

COST ACTION FP1005

“Fibre suspension flow modelling - a key for innovation and competitiveness in the pulp & paper industry”

Minutes of the 4th Management Committee Meeting

Department of Chemical Engineering, University of Coimbra

Polo II, Rua Silvio Lima, Coimbra, Portugal

08 March 2013

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1. Welcome

The participants of the Management Committee (MC) meeting were welcomed by the Action Chair, Dr Cristian Marchioli. Meeting opens at 11:45.

A total of 8 participants from the following 7 Parties attended the meeting: Finland (FI), France (FR), Italy (IT), Norway (NO), Portugal (PT), Romania (RO), Sweden (SE).

With 7 of the 16 (44%) Parties having accepted the MoU to date represented at this meeting the quorum of 2/3 required under COST rules (see COST 4159/10 Annex II Art. 8) is not attained. Minutes of this MC meeting were then approved by written procedure.

The list of participants in the meeting is presented in Annex 2, their contact details can be found on the COST website at http://w3.cost.eu/index.php?id=183&action_number=FP1005

2. Adoption of the MC meeting agenda

The agenda of the meeting was approved without changes or additions by the MC members.

3. Minutes of the last meeting

The minutes of the 4th COST FP1005 MC meeting that was held on 25-26 October 2012, at PFI, NTNU, Trondheim, Norway, were approved unanimously.

4. News from the Chair (C. Marchioli)

The Chair informed the MC about current status of the Action: up to the date of the meeting, 17 countries are included in the Action. The last country to accept the MoU and join the Action was Denmark (reference person: Ms Anna TRUBETSKAYA), who received MC permission during the 4th MC meeting in Trondheim.

The total number of Action participants up to the date of the meeting is 96: 35 (7 females) participants have joined WG1, 18 (6) have joined WG2, 43 (1) have joined WG3. Gender balance is 13.3%. The presentation is found in Annex 3.

5. Progress report of working groups

The leader/deputy leader of each WG (P. Faia for WG1, M.G. Rasteiro for WG2, and C. Marchioli for WG3) presented to the MC members an update on the status of the WG activities related to the Knowledge Base and to the selected test case problems, as well as initiatives to foster industrial involvement, participation and collaboration. These activities were discussed in parallel WG meetings held just before the MC meeting, on the same day. More details are provided in the WG meeting minutes downloadable from the Action website (<http://www.fp1005.cism.it>).

6. Action planning

The Chair updated the MC about the final claims of the Action budget for the first GP (see slide 11 of Annex 3) and current budget situation for the second GP (see slide 12 of Annex 3). The Chair also presented two preliminary budget plans for the third GP (see slide 13 of Annex 3): one based on the standard allocated budget of 118,100€ for 17 Parties, the other based on the increased allocated budget of 125,000€ allowed by COST because of the activities planned in collaboration with Action MP0806: this latter budget corresponds to the budget submitted to COST office, as reported in the Work/Budget plan for the 3rd Grant Period. In both budgets, the amount allocated for STSM is well above 20% of the total scientific expenditure.

7. Short Term Scientific Missions (STSM)

The STSM Coordinator (D. Asendrych) could not attend the MC meeting. The Chairman reported on his behalf on the status of STSMs up to the meeting date (presentation is found in Annex 4). The following STSM applications have been submitted and accepted during calls I, II, and III of the first Grant Period (GP):

STSM #	STSM Grantee	Affiliation	Host Institution	Period	Grant [€]	Status
9129	Carla Cotas ESR	Coimbra University, Portugal	University of Częstochowa, Poland	15.01.2012 15.03-2012	1661	Completed
9164	Grzegorz Kondora ESR	University of Częstochowa, Poland	VTT, Finland	22.01.2012 08.02.2012	1200	Completed

9464	Afshin Abbasi Hoseini ESR	NTNU, Trondheim, Norway	KTH, Sweden	06.02.2012 06.05.2012	2500	Completed
10296	Sergio Chibbaro	University P.M. Curie, Paris, France	University of Udine, Italy	24.06.2012 30.06.2012	650	Completed
10336	Michael Reeks	University of Newcastle, UK	University of Udine, Italy	16.06.2012 30.06.2012	920	Completed
					Σ 6931	

60% of STSM beneficiaries are ESRs (3/5), 20% are females (1/5).

The following STSM applications have been submitted and accepted during the second GP:

STSM #	STSM Grantee	Affiliation	Host Institution	Period	Grant [€]	Status
11261	Cristian Marchioli	University of Udine, Italy	NTNU Trondheim, Norway	16.07.2012 11.08.2012	1900	Completed
11272	Sergio Chibbaro	University P.M. Curie, Paris, France	University of Udine, Italy	16.07.2012 13.08.2012	2100	Completed
11290	Michael Reeks	University of Newcastle, UK	University of Udine, Italy	23.07.2012 11.08.2012	1400	Completed
11517	Francesco Picano ESR	KTH Stockholm, Sweden	TU Eindhoven, Netherlands	01.10.2012 11.11.2012	1950	Completed
11624	Sanna Haavisto ESR	VTT, Jyväskylä, Finland	UC Davis (CA), USA	12.01.2013 09.02.2013	2492	Completed
11625	Juha Salmela ESR	VTT, Jyväskylä, Finland	UC Davis (CA), USA	12.01.2013 26.01.2013	1596	Completed
12601	Jure Ravnik	University of Maribor, Slovenia	University of Udine, Italy	25.02.2013 22.03.2013	1731	Completed
13231	Pedro Faia	University of Coimbra, Portugal	Innventia, Stockholm, Sweden	04.05.2013 12.05.2013	1995	Approved
13245	Hugo Costa ESR	University of Coimbra, Portugal	Innventia, Stockholm, Sweden	04.05.2013 12.05.2013	1995	Approved

13021	Rui Cesar Costa da Silva ESR	University of Coimbra, Portugal	KTH Stockholm, Sweden	12.04.2013 14.06.2013	2270	Approved
					Σ 19 429	

50% of STSM beneficiaries are ESRs (5/10), 10% are females (1/10).

8. Training Schools

8.1 TS 2013 on “Non-spherical particles and aggregates in fluid flows”

The Chairman updated the MC on the status of the TS:

- The TS will be organized jointly with COST Action MP0806 “Particles in turbulence” and will be held at the International Centre of Mechanical Sciences (CISM) in Udine (Italy).
- Because it will be a joint event, a large number of participants (about 40) is expected. A maximum of 15 trainees will be supported by COST Action FP1005.
- Dates: June 17-21, 2013
- Lecturers:
 - From Action FP1005: C. Marchioli, F. Lundell, B. van Wachem
 - From Action MP0806: F. Toschi (TUE), M. Vanni (PoliTO), B. Mehlig (GU)
 - Experts: E. Shaqfeh (Stanford), E. Climent (IMFT), M. Sommerfeld (MLU)
- Topics covered:
 - Euler-Lagrange methods for DNS/LES of non-spherical particles and aggregates in turbulent shear flow and homogeneous isotropic turbulence
 - Euler-Euler methods for particles in fluid flows
 - Experimental methods for measurement of non-spherical particles in laminar/turbulent flows
 - Rheology of anisotropic particle suspensions
 - Simulation methods for finite-size particles/bubbles and non-colloidal suspensions in fluid flows
 - Simulation methods for break-up, agglomeration and coalescence in fluid flows
- Trainees:
 1. Andrzejczyk, Rafał rafal_andrzejczyk@wp.pl
Gdansk University of Technology (Gdansk, Poland)
 2. Bianco, Federico fedbianco@gmail.com
Jean Le Ronde D'Alembert (Paris, France)
 3. Chadil, Amine achadil@imft.fr
Institute de Mechanique des Fluides Toulouse (Toulouse, France)
 4. Cotas, Carla carlacotas@gmail.com
University of Coimbra (Coimbra, Portugal)
 5. De Corato, Marco ma.decorato@gmail.com
Università di Napoli Federico Secondo (Naples, Italy)
 6. De Monaco, Gaetano gaetano.demonaco@unina.it
Università degli studi di Napoli "Federico II" (Napoli, Italy)
 7. Elfvengren, Jouni jouni.elfvengren@tut.fi
Technical University of Tampere (Tampere, Finland)
 8. Flis, Maciej flis@imc.pcz.czest.pl
Czestochowa University of Technology (Czestochowa, Poland)
 9. Håkansson, Karl karlh@mech.kth.se
Royal Institute of Technology (Stockholm, Sweden)
 10. Kolehmainen, Jari jari.kolehmainen@uta.fi
Technical University of Tampere (Tampere, Finland)
 11. Kvik, Matias kvik@mech.kth.se
KTH, Royal Institute of Technology (Stockholm, Sweden)
 12. Nilsen, Christopher christopher.nilsen@ntnu.no
Norwegian University of Science and Technology (Trondheim, Norway)

- 13 Ouchene, Rafik r.ouchene@yahoo.fr
LEMTA-ENSEM VANDOEUVRE CEDEX (Nancy, France)
- 14 Zhang, Feng zhang@mech.kth.se
KTH, Royal Institute of Technology (Stockholm, Sweden)

- TS webpage: http://www.fp1005.cism.it/pages/FP105_ts2013cism.html

8.2 TS 2014 on “Particle characterization and multiphase flows monitoring”

For the 3rd GP, the Chairman has proposed to organize one training school on particle characterization techniques and on monitoring procedures for multiphase flows. The following details were agreed upon:

Location: Dept. Chemical Engineering, University of Coimbra, Coimbra

Possible dates: April-May 2014 (most likely the 2nd week of May, to be confirmed)

Organizer: M.G. Rasteiro

9. Dissemination

9.1 Publications

The Chair informed the MC about the current status of publications published in the frame of the Action. Up to the meeting date, there are 4 publications on international ISI journals (2 published, 2 submitted) and 4 Conference contributions, listed below and on the Action website. It is reminded to acknowledge the Action in all publications produced in the frame of the Action's activities.

Papers published in international peer-reviewed journals:

1. L. Zhao, C. Marchioli, H. Andersson “Stokes number effects on particle slip velocity in wall-bounded turbulence and implications for dispersion models”, *Phys. Fluids*, **24**, 021705 (2012); doi: 10.1063/1.3690071
2. L. Zhao, H.I. Andersson, J.J.J. Gillissen “Interphasial energy transfer and particle dissipation in particle-laden wall turbulence”, *J. Fluid Mech.*, **715** (2013), 32-59.

Papers submitted international peer-reviewed journals:

1. C. Marchioli, A. Soldati “Rotation statistics of fibers in wall shear turbulence”, *Acta Mechanica*, Accepted for Publication (2013)
2. L. Zhao, H. Andersson “On inertial effects of long fibers in wall turbulence: concentration, orientation and fibers stresses”, *Acta Mechanica*, Accepted for Publication (2013)
3. F. Zhao, B.G.M. van Wachem A “Direct numerical simulation of ellipsoidal particles in turbulent channel flow”, *Acta Mechanica*, Accepted for Publication (2013)
4. L. Zhao, C. Marchioli, H. Andersson “Slip velocity of rigid fibers in wall-bounded turbulence”, *Phys. Fluids*, In Preparation (2013).
5. C.A.F. Ventura, F.A.P. Garcia, P.J.T. Ferreira, M.G. Rasteiro, “Modelling pipe friction loss of pulp fibre suspensions” *Part. Sci. Tech.* Submitted (2013).

□ Conference papers:

1. M.G. Rasteiro, C. Marchioli, F. Lundell, D. Asendrych, J. Salmela, J. Hämmäläinen “FPS COST Action FP1005 Fibre suspension flow modelling - a key for innovation and competitiveness in the pulp & paper industry”, *XVIth International Congress on Rheology, Symp. Rheology of Nano- and Natural Composites – Lisbon (PT)*, August 5-10, 2012.
2. M. G. Rasteiro, C. A. Ventura, “Rheology of Pulp Suspensions: Identification of the Main Parameters Influencing Rheological Behaviour”, *XVIth International Congress on Rheology, Symp. Rheology of Nano- and Natural Composites – Lisbon (PT)*, August 5-10, 2012.
3. L. Zhao, C. Marchioli, H. Andersson “Slip velocity of rigid fibers in a turbulent channel flow” *TSFP8, Poitiers (FR)*, August 28 - 30, 2013
4. C. Cotas, D. Asendrych, M.G. Rasteiro “Numerical Simulation of the Flow of Fiber Suspensions in Pipes in the Presence of Drag Reduction Effect”, *PARTEC 2013, Nuremberg (DE)*, April 23-25, 2013.
5. P. Krochak, R. Holm, M. Hirota, F. Lundell, D. Söderberg, “A comparative study of semi-dilute fibre suspension flow using magnetic resonance imaging and ultrasonic

Doppler velocimetry: Differences between fluid and fibre motion”, Int. Conf. Multiphase Flow (ICMF2013), Jeju (S. Korea), May 26-31, 2013.

6. M.G. Rasteiro, C. Marchioli, F. Lundell, D. Asendrych, J. Salmela, J. Hämäläinen, “FPS COST Action FP1005 - Fibre suspension flow modelling: A key for innovation and competitiveness in the pulp & paper industry” XXII TECNICEIPA - International Forest, Pulp and Paper Conference, Tomar (PT) October 02-04, 2013.

7. C. Cotas, F. Garcia, P. Faia, P. Ferreira, A. Coimbra, E. de la Fuente, D. Asendrych, M.G. Rasteiro “Numerical simulation of a turbulent fiber suspension flow in pipe using the CFD software Ansys Fluent”, Congress on Numerical Methods in Engineering 2013, Bilbao, 25-28 June, 2013.

9.2 Annual report

The Chair informs the MC members that he will send a message requiring the information necessary to prepare the annual report that is due by the end of 2013.

9.3 Dissemination strategies

The following strategies to advertise the Action activities were and will be implemented:

- Submit a short paper to Nordic Pulp and Paper Research Journal
- Present the Action and its activities to industrial practitioners through the new WG4 and by circulating the International Innovation Report (see Annex 5).
- Present the Action and its activities at the Conference on “Particles in Turbulence”, (Eindhoven, July 1-5, 2013), organized jointly with COST Action MP0806. A focus session on fiber suspension flow modeling and experimentation will be held, during which the latest scientific achievements obtained by FP1005 participants will be presented and discussed.
- Present the Action and its activities at the Symposium on “Dispersed two-phase flows: Dispersion, deposition and agglomeration”, which will take place during the ICNAAM - International Conference of Numerical Analysis and Applied Mathematics (Rhodes, Greece, Sept. 21-27, 2013). It is planned to submit 5 abstracts.
- Present the Action and its activities at XXII TECNICEIPA - International Forest, Pulp and Paper Conference (Tomar, Portugal, 02-04 October 2013). M.G. Rasteiro volunteered to verify the possibility of organizing a focus session on fiber suspension flows during the Conference.
- Organize a focus session on fiber suspension flows at 2013 APS-DFD Meeting (Pittsburgh, November 24-26, 2013). The Chair informed the MC that he will attend the Meeting anyway (and using personal funds: no cost will be charged to the Action’s budget) and that he will submit a proposal to the APS/DFD Program Committee.
- Advertise the Action’s activities (STSMs in particular) through web portals offering free dissemination services and useful information to international students and researchers. For Italy, this has already been done through web portal <http://www.welcomeoffice.fvg.it/>

9.4 Outreach activities

Working Group “Knowledge Transfer” (WG4) will be in charge for taking suitable outreach activities, with two specific tasks: (1) facilitate involvement of industrial participation in the Action’s activities and (2) disseminate the knowledge created by the Action within industry.

10. Request for new members

The Chair informed the MC that, since the last MC meeting (Trondheim, 26 October 2012) one COST country (Denmark) has formally joined the Action, which now counts 17 parties. No new applications have been received at the date of the meeting.

11. Promotion of gender balance and of Early Stage Researchers (ESR)

The Chair informed the MC that the percentage of female participants is 13.3% (-1.3% with respect to the previous MC meeting). It is quite difficult to increase the percentage due to the scarce involvement of female researchers in fields of relevance for the Action (notably technology, engineering and mathematics, where the estimated average percentage of female scientists is about 10%). The percentage of ESR is about 27% (-10%). The decrease in percent

figures is due to inevitable aging of some of those participants who were classified as ESRs in the previous report period.

The MC agrees that further efforts should be taken to increase the percentage of female participants aiming at 20%.

12. Non-COST country participations

The Chair informed the MC that the previously-approved applications of:

- SUNY College (USA), ref. Bandaru Ramarao
- Wesleyan University (USA), ref. Greg Voth

have been now completed. No new applications from non-COST countries or institutions have been received at the date of the meeting.

13. Action website

13.1 Report on current state (C. Marchioli)

The Chair informed the MC that the Action's website is (www.fp1005.cism.it) now features a Knowledge Base section which serves as data repository from the test case calculations.

13.2 Discussion on further development and content

The Chair showed briefly the website's content. The website will be updated continuously with useful information such as publications, scientific achievements, job opportunities, etc. The Chair has confirmed the will to continue taking responsibility of managing the website for free.

14. AOB

14.1 Place and date of next meeting

The MC decided that the next meeting of the Action would be:

Date	Event	Location	Justification
23-25 October 2013	Joint MC-WG meeting/workshop	Department of Electrical, Managerial and Mechanical Engineering, University of Udine, Udine (Italy)	Accessibility, cost of flights (to Venice) and hotels

The Meeting will be organized jointly with the 6th Workshop of ERCOFTAC Special Interest Group SIG43 "Fiber Suspension Flows". Scientific presentations from Action participants and SIG43 members will be given as part of the workshop.

The WGs will organize parallel meetings on Friday, October 25, 2013 in the morning (tentative meeting hours: 9:30 – 11:30), followed by the MC meeting (tentative meeting hours: 11:45 – 13:00).

The MC decided that:

- (1) participation fees for this meeting should not exceed € 800 for members of the Action (exceptions are only possible if well motivated)
- (2) the accommodation reimbursement rate would be € 100/night.

14.2 Tour de Table

MC members presented present/future national coordination and communication activities. These will be summarized in specific reports.

15. Closing

The MC meeting closed at 13:30.

Cristian Marchioli
Chair
COST Action FP1005

ANNEXES

Annex 1: Meeting Agenda

http://www.fp1005.cism.it/downloads/FP1005_MC5_2013_03_06-08_Agenda.pdf

Annex 2: Attendance List

NAME	STATUS	e-MAIL	NAME	STATUS	e-MAIL
Helge Andersson	MC Member Norway	helge.i.andersson@ntnu.no	Marina Campolo	MC Substitute Italy	marina.campolo@uniud.it
Florin Ciolacu	MC Member Romania	florinciolacu@yahoo.com	Paul Krochak	MC Substitute Sweden	Paul.Krochak@inventia.com
Cristian Marchioli	MC Chair Italy	cristian.marchioli@uniud.it	Maria Graça Rasteiro	MC Member Portugal	mgr@eq.uc.pt
Jean-Claude Roux	MC Member France	claudio.roux@pagora.grenoble-inp.fr	Pentti Saarenrinne	MC Substitute Finland	pentti.saarenrinne@tut.fi

Annex 3: Presentation of Chair



FP1005_MC5_Presentation.pdf

Annex 4: Presentation of STSM Coordinator

http://www.fp1005.cism.it/downloads/SIG43_FP1005-PRESENTATIONS/STSM_guide.pdf



STSM report - III.2013.pdf

Annex 5: International Innovation Report



p90-92_Cristian_Marchioli_low-res.pdf