the site not only for the Beta release (Summer 2017), but to ensure konfer’s success and longer-term sustainability.”