

## Meeting of UKFN Executive Committee

12:00, Tuesday 1 May 2018  
via Webex

### AGENDA

1. Agree the **Minutes** of last EC meeting (5/1/18).
2. Review **outstanding actions** from last EC meetings
3. Discuss **website**:
  - a. review current status
  - b. discuss planned developments
  - c. comments from Neil
4. Discuss **SIGs**:
  - a. review status of SIGs, including expenditure
  - b. further feedback from monitoring by Matthew
5. Discuss **SRVs**:
  - a. review status of SRVs, including expenditure
  - b. comments from Yannis
6. Discuss use of **supplementary fund** from project partners
  - a. review status of requests and fund
  - b. review current use and discuss future use of supplementary fund
  - c. comments from Steve
7. Finalise **winners of UKFN photo/video competition #3**
8. Discuss UKFN **engagement with other activities**:
  - a. EPSRC
  - b. UK Fluids Conference
  - c. ERCOFTAC
  - d. ERCOFTAC Osborne Reynolds Day
  - e. JFM/Tom Crawford
  - f. Other
9. Discuss progress on **long term plans for UKFN**
  - a. discuss results of consultation with UK fluids community
  - b. discuss progress on options for future funding
10. Any other business
11. Next meeting

MPJ/NCD, 30/4/18

Item 2: Outstanding actions from last EC meetings
---

Numbers in [] refer to Item number in agenda for that meeting.

**EC (5/1/18)**

- Estimate the costs of various activities in post-grant operation [9] – Ongoing, but should be clarified before further discussions on CDT bids and with EPSRC (Item 9).

**EC (22/9/17):**

- EC members to provide one 'resource' each for website [5]– Ongoing, to be discussed further in Item 3.
- Industrial societies for thesis prize publicity [7] – Did not pursue for this year's prize, but will aim to do so next time.

**EC (30/6/17):**

- Increase website traffic [9] – MJ/ND continuing to pursue ideas with CUP/JFM, see also Item 8.
- Media champions [9] – ND continuing to pursue setting up media champions in the SIGs, who feed interesting stories from their SIG through to UKFN.

**EC (9/9/16):**

- More series of talks on the Talks page – ND continuing to search for more fluids seminar series.
- Jobs page – Ongoing, earmarked for eventual addition to website (Item 3); continuing to use Twitter and newsletter at the moment.

### Current status

**Mailing lists:** A set of mailing lists, using the *mailman* software, has now been set up, consisting of the following.

- 2 mailing lists per SIG, of the form [<sig>@lists.fluids.ac.uk](mailto:<sig>@lists.fluids.ac.uk) and [<sig>-members@lists.fluids.ac.uk](mailto:<sig>-members@lists.fluids.ac.uk), allowing each SIG to communicate with general-interest and core members, respectively. Signing up on a SIG's individual page adds the address to the general-interest list; it is then for the administrator to transfer to the core members' list, if appropriate. The SIG leaders manual has been updated with details on how to run the mailing lists.
- A general UKFN mailing list, [all@lists.fluids.ac.uk](mailto:all@lists.fluids.ac.uk), which people join when they 'sign up' at the bottom of any website page. There are 1443 on the mailing list, up from 796; this large increase is in large part due to the registration of users by ND while setting up SIG membership lists (see below).

**Home page** (<https://fluids.ac.uk>): The introductory text has been replaced with a 'carousel' of photos and videos. The display starts at a randomly-chosen point in the sequence, and the user goes backwards or forwards manually; they can also view the media in a separate window, if desired. The carousel entries are currently taken from past photo/video competitions; the editing interface has also been completed to allow further media to be inserted at any stage.

UKFN's Twitter account @UKFluidsNetwork currently has 768 followers (up from 602).

**SIG individual pages** (<https://fluids.ac.uk/sig/Acoustofluidics>, etc): there are two main changes to the individual pages:

- The list of members is now shown for around 85% of SIGs, due to a major push by ND to get member lists from SIG leaders, and then enter the data provided. Note individuals must first be registered users (with details of research interests, etc) before they can be listed as SIG members, so as a precursor stage ND registered all missing users, using a minimal set of data. This resulted in a large increase in the number of Directory members (see below).
- The 'Join SIG mailing list' feature adds the address to the general interest mailing list (see above).

**SRV page** (<https://fluids.ac.uk/srv>): this now shows all 36 SRVs approved in the first 5 batches. There are 13 visit reports available, accessible by expanding the SRV entries.

**Researcher Resources** (<https://fluids.ac.uk/researcher-resources>): some initial steps have been taken to add resources to this page, including material proposed by EC members together with a small number from SIGs.

The next stage is to focus on the following sources:

- EC members – lists of useful links or other resources
- SIGs and their members – encourage contribution of resources, as identified in MJ's conversations with SIG leaders
- ERCOFTAC QNET Wiki – add test cases (around 30 Application Challenges and 50 Underlying Flow Regimes), either as two large resources or after splitting into sub-levels. Note that David Standingford confirmed these can be used as standalone examples, with all essential information free-to-use.

**Competition page** (<https://fluids.ac.uk/competition>): the third UKFN photo/video competition, on the theme 'The invisible made visible: uncovering hidden patterns, trends and structures', is nearing a conclusion.

- All entries were included for voting, consisting of 11 photos and 5 videos
- Voting ran from 6/4/18 to 20/4/18
- 5 photo and 4 video finalists have been chosen (corresponding to the entries for which the majority of votes were cast), and will be considered by the EC in Item 7.

**Directory page** (<https://fluids.ac.uk/directory>): following recommendations by the EC, the list of all registered users is now arranged alphabetically, and shows the SIG membership of each person. There are 1087 registered users (up from 498). As noted earlier, this large increase is a result of recently adding many of the SIG membership lists. However, around 60% of users have not yet entered their detailed research interests, etc, and so will not be captured in Directory searches by topic. The next stage is therefore to ask the SIG leaders to encourage their members to supply this information, and thereby make Directory searches richer.

In progress is the addition of a map showing the geographical distribution of search results, which allows interactive filtering by location.

**Connect page** (<https://fluids.ac.uk/connect>): this page has been updated with

- Agenda and Minutes of the last EC meeting (5/1/18)
- all emails sent to the UKFN mailing list
- photos of the EC members

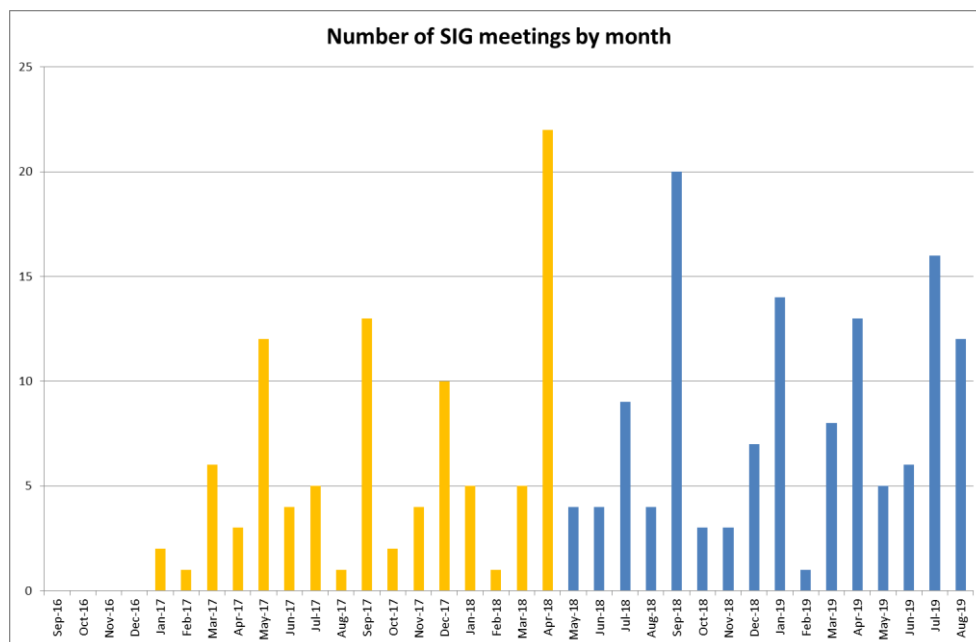
#### Planned developments

- Directory page: once the map and searching by location have been implemented, the use of interactive tags (fluids sub-disciplines, etc) will be fully assessed for incorporation.
- The following developments, discussed at the last EC meeting, have been discussed with the web developer and flagged for future implementation:
  - Competition page
  - Thesis directory
  - Jobs page

#### Item 4: Special Interest Groups

##### Current status

According to the spending plans, the number of SIGs to have completed a given number of meetings, in [], by the end of April 2018 is: 1[4], 15[3], 20[2] and 5[1]. (Note that not all April 2018 meetings have been confirmed.)



**Figure 1:** Number of SIG meetings completed (orange) and planned (blue) by month.

The monthly totals are shown in Figure 1, both completed and planned. The distribution has not changed greatly since the previous EC meeting, with spikes for April and September 2018 remaining. It is therefore still necessary for meetings to take place as planned to avoid falling further behind.

A SIG meeting for ECRs was held on 21/4/18, jointly organised and co-sponsored by two different SIGs, namely 'Droplet and flow interactions with bioinspired and smart surfaces' and 'Multi-scale and non-continuum flows'. It was well-received by those taking part, and a further event in the future seems likely.

The Aeroacoustics SIG has formally wound up, with its members joining the UK Acoustics Network, thus releasing most of their allocated funds.

##### MJ monitoring update

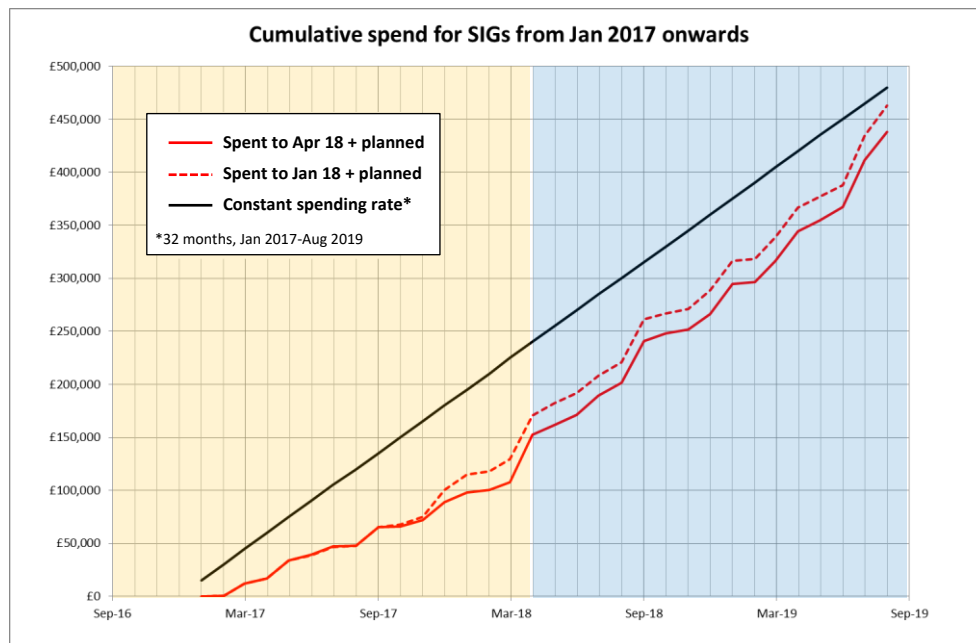
MJ has spoken to all SIG leaders and will give a verbal update

##### Expenditure

The cumulative total expenditure is shown in Figure 2, and plots the total SIG spending (i) to date (solid red curve) and (ii) as assessed previously at the last EC meeting in January (dashed red curve). In each case, the data combine actual figures for funds already spent plus projected figures based on the spending plans.

The overall trends of (i) and (ii) are essentially the same, with an offset from the linear spending rate due to the initially slow rate of completion of SIG meetings. However, this offset has increased, and the projected underspend has likewise increased by £24,900 from £16,900 to £41,800. Around half

of this is due to the winding-up of the Aeroacoustics SIG, but the rest is from under-spending by SIGs and meetings having been put back.



**Figure 2:** Cumulative spend by SIGs from January 2017 to August 2019 based on spending plans.

The increase in projected underspend in just 4 months suggests that if this trend were to continue there is the possibility of a further £50,000 of underspend by the end of the project. The SIG leaders have therefore been contacted and asked to provide an update on their spending plans by the end of May. Based on this, modifications to SIG allocations will be agreed over the summer. This will give a clearer idea of what may be available for other uses, such as SIG leader workshops.

#### Options to utilise underspend

- (a) SIG leader workshop(s): a SIG leaders event is already in the planning stage for September 2018 preceding the UK Fluids Conference (see Item 8(b)), a face-to-face meeting of SIG leaders, allowing each one the chance to present their achievements and to share best practice. There are also plans to hold the ERCOFTAC Spring Festival in the UK in April 2019 (see Item 8), which would be an appropriate time for interaction not only between UKFN SIGs but also with ERCOFTAC SIGs.
- (b) Encourage SIGs to be more ambitious in their meetings, e.g. organise a workshop that supplements students.

Would the EC comment on options to handle the underspend.

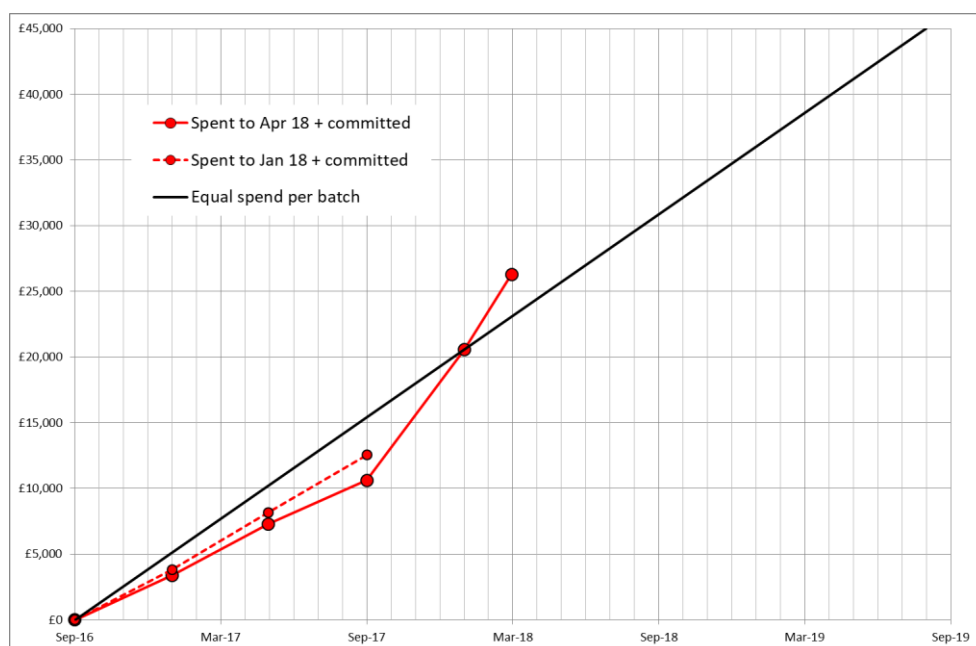
## Item 5: Short Research Visits

### Current status

There are currently 5 active batches, totaling 36 SRVs:

- (a) Call ending 31/1/17: 5 SRVs allocated, with 4 complete, 1 ongoing
- (b) Call ending 31/5/17: 6 SRVs allocated, with 4 complete, 1 ongoing, 1 yet to start
- (c) Call ending 30/9/17: 5 SRVs allocated, with 2 complete, 1 ongoing, 2 yet to start
- (d) Call ending 31/1/18: 13 SRVs allocated, with 3 complete, 10 yet to start
- (e) Call ending 31/3/18: 7 SRVs allocated, with 7 yet to start

### Expenditure



**Figure 3:** Cumulative spend on SRVs from January 2017 to August 2019.

SRV spending is shown in Figure 3. Since the last meeting there has been a push to increase spending on SRVs by following the recommendations made by the EC:

- Assessing proposals twice as frequently, i.e. every 2 months
- Publicizing the scheme through institutional PoCs, UKFN newsletter, Twitter

As a result, the SRV spending, shown in Figure 3, has eliminated the gap seen previously. The solid red curve shows the projected spending, based on requested funds plus actual spending for completed SRVs, and indicates the constant spending rate may even be exceeded if all requested funds are used. (The dashed red curve shows the equivalent data relevant to the last EC meeting: the reason it is above the solid red curve is because of underspending when the SRVs actually took place.)

Item 6: Supplementary funds
-----------------------------

### Fund status

#### *Income*

The available funds have increased by £1,000 since the last EC meeting:

- A total of £6,000 from 9 institutions has been received to date, consisting of £5,000 in Year 1 contributions, plus £1,000 in advance for Years 2 and 3 from one institution.
- There is £2,000 pending from 1 other institution.
- Finally, one institution has still not responded, while another has indicated they will not be contributing to a central fund.

It may be appropriate to begin invoicing for Year 2 among the institutions who have contributed.

#### *Outgoings*

A total of £1100 has been spent to date, all on competition prizes:

- 4 × £200 website photo/video competition
- 2 × £150 student presentation and poster prizes at 2017 UK Fluids Conference

A further £400 will be spent on the winners of the current photo/video competition (#3). This leaves £4,500 in the account.

### Current and future usage

#### Further competitions


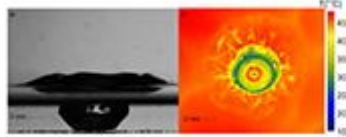
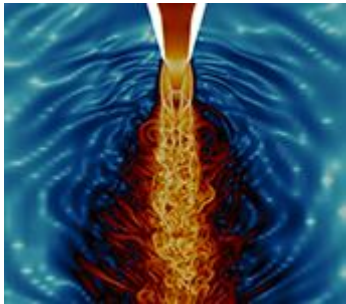

- UKFN website – the photo/video competitions will continue, running every 4 months, so the next closing date for entries will be 31/7/18. We propose the next one will be an open competition without a theme.
- UK Fluids Conference 2018 – the current plan is to retain the format from last time, i.e. presentation and poster prizes (1<sup>st</sup> and runner-up for each).
- Dissertation prize – the competition for the thesis prize was launched on 16 February, with nominations initially closing on 31/3/18, extended to 30/4/18.


■ Would the EC comment on the current and future usage of supplementary funds.





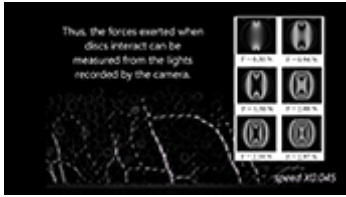

Ctrl-click on thumbnails to view.

## Photo competition finalists

1		<p><b>‘Faces of turbulence’</b></p> <p>The colour-enhanced high-speed image illustrates a high velocity water jet breaking a stream of kerosene by inducing waves, which can cause oil ligament breakup and drop detachment. The mirrored images of these generated waves can have forms, which to the pattern-seeking human eye can transform into familiar yet unexpected figures.</p>
2		<p><b>‘Mexican sunset: mixing of cold droplet impacting on hot film’</b></p> <p>A composite image comparing the visible and infrared, showing the aftermath of a cold droplet impacting on a hot film. Linear features due to the uneven mixing are visible in the infrared image.</p>
3		<p><b>‘Shock and turbulence structures in an under-expanded jet’</b></p> <p>Density gradient magnitude reproduced by large eddy simulation of an under expanded air jet issued from a circular nozzle with an exit diameter of 12.7 mm and a pressure ratio of 5. Prandtl-Meyer expansion fans, Mach reflection, annular shear layers, propagating pressure waves, shocklets-shear interactions and turbulent mixing are visualised.</p>
4		<p><b>“‘Halo’ vortex ring lifts dandelion seeds”</b></p> <p>(Left) A dandelion seed in a wind tunnel. (Right) The same dandelion with the flow around it visualised using a laser sheet (contrast enhanced), showing the formation of a drag-enhancing vortex unlike any other observed before in nature, which we term a 'halo' vortex.</p>

5		<p><b>‘Hidden structures in a dripping fluid’</b></p> <p>Fluid motion often happens in the blink of an eye. Without special equipment, it is hard to observe its shape. Using elastomeric mixtures that are initially liquid and cure in finite time, the periodic development of large terminal drops at the end of a thin jet of viscoelastic fluid is beautifully preserved.</p>
---	---	---

## Video competition finalists

1		<p><b>‘Wake partita’</b></p> <p>This raw video shows wake pattern behind an oscillating cylinder. The forcing amplitude keeps constant; the frequency linearly ramps down. It is part of a systematic study where ramping up and down at various rates. Compared to the fixed frequency cases, ramping results in wake mode transition, skipping and hysteresis.</p>
2		<p><b>‘Mixing of a cold droplet impacting on a hot film’</b></p> <p>A composite video of visible and invisible Infrared showing that when a droplet at 19.7°C impacts on a hot film at 45.8°C, the droplet liquid only partially mixes. The infrared provides us with important information about the mixing processes needed to understand this phenomenon.</p>
3		<p><b>‘Discovering forces in a photoelastic avalanche’</b></p> <p>This is a video of a novel experiment where photoelastic discs are rolled down a narrow, inclined chute. Here the forces exerted when discs interact can be measured from the intensities of the light they transmit with the aim of investigating how stresses are distributed within avalanches.</p>
4		<p><b>‘Elastic deformation revealed by colours’</b></p> <p>Fingering patterns form when air is injected into dyed glycerol in a Hele-Shaw cell with a soft upper boundary. As a result, the soft layer deforms. The change in the colour intensity of the dyed fluid reveals both global and local deformations of the soft layer.</p>

Item 8: Engagement with other UK activities
---

### EPSRC

MJ has established contact with EPSRC and had a telephone call with Judith McCann (Engineering Fluid Mechanics and Aerodynamics portfolio) and Tom Robinson, the new Mathematical Sciences Continuum Mechanics portfolio manager.

### UK Fluids Conference

We are in contact with Oliver Jensen at Manchester over arrangements for the conference (4-6 September) and to keep the conference Organizing Committee updated on UKFN's proposed contributions.

The current thinking is to repeat the contributions from 2017, while also taking advantage of the timing of the Osborne Reynolds Day (see below) immediately before the UKFC on Monday 3 September, and the fact that UKFC does not start until the afternoon of 4 September, thus leaving a half-day gap between the two. We therefore propose the following.

- (a) SIG leaders workshop on morning of 4/9/18  
We would aim to get representatives – preferably leaders – of as many SIGs as possible to attend the workshop. It would run 09:00-12:30, and the format would be a plenary session consisting of short presentations, followed by time for discussion and/or break-out groups over coffee. We have asked whether it is possible to use space near the conference. Any SIG leaders staying in Manchester the previous night would be invited for dinner. UKFN would pay for travel and accommodation.
- (b) Lunch for UK Fluids Conference on 4/9/18  
This would follow on immediately after (a), and run through to the Welcome session at 13:45. It would allow conference attendees to meet SIG leaders before the conference started. SIG leaders wishing to leave after lunch could do so.
- (c) During the conference, there would be the following UKFN contributions.
  - UKFN thesis prize winner and runners up presentations  
This session has been pencilled in for the morning of 5/9/18.
  - Oral and poster presentation prizes  
This would operate as last year. Kathleen Too/JFM remain keen to be involved with presenting book prizes and certificates.
  - Booklet  
This would be centred around the SIGs' achievements so far and plans for the future. Some SIGs have been approached to write short articles, which would appear not only in the booklet but would also be featured in the Home page carousel (Item 3).
  - Stand  
As in previous years, there would be a stand to act as a central point for UKFN at the conference.

■ Would the EC discuss the proposed plans for the UK Fluids Conference.

### ERCOFTAC

The following ERCOFTAC-related activities have occurred since the last EC meeting.

- MJ and ND met Magdalena Jakubczak and Cathy Hannan, from the ERCOFTAC CADO (Central Administration & Development Office), on 5/1/18 to introduce UKFN and to discuss UKFN's role as UK Pilot Centre.
- MJ attended the ERCOFTAC Spring Festival (Thessaloniki, Greece) on 26-27/4/18.
- ND/MJ are continuing to liaise with the ERCOFTAC Osborne Reynolds Day organisers and have initiated requests for sponsorship (see below).
- Regarding the QNET Wiki (set of documented test cases), MJ discussed this with Wolfgang Rodi, who curates the Wiki. There is a need for new high-quality material, and it would be appropriate to ask the SIGs to contribute. It will be possible to link to the Wiki from Researcher Resources, and the most effective way to do this is under consideration.
- The ERCOFTAC website has recently undergone a major redesign, and UKFN will be updating the UK Pilot Centre's, where there will be opportunities to add links to the UKFN website where appropriate.
- Plans to introduce UKFN SIGs to ERCOFTAC SIGs – this may be possible by hosting the Spring Festival, perhaps in 2020.

#### ERCOFTAC Osborne Reynolds Day

This will be held on 3/9/18 at the School of Mechanical, Aerospace and Civil Engineering at the University of Manchester, immediately before the UK Fluids Conference (see above). Following concerns over the short time interval between the OR Day and the application deadline for the Da Vinci prize competition, the OR Day organisers agreed to modify their application requirements to be the same as those for the Da Vinci prize.

As UK Pilot Centre for ERCOFTAC, UKFN is responsible for seeking sponsorship, for example to support attendance by students. So far, 6 organisations who have previously contributed have been contacted, namely Airbus, ANSYS, ARA, Arup, BAE Systems and CD-Adapco. Of these, two have responded so far, one in the negative and one pending.

Would the EC suggest other potential sponsors to approach.

UKFN reassured the Organizing Committee that there would not be a conflict between the OR Day activities and the presentations by the thesis prize winners or UKFN's own presentation prizes.

#### JFM/Tom Crawford

The first 3 videos put together from the interviews carried out by TC and Nicole Sharp (FY Fluid Dynamics) at last year's APS-DFD meeting in Denver have been released on YouTube:

- 'Water Walking, Exploding Droplets, and Colliding Vortex Rings' (<https://www.youtube.com/watch?v=tiLzI7hm8M0>)
- 'Skiing, Avalanches and Freezing Bubbles' (<https://www.youtube.com/watch?v=EveX5DTTRQI>)
- 'Bouncing, Floating, and Jetting' (<https://www.youtube.com/watch?v=ops3Wsdth8M>)

TC also plans to split some of these videos into shorter parts and add subtitles, which would make them suitable for inclusion in the Home page carousel.

TC has also started the process of interviewing contestants, including winners, from the UKFN photo/video competitions, and the resulting videos will be appearing soon.

#### Other

Finally, new interactions since the last EC meeting include the following.

- Researchfish: the entry for UKFN was considerably expanded this year with entries covering the 13 completed SRVs, 6 publications arising from SIGs and SRVs, and 2 engagement activities (YouTube).

- CCPSciEng: UKFN has been assisting Mark Savill, project chair for CCPSciEng (formerly CCP12), in gathering information, via relevant SIGs, on the support given to the CCPs and HPC consortia.
- UK Acoustics Network: UKFN continues to liaise with UKAN, sharing ideas, for example reasons to join the UKAN.

## Item 9: Long-term plans for UKFN

At the last EC meeting, there was wide-ranging discussion on the future of UKFN beyond the end of the current grant, in particular which activities to continue and how to support them.

Recall that, for the purposes of this discussion, the main activities of UKFN are:

- Website
- SIGs
- SRVs
- Outreach and publicity

### (a) Results of consultation

A questionnaire was compiled and circulated to the entire UKFN mailing list on 28/2/18 (and thus reaching over 1000 individuals). There were 127 responses by the closing date of 23/3/18, with the following overall results. A graphic summary is included in the Annex to this agenda.

#### *About you*

People who responded were 90% academic, 2/3 permanent staff, with most backgrounds split between engineering (38%), mathematics (35%) and physics (21%) with a small number from other backgrounds

#### *Where did you first hear about UKFN?*

Around 85% first heard via a personal contact, such as colleague, SIG leader or institutional point of contact.

#### *Keeping up with UKFN*

In terms of communication with UKFN members, the newsletter is the most popular, with 81% either reading (44%) or skim-reading (37%) every issue. The website and Twitter are consulted but on a more occasional basis.

#### *Getting involved with UKFN*

SIGs: Around 80% of those who responded were members of at least one SIG, half of these more than one SIG. Only 1% were unaware of SIGs.

SRVs: There was direct involvement from about 35%, with 52% aware and 13% unaware.

Competitions: The level of involvement was approximately the same as for SRVs.

#### *How UKFN provides information*

Overall, in the 6 areas highlighted, there was most interest in coverage of conferences and events; the other 5 areas showed relatively little difference, with respondents rating them as fairly interesting with adequate coverage and a request either to maintain or to increase coverage.

#### *UKFN into the future*

This concerned activities rather than information. The website, SIGs, SRVs and, to a slightly lesser extent, Outreach/publicity were the most important to maintain or grow, in particular the SIGs. There was less interest in Competitions and Twitter.

In overall conclusion, the survey supports the choice of the four main activities listed above as being those most relevant to carry through into the future. The newsletter turned out to be very popular, with information on upcoming conferences and events particularly welcome.

(b) Future funding

MJ has made initial approaches in several directions to discuss funding options.

*SIGs funded through CDTs*

The EPSRC 2018 CDTs outlines call ran between 17/1/18 and 13/3/18. MJ had initial discussions with representatives of the two current fluid dynamics CDTs at ICL and Leeds, who are re-applying, about incorporating a SIG element in their new bids. Those contacted seem keen in principle, and MJ will follow up later. Once the results of the outlines call have been published, MJ will aim to bring together promising bids with relevant SIGs, with a view to incorporating a SIG element in any full proposals.

*Direct follow-on funding from RCUK*

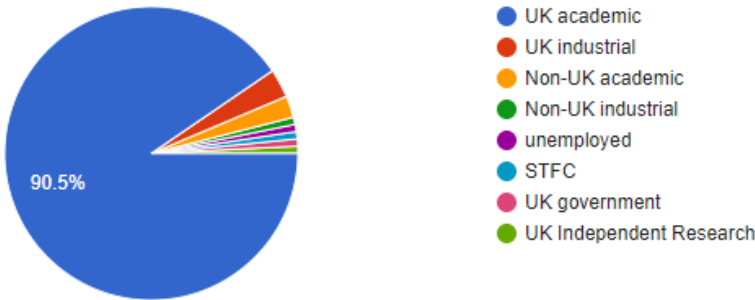
MJ will follow up in the near future.

ANNEX: Summary of responses to UKFN survey, February 2018

About you

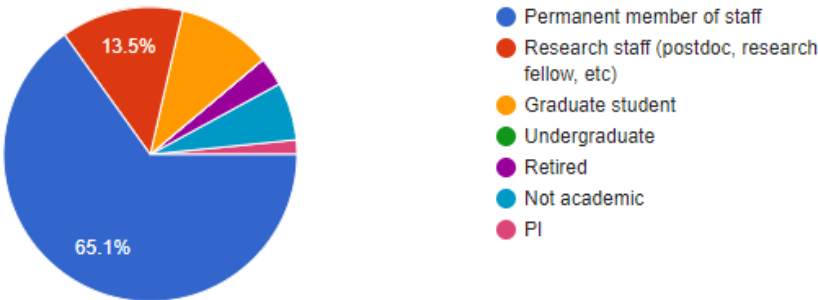
Where do you work or study?

126 responses



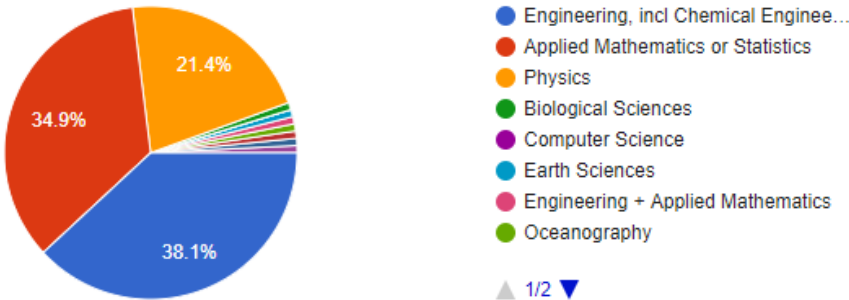
For academics, what is your current status?

126 responses



What is your background?

126 responses

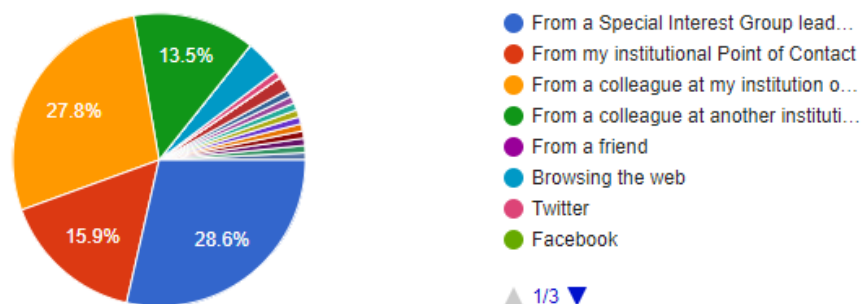




## First encounters with UKFN

### How did you first hear about UKFN?

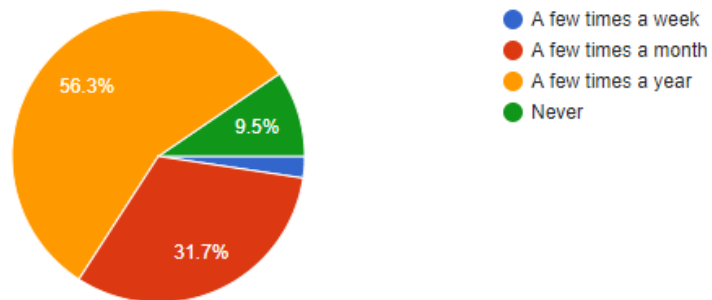
126 responses



## Keeping up with UKFN

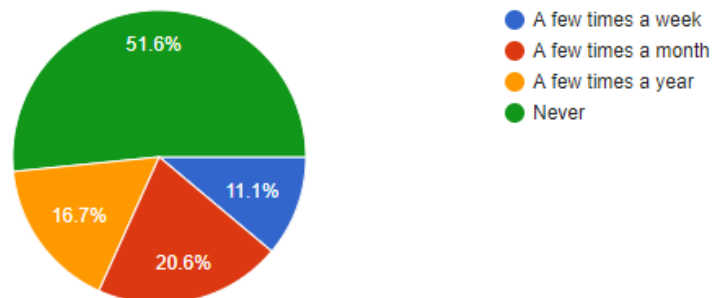
How often do you typically look at the UKFN website?

126 responses



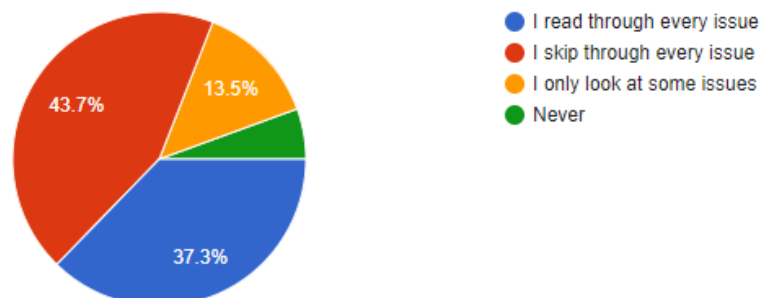
How often do you typically see UKFN's tweets (via Twitter or website home page)?

126 responses



How much do you look at the UKFN newsletter?

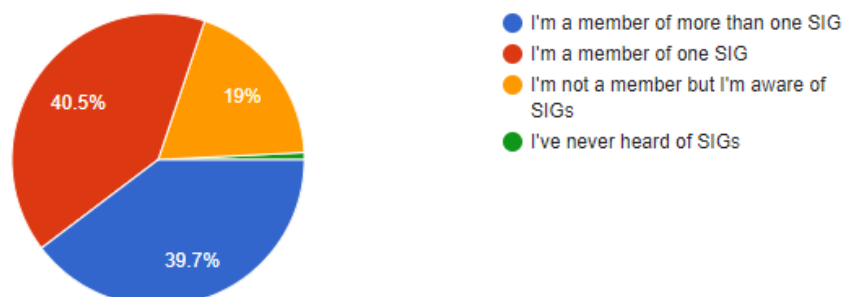
126 responses



## Getting involved with UKFN

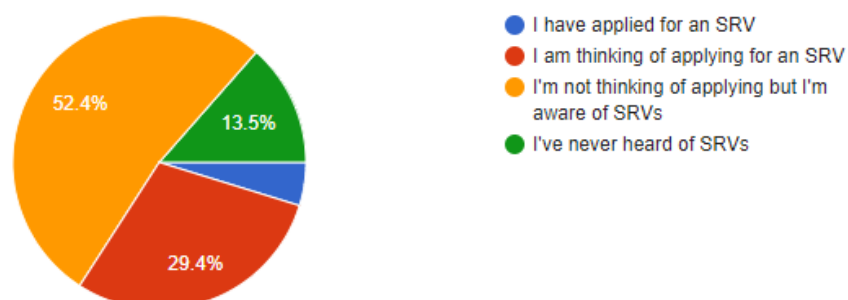
### How are you involved with the Special Interest Groups (SIGs)?

126 responses



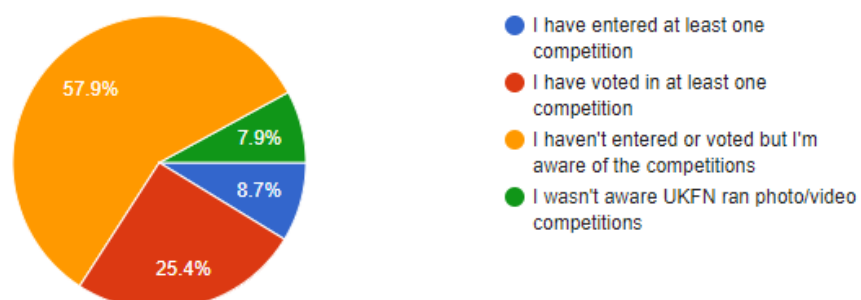
### How are you involved with the Short Research Visit (SRV) scheme?

126 responses



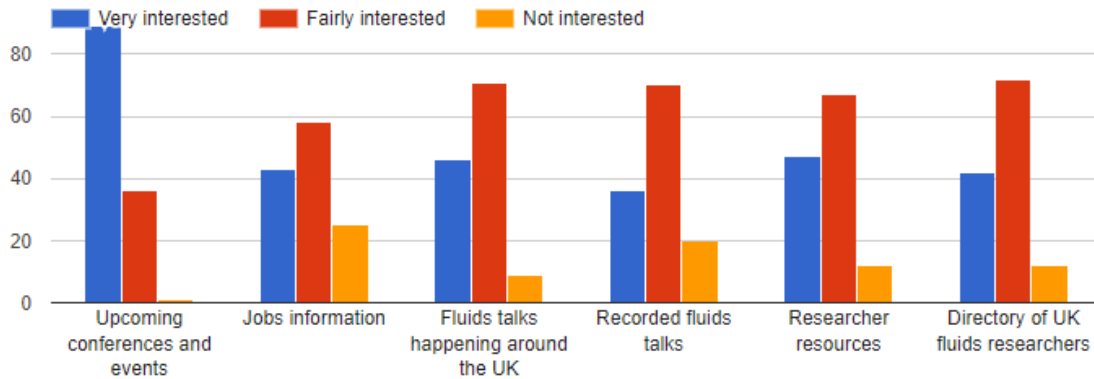
### How have you participated in the photo/video competitions?

126 responses

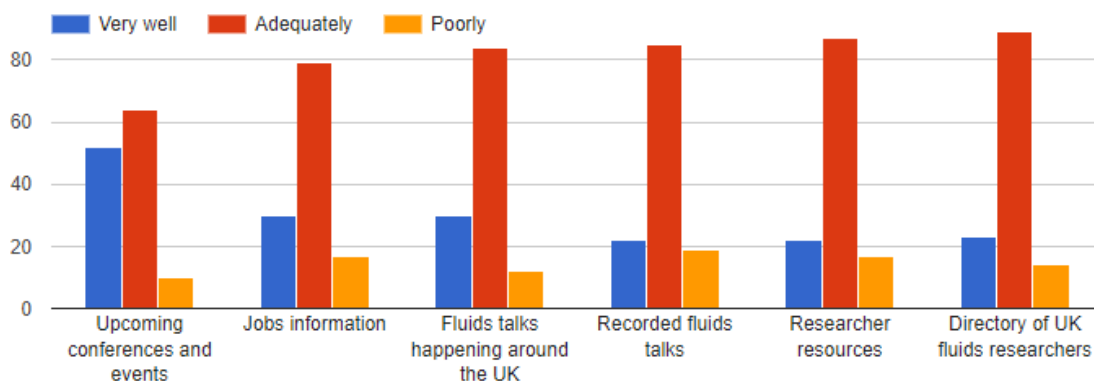


## How UKFN provides information

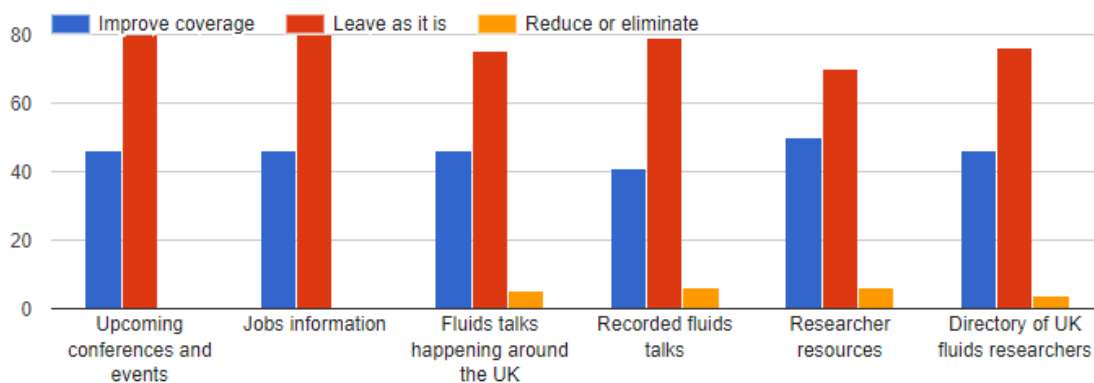
How interested are you in topics featured in the website/newsletter?



How well does UKFN currently cover these topics?

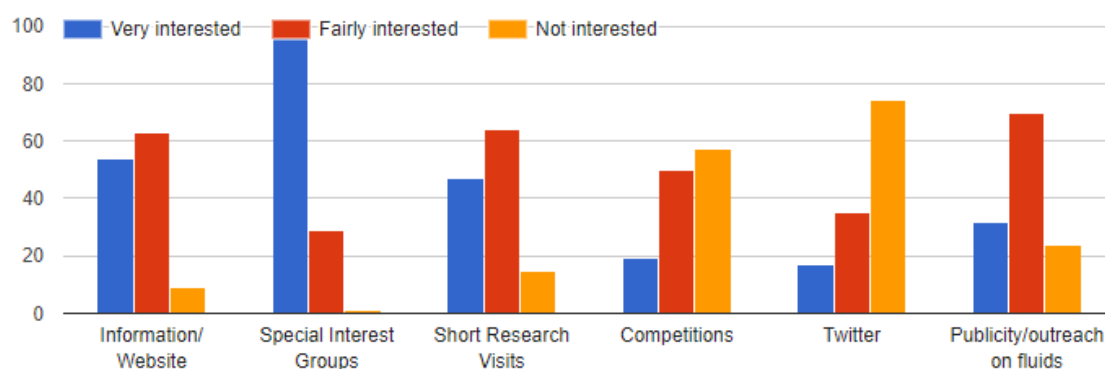


How would you like to see coverage change?



## UKFN into the future

Which of UKFN's activities are you personally most interested in?



Which activities would you like to see continue into the future?

