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Unwanted clogging of high efficiency flat sheet filter media in fractional efficiency measurements

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24 August 2026

Unwanted clogging of high efficiency flat sheet filter media in fractional efficiency measurements

Marval Díaz J.A.[1] and Tronville P.[1]

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Keywords: HEPA filter media, flat sheet testing, ISO 29463, filter media resistance, MPPS efficiency.
Associated conference topics: 1.7, 2.6
Presenting author email: jesus.marval@polito.it

To measure the efficiency by particle size of high-efficiency particulate flat sheets of air filter media reliably, it is necessary to use a relatively high concentration of synthetic aerosol upstream of the sample.

The maximum upstream particle concentration is set by the maximum concentration that the measuring system allows without coincidence errors for the particle sensing instrument in series with a dilution system. Some standardized test methods also set the maximum concentration at a fixed value of 10^7 cm^{-3} to avoid any alteration of the size distribution of the test aerosol due to coagulation. However, a high particle concentration upstream of the test sample of the filter material can clog the media sample tested. This can both increase the media pressure drop and change its fractional efficiency. Measurements made in this condition would not be reliable because filter media properties would change because of the test aerosol.

We studied four different kinds of filter media, measuring the fractional efficiency as a function of the particle size in the 100-3000 nm size range, and at two different media velocities. Our measurements included the determination of the initial fractional efficiency of the filter media before and after discharging them by exposure to vapors of isopropyl alcohol (IPA) for 24 hours. The tested media were:

- Medium A: a HEPA Polyester Pleatable (stated to be H13 per EN 1822);
- Medium B: a High Efficiency Woven PTFE Fabric;
- Medium C: a HEPA Polyester Pleatable (stated to be H14 per EN1822) with efficiency very close to 100%;
- Medium D: a traditional HEPA Fiberglass sheet.

In Figure 1 is shown the fractional efficiency of media A, B and D. The curves for medium C are not represented because the measured efficiency was always close to 100%, both before and after the discharging process. The fractional efficiency of media A and B decreases after the discharging process. In contrast, there is not a significant decrease of efficiency of medium D after the neutralization process.

The concentration and the exposure time to the synthetic aerosol, and the procedure to remove the electrostatic charges on the fibers, were carried out in the same way for all filter media tested.

Figure 2 shows the pressure drop increase of the materials as a function of the exposure time to the synthetic aerosol. Figure 2.A, shows that before the neutralization process, the pressure drop of medium A is stable over time and there is no evidence of clogging due to the test. In contrast, after the neutralization process, the pressure drop increases significantly after exposure to the synthetic test aerosol.

Figure 2.B shows that before the neutralization process, the pressure drop of the medium B increases during the exposure to the test aerosol. After the neutralization process, the clogging process becomes even more evident.

Figure 2.C and Figure 2.D show that pressure drops for media C and D do not increase before and after the neutralization process.

Taking into consideration all the tested media, the exposure to IPA vapor of media A and B affects their properties so that the clogging effect becomes evident during testing for fractional efficiency.

In order to reduce the time of exposure to the synthetic aerosol and thus reduce clogging, the fractional efficiency measurement could be performed at only one media velocity for each filter media sample. However, the uniformity of the different samples should be guaranteed.

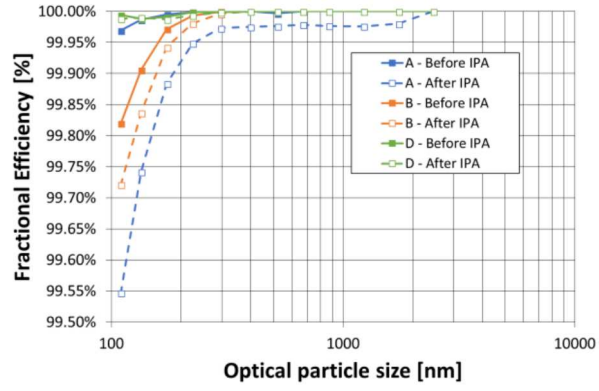


Figure 1. Fractional efficiency of media A, B and D at 3.0 cm/s before and after IPA exposure.

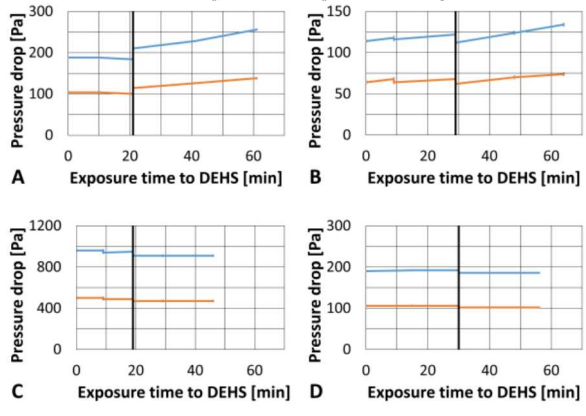
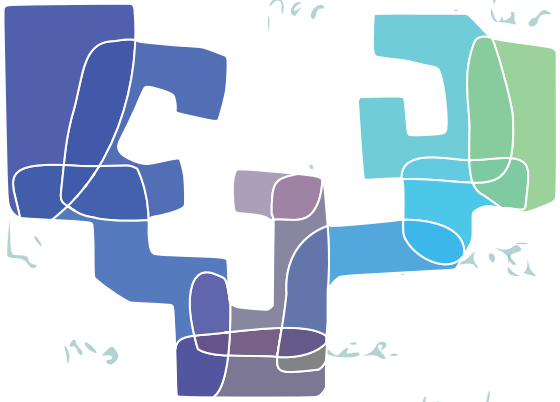


Figure 2. Pressure drop of medium as a function of exposure time to DEHS. At 3.0 cm/s in blue and at 1.7 cm/s in orange.



AT 2018

AEROSOL TECHNOLOGY

June 17-20, 2018 | Bilbao, Spain

PROGRAM

UNED

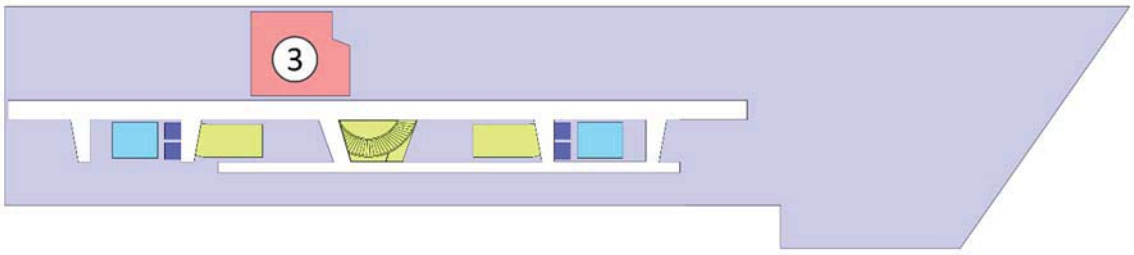
Universidad del País Vasco · Euskal Herriko Unibertsitatea

FACULTY OF ENGINEERING BILBAO
UNIVERSITY OF THE BASQUE COUNTRY

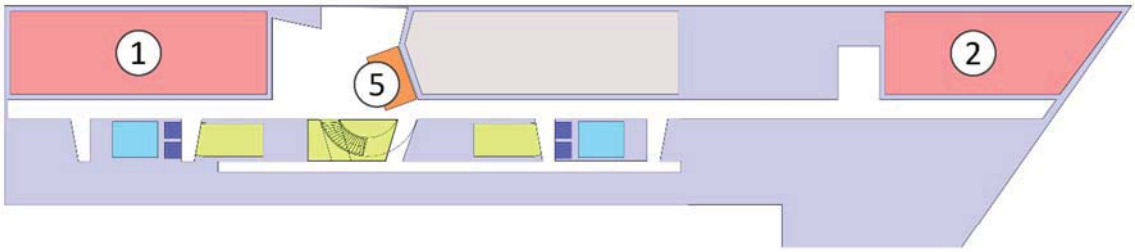
www.dfmf.uned.es/AT2018 · AT2018@dfmf.uned.es

CONFERENCE VENUE

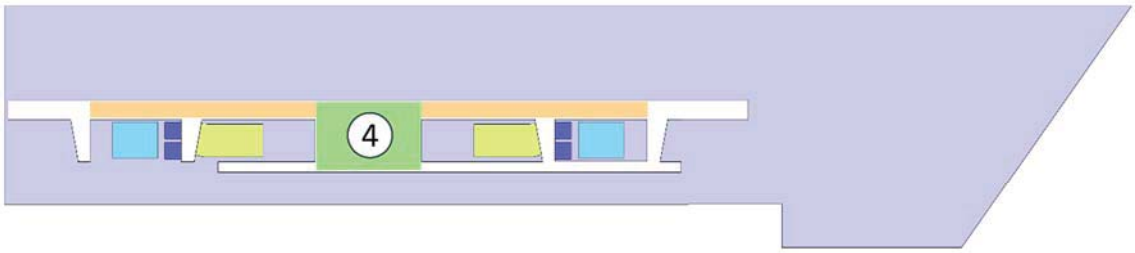
First floor, Level 1



Ground Floor, Level 0



Basement, Level -1



- Meeting rooms, 1, 2 , 3
- Poster panels and coffee tables (level -1)
- Exhibition area, 4 (level -1)
- Registration desk, 5
- Cafeteria
- Stairs
- Elevators
- Bathroom

AT2018

AEROSOL TECHNOLOGY - BILBAO

Bilbao, Spain JUNE 17-20, 2018

ORGANIZERS

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AECTA

Asociación Española de Ciencia y Tecnología de los Aerosoles

Asociación Española de Ciencia y Tecnología de Aerosoles (AECyTA)

Fundación Uned

Fundación UNED Financial Management

LOCAL SUPPORT

euskotren

Thanks to "Euskotren" sponsorship, the conference badge will provide free use of Bilbao tram, from Monday Jun 18 to Wednesday June 20.

PREFACE

Following previous Aerosol Technology conferences (AT), in Karlsruhe 2014 and Tampere 2015, as well as the directions of the European Aerosol Assembly (EAA), AT2018 call for topics included the more important research and development fields, ranging from conventional areas such as emission control, filtration and powder technology, to more recent ones such as advances in aerosol dynamics modeling, functional nanomaterials, Industry4.0 systems, and novel instrumentation techniques.

AT2018 is organized as an interactive forum where scientist from academia and industry collaborate for the benefit of aerosol science and for the development of ideas for new technologically relevant applications. Researchers, designers, teachers, students, product developers and companies interested in these topics are welcome to AT2018 in Bilbao.

AT2018 has been organized by University of the Basque Country (UPV/EHU), Universidad Nacional de Educación a Distancia (UNED) and Spanish Association for Aerosol Science and Technology (AECyTA), underneath the umbrella of European Aerosol Assembly (EAA) and IARA. The organizers sincerely acknowledge the support provided by these organizations as well as all the sponsors and exhibitors, to whom we are grateful.

Cristina Gutierrez-Canas, Jose F. Cambra and Jose L. Castillo
AT2018 Co-Chairs
Conference website: www.dfmf.uned.es/AT2018

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GENERAL INFORMATION

Dates. June 17-20, 2018

Venue

University of the Basque Country (Universidad del País Vasco, UPV/EHU)
Bilbao Engineering School, Building II (Escuela de Ingeniería de Bilbao, Edificio II)
Rafael Moreno "Pitxitxi", 3
48013 – Bilbao, Spain

Information Desk. Located at the building entrance hall, close to Room P0I1 (Aula Magna I).

Opening hours:

Monday, 18 June	08:15 – 16:30
Tuesday, 19 June	08:30 – 16:30
Wednesday, 20 June	08:30 – 17:15

Language. The official language of the Conference is English.

Name Badge
Your personal badge is your entrance ticket to all sessions and the exhibition. Please remember always to wear your badge.

Time Zone. Bilbao time zone is GMT + 2 hours (daylight saving time).

Electricity. The voltage in Spain is 220 V, 50 Hz. Power sockets are of type F (Schuko).

Emergencies call 112.
Local Police: 091
Firefighters: 080

First Aid Contact the registration desk.

Lost and Found. Please contact the Information Desk.

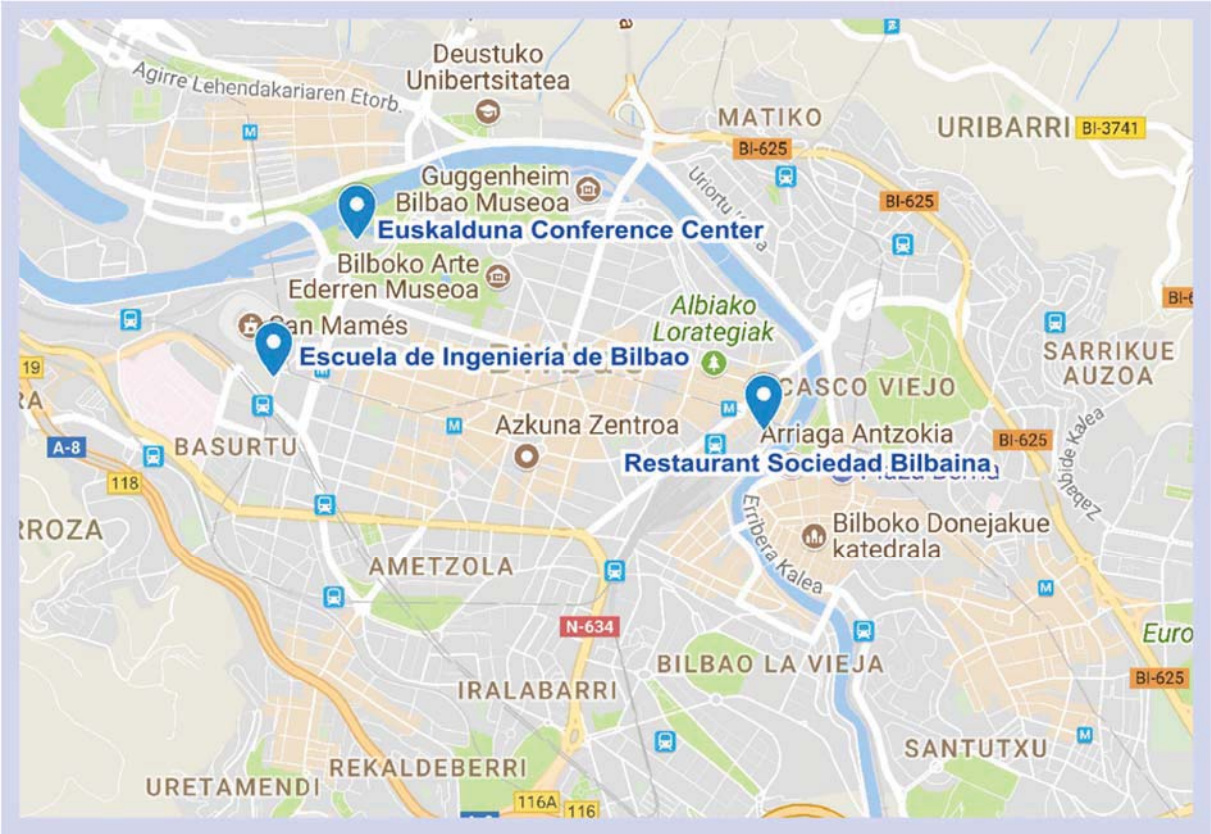
Coffee breaks, Lunch and Snack breaks
Coffee, lunch and snacks during the breaks are included in the registration fee and served on level -1, next to the exhibition and poster area.

SOCIAL PROGRAM

Welcome reception (included in Registration Fee)
Sunday 17 June 2018, 18:30-20:30
Restaurant 'Jauregia' in the Euskalduna Conference Center
Av. Abandoibarra (Abandoibarra Etorb.) 4. Bilbao
Note that this Center is not the conference venue but it is quite close.
From 18:30, conference materials will be given to registered delegates.
Starting at 19:00, 'Tapas' (small tasty Spanish cold and hot dishes) and drinks (wine, bier, sodas and water) will be served during 90 minutes.

Conference Dinner. Prepayment is required to attend.
Tuesday 19 June 2018, 19:30
Restaurant Sociedad Bilbaina
Calle Navarra (Nafarroa Kalea) 1. Bilbao

Trip to La Rioja (additional cost to the Registration fee)
Thursday 21 June 2018
Day long trip to visit local sites and a wine cellar in La Rioja. Lunch is included.
Bus trip with tour guide.



SCIENTIFIC INFORMATION

Abstracts will be published on the website: https://www.dfmf.uned.es/AT2018 and provided to the participants in a USB memory stick.

Plenary lectures
Four plenary lectures will be given at Aula Magna 1 (Room P0I1, level 1)

Oral presentation. Three oral sessions will run in parallel at

- Aula Magna 1 (Room P0I1, level 1)
- Aula Magna 2 (Room P0M2, level 1)
- Sala de Juntas (Room P1I15, level 1))

Each presenter will have 20 minutes total, 15 minutes for presentation and 5 minutes for discussion. Oral presenters are requested to report to the session chair at least 10 minutes prior to the start of their session. Speakers should use the PC installed in the meeting room.

Posters. Posters are displayed in the poster area (level -1) in two sessions:

- Monday Poster (**MP**) Session: June 18, 16:40 – 18:30. Poster should be posted on Monday morning and removed by Tuesday coffee break (10:00).
- Tuesday Poster (**TP**) Session: June 19, 16:00 – 18:30. Poster should be posted on Tuesday morning and removed by Wednesday lunch break.

Presenting authors are asked to attend their poster during the poster session.
Poster size, A0 size in vertical orientation (portrait format: 1189 mm height x 841 mm wide). Double side fixing tape will be provided by the organizers.

Exhibition. The Exhibition is held on Level -1 and is continuously open from Monday until Wednesday during the conference hours. Coffee, lunch boxes and snacks will be served during the breaks in the exhibition area.

Best Poster Awards
Best Poster Awards (BPA) will be granted by four sponsors (TSI, Dekati, Palas and Aerosol Dynamics), each supporting two BPA. BPA will consist of a certificate and 150 EURO in cash.
Eligibility. The presenting author must be either a master or a PhD student, or an early career postdoc (less than 3 years since graduation).
How to apply. Authors may apply for the BPA at the time of submitting the abstract or later on by email to AT2018@dfmf.uned.es (Subject: Best Poster Award). Deadline for application to BPA is Sunday 10 June.
Evaluation criteria. The BPA committee will take into account the quality of the research, originality of the work, poster design, and clarity of the presentation during the poster session. Contestants MUST be present at the poster during the specified poster sessions, otherwise the poster will not be evaluated.

BILBAO

Bilbao, with the Guggenheim Museum as a great international distinction, is the gateway to the Basque Country. The city is an example of urban transformation at a global level and maintains a number of hallmarks that make it singular and unique.

Bilbao airport (IATA code: BIO, ICAO code: LEBB) is located 9 km (5.6 mi) north of Bilbao. It is the most important airport in the Basque Country and northern Spain, with over 4.5 million passengers per year. The new main terminal designed by Santiago Calatrava opened in 2000.

Airport to city transfer.

- Taxi (25-30 euros) 20 minutes ride
- Bus line 3247 from Bilbao Airport to Moyua Plaza (Moyua Square, 2 stops, 12 minutes).

Bilbao tram. Thanks to "Euskotren" sponsorship, the conference badge provides free use of Bilbao tram, from Monday Jun 18 to Wednesday June 20. Badge should be worn when in the tram.

Tourist information. http://www.bilbaoturismo.net

Bilbao Tourist Offices

- PLAZA CIRCULAR, 1
  - Monday to Sunday: 9:00- 21:00
  - +34 94 479 57 60
- ALAMEDA MAZARREDO, 66 (Guggenheim)
  - From Monday to Saturday: 10:00-19:00
  - Sundays & Holidays: 10:00-15:00

Transport

- AENA-Airport (Loiu): +34 94 486 96 64 / +34 94 486 96 63
- Taxi: +34 94 444 88 88 / +34 94 410 21 21 / +34 94 426 90 26
- Bizkaibus (A3247 bus Airport - Bilbao): +34 946 125 555
- Bilbobus (city buses): +34 94 479 09 81
- TERMIBUS Coach station: +34 94 439 50 77
- Eusko Tren (Tram): +34 902 543 210
- Metro Bilbao: +34 94 425 40 25

PROGRAM OVERVIEW

Sunday, June 17 2018

	Restaurant 'Jauregia' - Euskalduna Conference Center.
18:30-20:30	**Welcome Reception** Distribution of conference material starts at 18:30. Tapas & drinks 19:00-20:30

Monday, June 18 2018

8:15	**Registration**
	Areto Nagusia – Aula Magna 1 Ground Floor. Room P0I1
8:45-9.00	**Opening Ceremony** *Roberta Vecchi* President of the European Aerosol Assembly (EAA) *Jose L. Castillo* AT2018 Co-chair *Arantxa Eiguren* AT2018 Coordinator
	Areto Nagusia – Aula Magna 1 Ground Floor. Room P0I1
9:00-10:00	**Plenary Lecture I** Questions in Aerosol Mobility Analysis ***Prof. Richard C. Flagan**, California Institute of Technology - CALTECH*
10:00-10:30	**Coffee Break Level -1. Exhibition Area**

Monday, June 18 2018

10:30-12:50	**Aula Magna 1** **Room P0I1**	**Aula Magna 2** **Room P0M2**	**Sala de Juntas** **Room P1I15**
Monday **M**orning Sessions	**MM1.** Aerosol Synthesis	**MM2.** Instrumentation & Characterization I	**MM3.** Aerosols and Health
12:50-13:40	**Lunch Break – Level -1**		

13:40-14:40	**Areto Nagusia – Aula Magna 1** **Ground Floor. Room P0I1**
	Plenary Lecture II Cluster and Protein Ion Studies with a Bipolar Electrospray Source and High Resolution Tandem Mobility Analysis ***Prof. Juan Fernandez de la Mora****, Yale University*
14:40-15:00	**Coffee Break – Level -1**

15:00-16:40	**Aula Magna 1** **Room P0I1**	**Aula Magna 2** **Room P0M2**	**Sala de Juntas** **Room P1I15**
Monday Afternoon Sessions	**MA1.** Nanoparticles	**MA2.** High Temperature Aerosols	**MA3.** Bioaerosols
16:40-18:30	**M**onday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1**		
18:30	**End of Conference Day**		

Tuesday, June 19 2018

8:30	**Registration**		
	Areto Nagusia – Aula Magna 1		**Ground Floor. Room P0I1**
9:00-10:00	**Plenary Lecture III** Three Dimensional Nanoprinting via Aerosol Technology ***Prof. Mansoo Choi**, Seoul National University*		
10:00-10:30	**Coffee Break**		**Level -1. Exhibition Area**
10:30-12:50	**Aula Magna 1** **Room P0I1**	**Aula Magna 2** **Room** P0M2	**Sala de Juntas** **Room P1I15**
Tuesday **M**orning Sessions	**TM1.** Aerosol Filtration	**TM2.** Aerosol Processes	**TM3.** Instrumentation & Characterization II
12:50-13:40	**Lunch Break**		**Level -1. Exhibition Area**
13:40-16:00	**Aula Magna 1** **Room P0I1**	**Aula Magna 2** **Room P0M2**	**Sala de Juntas** **Room P1I15**
Tuesday **A**fternoon Sessions	**TA1.** Aerosol Materials	**TA2.** Instrumentation & Characterization III	**TA3.** Emissions
16:00-18:30	**T**uesday **P**oster Session (TP posters), Snack Break and Exhibition **Level -1**		
18:30	**End of Conference Day**		

19:30-22:30	**Conference dinner - Restaurant Sociedad Bilbaina**

Wednesday, June 20 2018

8:30	**Registration**		
	Areto Nagusia – Aula Magna 1		**Ground Floor. Room P0I1**
8:45-9:45	**Plenary Lecture IV** Synthesis of Functional Nanomaterials in the Gas Phase ***Dr. Hartmut Wiggers**, University of Duisburg-Essen*		
9:45-10:00	**Poster Award Ceremony**		
10:00-10:30	**Coffee Break**		**Level -1. Exhibition Area**
10:30-12:50	**Aula Magna 1** **Room P0I1**	**Aula Magna 2** **Room P0M2**	**Sala de Juntas** **Room P1I15**
Wednesday **M**orning Sessions	**WM1.** Electrosprays	**WM2.** Instrumentation & Characterization IV	**WM3.** Indoor and Workplace Environments
12:50-13:40	**Lunch Break**		**Level -1. Exhibition Area**
13:40-15:00	**Aula Magna 1** **Room P0I1**	**Aula Magna 2** **Room P0M2**	**Sala de Juntas** **Room P1I15**
Wednesday **A**fternoon Sessions	**WA1.** Aerosol Methods	**WA2.** Aerosol Sampling	**WA3.** Instrumentation & Characterization V

Wednesday, June 20 2018

	Areto Nagusia – Aula Magna 1 Ground Floor. Room P0I1
15:00-17:00	**Joint Special Session** Everything You Always Wanted to Know About Aerosol Technology but You Were Afraid to Ask ***Dr. Athanasios G. Konstandopoulos**, Aerosol & Particle Technology Laboratory, APTL* Electrostatic Atomization: Past, Present and Future ***Prof. Ignacio G. Loscertales**, University of Malaga* New Technologies for Near-Real Time Measurements of Ambient Aerosol Properties ***Dr. Arantza Eiguren-Fernández**, Aerosol Dynamics Inc.*
17:00-17:15	**Conference Closing**
17:15	**End of Conference**

Thursday, June 21 2018

	Trip to La Rioja
9:00-19:00	**Social Program** Day long trip to visit local sites and a wine cellar in La Rioja. Lunch is included. Bus trip with tour guide.

MONDAY

8:15	**Registration**
	Areto Nagusia – Aula Magna 1 **Ground Floor. Room P0I1**
8:45-9.00	**Opening Ceremony** *Roberta Vecchi* President of the European Aerosol Assembly (EAA) *Jose L. Castillo* AT2018 Co-chair *Arantxa Eiguren* AT2018 Coordinator
	Areto Nagusia – Aula Magna 1 **Ground Floor. Room P0I1**
Chairs:	**Roberta Vecchi and Peter H McMurry**
9:00-10:00	**Plenary Lecture I** Questions in Aerosol Mobility Analysis ***Prof. Richard C. Flagan**, California Institute of Technology - CALTECH*
10:00-10:30	**Coffee Break** **Level -1. Exhibition area**

Plenary Lecture I sponsored by

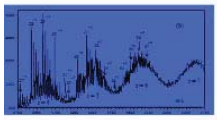
10:30-12:50	**Aula Magna 1** **Ground Floor. Room P0I1**
Chairs:	**Christof Asbach and George Biskos**
Monday **M**orning **1**	**MM1.** Aerosol Synthesis
10:30-10:50 **MM1-01**	Mesoporous carbon nitride nanosphere: preparation, experimental and simulation characterization, and its application as photocatalyst for aerosol-photopolymerization ***J. Poostforooshan**, M. Shaban and A.P. Weber*
10:50-11:10 **MM1-02**	The NanoDome platform applied as top-on model for multiscale simulations of nanoparticle synthesis ***P. Wollny**, F. Strappaveccia, E. Ghedini, H. Wiggers, A. Kempf and I. Wlokas*
11:10-11:30 **MM1-03**	Gas phase synthesis of semiconducting silicon and germanium nanoparticles supported by an external seeding unit ***L. Wergen**, M. Domaschke and W. Peukert*
11:30-11:50 **MM1-04**	Plasmonic alloy particles for enhanced efficiency water splitting ***M. Valenti**, W. Smith, G. Biskos and A. Schmidt-Ott*
11:50-12:10 **MM1-05**	MnO2 aerosol deposition coating for airborne organic pollutants mitigation by integrated system of photothermocatalysis and filtration ***S. Drdova** and J. Wang*
12:10-12:30 **MM1-06**	Synthesis of Iron-Cobalt oxides nanoparticles loaded crumpled graphene for application to supercapacitors ***H.D. Jang**, H. Chang and C. Lee*
12:30-12:50 **MM1-07**	Flame synthesis of doped LTO anode materials for next generation Li-ion Batteries *T. Karhunen, A. Lähde and **J. Jokiniemi***
12:50-13:40	**Lunch Break** **Level -1. Exhibition area**

10:30-12:50	**Aula Magna 2** **Ground Floor. Room P0M2**
Chairs:	**Aladár Czitrovszky and Gregory Lewis**
Monday **M**orning **2**	**MM2.** Instrumentation & Characterization techniques I
10:30-10:50 **MM2-01**	CIDAR: Combustion species imaging diagnostics for aero-engine research ***V. Archilla**, G. Aragón, P. Wright, K. Ozanyan, J. Black, N. Polydorides, H. McCann, M. Lengden, I. Burns, W. Johnstone, V. Polo, M. Beltran, I. Mauchline, D. Walsh and M. Johnson*
10:50-11:10 **MM2-02**	Resolving geometric standard deviation and mobility median from a sensor-type instrument by means of voltage scanning ***P. Juuti**, A. Rostedt, J.M. Mäkelä and J. Keskinen*
11:10-11:30 **MM2-03**	Flow rate independent electrical aerosol sensor ***A. Rostedt** and J.* Keskinen
11:30-11:50 **MM2-04**	Characterizing inexpensive aerosol sensor in a laboratory and field experiments ***J. Kuula**, T. Mäkelä, R. Hillamo, J.V. Niemi and H. Timonen*
11:50-12:10 **MM2-05**	Particle size depending deposition in an electrostatic air-liquid-interface precipitator ***H. Wiegand**, J. Meyer and G. Kasper*
12:10-12:30 **MM2-06**	A new method to minimise charge uncertainty in condensation particle counter calibration when using a Faraday-cup aerosol electrometer ***J.P.R. Symonds***
12:30-12:50 **MM2-07**	Using the aerodynamic aerosol classifier to measure particle charge distribution ***T.J. Johnson**, R.T. Nishida, M. Irwin, J.P.R. Symonds, J.S. Olfert and A.M. Boies*
12:50-13:40	**Lunch Break** **Level -1. Exhibition area**

10:30-12:50	**Sala de Juntas** **First Floor. Room P1I15**
Chairs:	**Samantha Seng and Mar Viana**
Monday **M**orning **3**	**MM3.** Aerosols and Health
10:30-10:50 **MM3-01**	Aerosol release during abrasion of epoxy/graphene-based material composites and in vitro toxicity assessment on THP-1 cell line of abraded particles ***W. Netkueakul**, S. Chortarea, D. Korejwo, P. Wick, T. Bürki and J. Wang*
10:50-11:10 **MM3-02**	Quartz functionalization and its effect on toxicity and dustiness ***A. López-Lilao**, S. Estupiñá, M.J. Ibáñez and E. Monfort*
11:10-11:30 **MM3-03**	Advanced filtration and lung deposition models of realistic airborne carbon nanotube mixtures ***Y.K. Bahk**, P. Sachinidou, X. He and J. Wang*
11:30-11:50 **MM3-04**	Exposure to process-generated nanoparticles during thermal spraying ***A. Salmatonidis**, C. Ribalta, M. Viana, V. Sanfelix and E. Monfort*
11:50-12:10 **MM3-05**	Computational and experimental approaches to understand multispecies aerosol evolution and deposition in biologically relevant conditions ***M. Asgari**, F. Lucci, B. Dunan, R. Smajda, G. Andreatta, S. Majeed, J. Bialek, S. Steiner, S. Frentzel, J. Hoeng, N. Blondiaux, JP. Schaller and A.K. Kuczaj*
12:10-12:30 **MM3-06**	Occupational exposure to nanoparticles: monitoring and management in industrial settings ***M. Viana**, A. Salmatonidis, E. Monfort, V. Sanfélix, A. López-Lilao, G.F. de la Fuente, L.A. Angurel, C. Estepa and J. Díaz*
12:30-12:50 **MM3-07**	Salt-assisted aerosol synthesis of large-pore mesoporous milica nanoparticles as drug carriers to improve the solubility of Ibuprofen ***M. Shaban**, J. Poostforooshan, S. Reiser, M. Türk and A.P. Weber*
12:50-13:40	**Lunch Break** **Level -1. Exhibition area**

13:40-14:40	**Areto Nagusia – Aula Magna 1 Ground Floor. Room P0I1**
Chairs:	**Daniel E. Rosner and Pedro L. Garcia-Ybarra**
13:40-14:40	**Plenary Lecture II** Cluster and Protein Ion Studies with a Bipolar Electrospray Source and High Resolution Tandem Mobility Analysis ***Prof. Juan Fernandez de la Mora****, Yale University*
14:40-15:00	**Coffee Break – Level -1**

Plenary Lecture II sponsored by



SEADM

15:00-16:40	**Aula Magna 1** **Ground Floor. Room P0I1**
Chairs:	**Takafumi Seto and Alexander Bergmann**
Monday **A**fternoon **1**	**MA1.** Nanoparticles
15:00-15:20 **MA1-01**	Metallic nanoparticles by spark ablation – a study on optimal process conditions for sub- 5nm particle synthesis ***M. Domaschke**, M. Schmidt and W. Peukert*
15:20-15:40 **MA1-02**	Predictable internally mixed nanoparticles from oscillatory spark ablation between electrodes of different materials *J. Feng, N. Ramlawi, G. Biskos and **A. Schmidt-Ott***
15:40-16:00 **MA1-03**	Generation of platinum and alloyed platinum/palladium nanoparticles by means of spark discharge and the investigation of their catalytic activity ***A. Muntean**, U. Tuttlies, U. Nieken and M. Seipenbusch*
16:00-16:20 **MA1-04**	Tuning sub-20nm nanoparticle output from a spark discharge generator ***M.F.J. Boeije**, B. Zijlstra, T.V. Pfeiffer and A. Schmidt-Ott*
16:20-16:40 **MA1-05**	Ternary alloy nanoparticle production by spark mixing: A source of novel properties ***J. Feng**, R. Geutjens, N.V. Thang, J. Li, X. Guo, A. Kéri, S. Basak, G. Galbács, G. Biskos, H. Nirschl, H.W. Zandbergen, E. Brück and A. Schmidt-Ott*

15:00-16:40	**Aula Magna 2** **Ground Floor. Room P0M2**
Chairs:	**Prem Lobo and Victor Archilla**
Monday **A**fternoon **2**	**MA2.** High Temperature Aerosols
15:00-15:20 **MA2-01**	Impact of aeronautic fuel sulfur and aromatic content on particle emissions ***I.K. Ortega**, D. Delhaye, M. Olin, H. Timonen, C. Irimiea, J. Alanen, K. Teinillä, M. Sicard, B. Raepsaet, S. Saarikoski, J. Kalliokoski, P. Karjalainen, L. Jing, M. Dal Maso, E. Asmi, T. Rönkkö and F. Ser*
15:20-15:40 **MA2-02**	ASPEN Plus model for biomass combustion: gas emissions prediction approach ***I. Gomez**, I. Ibarra, G. Aragon, J. González, I. Mugica, D. Sanz, E. Rojas, J.J. Rodríguez-Maroto, C. **Gutiérrez**-Canas, R. Ramos, E. Borjabad, R. Escalada, I. Celades and S. Gomar*
15:40-16:00 **MA2-03**	Nanoparticle study on a catalytic natural gas burner *J. Alanen, **N. Kuittinen**, R. Hietikko, H. Vesala, Saarikoski, K. Lehtoranta, J. Keskinen and T. **Rönkkö***
16:00-16:20 **MA2-04**	Development of a high volume laminar flow photochemical aging reactor (PEAR): Method characterization and utilization to investigate the influence of atmospheric aging on health-related properties of wood combustion emissions *O. Sippula, M. Ihalainen, P. Tiitta, P. Yli-Pirilä, A. Hartikainen, T. Ihantola, P. Jalava, A. Leskinen, J. Tissari, M. Kortelainen, H. Suhonen, R. Zimmermann, M.-R. Hirvonen and **J. Jokiniemi***
16:20-16:40 **MA2-05**	Surface analysis in combustion: one step closer to uncovering the molecular building blocks of soot *C. Irimiea, **A. Faccinetto**, X. Mercier, I.-K. Ortega, N. Nuns, E. Therssen, P. Desgroux and C. Focsa*

15:00-16:40	**Sala de Juntas** **First Floor. Room P1I15**
Chairs:	**Maosheng Yao and Arantza Eiguren**
Monday Afternoon **3**	**MA3.** Bioaerosols
15:00-15:20 **MA3-01**	Detection of Living Animal's Exhaled Breath biomarker (dLABer) system *H. Chen, X. Zhang, X. Li, J. Li and **M. Yao***
15:20-15:40 **MA2-02**	Bioaerosol samplers for personal and distributed exposure assessment ***G. Mainelis**, T.T. Han, N. Thomas, J. Therkorn and J. Scheinbeim*
15:40-16:00 **MA2-03**	Airborne microorganisms at anaerobic digestion site ***S. Bayle**, J. Rocher and A. Cadière*
16:00-16:20 **MA2-04**	Simple and rapid quantification of biological air pollutants with ATP bioluminescence assay using a cotton swab ***H.R. Kim**, J.-W. Park, K.-Y. Yoon, J.H. Byun and J. Hwang*
16:20-16:40 **MA2-05**	Lipopolysaccharide-mediated PM2.5 dose-dependent inflammatory effects ***F. Shen**, F. Liu, X. Zhang, J. Li, K. Ziegler, T. Zhang, T. Zhu, M. Shiraiwa, H. Tong, M. Yao, U. Pöschl and K. Lucas*

MONDAY POSTER SESSION

16:40-18:30	**M**onday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Applied Aerosol Processes
MP-01	Controlling the phase of iron oxide in liquid flame spray nanoparticle synthesis ***M. Sorvali**, H. Suhonen, M. Nikka, P. Juuti and J.M. Mäkelä*
MP-02	Large eddy simulation of the SpraySyn burner for nanoparticle synthesis ***T. Helmig**, E. Borukhovich, I. Wlokas and A. M. Kempf*
MP-03	A study on the titania synthesis in a hot-wall reactor ***M. Domaschke**, L. Strunz, A. Hepp and W. Peukert*
MP-04	Aerosol synthesis of germanium-silicon hybrid structures in a hot-wall reactor ***L. Wergen**, M. Domaschke and W. Peukert*
MP-05	Nanoparticle formation in corona discharge ***V.A. Zagaynov**, V.V. Maksimenko, A.A. Lushnikov, Yu.G. Biryukov and I.E. Agranovsky*
MP-06	Production of spherical amphipathic copolymer nanoparticles using aerosol-photopolymerization ***M. Shaban**, J. Poostforooshan and A.P. Weber*
MP-07	An aerosol-based method for polymer encapsulation of Ag and SiO2 nanoparticles ***J. Poostforooshan**, M. Shaban and A.P. Weber*
MP-08	A general route toward fabrication of polymer coated semiconductor nanoparticles with controllable shell thickness by aerosol-photopolymerization technique ***M. Shaban**, J. Poostforooshan and A.P. Weber*
MP-09	Impact of emissions from ports of Los Angeles and Long Beach on the oxidative potential of ambient PM0.25 measured across the Los Angeles County *A. Mousavi, M.H. Sowlat, F. Shirmohammadi, S. Hasheminassab, A. Polidori, M.M. Shafer, J.J. Schauer and **C. Sioutas***

16:40-18:30	**M**onday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Applied Aerosol Processes
MP-10	On-site monitoring of particulate emissions from non-road machines equipped with diesel particle filters ***D. Bémer**, I. Subra, E. Mazillier and J.P. Depay*
MP-11	Experimental study of aerosol release due to liquid leaks of fission product concentrates simulants *M. Sow, Y. Leblois and **F. Gensdarmes***
MP-12	Impact of power settings and fuel on PM emissions for a SAM146 engine ***C. Irimiea**, I.K. Ortega, D. Delhaye, Y. Carpentier, J.A. Noble, F.X. Ouf, F. Salm, D. Gaffié, O. Penanhoat and C. Focsa*
MP-13	Influences of alternative fuel on black carbon particle number emissions of global civil aviation ***X.L. Zhang**, X. Chen and J. Wang*
MP-14	A unified scaling law for inertia and surface tension dominated electrosprays ***C. Lübbert** and W. Peukert*
MP-15	The impact the electrolyte, electrochemistry and the gas phase composition on the outcome of an electrospray process ***C. Lübbert** and W. Peukert*
MP-16	An electric current-based monitoring system for EHDA of natural gas odorants ***F. Kariithi**, L. Manna, S. Verdoold, M.J. Gatari, J.C.M. Marijnissen and L.L.F. Agostinho*
MP-17	Effect of droplet size in EHDA simple-jet mode without/with whipping break-up on evaporation ***N. Nyambane**, M.J. Gatari, L.L.F. Agostinho and J.C.M. Marijnissen*

16:40-18:30	**M**onday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Applied Aerosol Processes
MP-18	Electrohydrodinamic pumping of liquid at spraying ***M.K. Bologa**, I.V. Cojevnicov, F.P. Grosu and O.V. Motorin*
MP-19	Electrospray method for fabricating the wrinkly morphology particles ***F.Z. Jiang**, W.B. Ju, Z.X. Sun, Y.K. Bahk and J. Wang*
MP-20	Modelling radioactive aerosol generation during metal cutting in NPP decommissioning *H.J. Han, B.G. Kim and **B.G. Park***
MP-21	Investigation on bipolar charging and electrical agglomeration characteristics of subway tunnel airborne particles ***H.-S. Choi** and J. Hwang*
MP-22	Determination of component-specific optical absorption properties for brown carbon in atmospheric aerosols ***V. Moschos**, N.K. Kumar, K.R. Daellenbach, U. Baltensperger, A.S.H. Prévôt and I. El Haddad*
MP-23	Changes in the mixing state and size distribution of aerosols during the urban transport of industrial plumes ***S. Guilbaud**, K. Deboudt, P. Flament, P. Augustin, M. Fourmentin and H. Delbarre*
MP-24	Investigation of soot particles and precursors produced in a swirled diffusion biofuel flame - Combined in-situ LII/LIF and on-line L2MS *L. Ngo, **Y. Carpentier**, C. Irimiea, C. Focsa and E. Therssen*

16:40-18:30	**M**onday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Aerosol & Health
MP-25	Real-time dosimetry using a Quartz Crystal Microbalance (QCM) for in-vitro toxicological studies of engineered nanomaterials (ENMs) at the air-liquid interface ***Y. Ding**, P. Weindl, C. Wimmer, P. Mayer, T. Krebs and O. Schmid*
MP-26	Degradation of NO2 by using TiO2 nanopartice in the presence of UV-light ***A. Mohamadi Nasrabadi**, T. Demirel, C. Nickel, A. Todea and C. Asbach*
MP-27	ROS assessment of cerium oxide particles; porous morphology study ***E. Papaioannou**, G. Kastrinaki, S. Petrakis, P. Baltzopoulou and A.G. Konstandopoulos*
MP-28	A study on assessment of the influence that the radioactive aerosols generated in the decommissioning process have on the internal exposure of workers ***S.I. Kim**, H.Y. Lee and J.S. Song*
MP-29	Sources and health risk assessment of PM2.5 bound heavy metals on men, women and children in Eskişehir, Turkey ***A. Arı**, P. Ertürk Arı and E.O. Gaga*
MP-30	Gas–particle partitioning of nicotine in mainstream cigarette smoke *E. John, D. Mariner, C. Liu, K.G. McAdam, C.U. Yurteri, S. Dóbé and **J. McAughey***
MP-31	Vertical profiles of lung deposited surface area (LDSA) concentration measured with a drone in an urban street canyon *H. Kuuluvainen, M. Poikkimäki, A. Järvinen, J. Kuula, M. Irjala, M. Dal Maso, **J. Keskinen**, H. Timonen, J. V.*
MP-32	Field testing the newly developed eFilter in Beijing, China ***L. Salo**, Z. Liu, Y. Xie and T. Rönkkö*

16:40-18:30	**M**onday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Aerosol Measurement Techniques
MP-33	Deposition of micrometric particles on a capacitive sensing area ***P. Maierhofer**, M. Carminati, G. Ferrari, G. Röhrer, M. Sampietro and A. Bergmann*
MP-34	A compact, battery-operable, dual-channel, water-based condensation particle counter ***G. Lewis**, S. Hering, A. Eiguren-Fernandez and D. Workman*
MP-35	Planar DMA: a unique instrument for highly concentrated small cluster studies ***M. Amo-González** and S. Pérez*
MP-36	CFD performance simulation of an aerosol mixing chamber ***E. Rojas-García**, J.J. Rodríguez-Maroto, D. Sanz-Rivera, I. Ibarra, G. Aragón, A. Ploscar, V. Archilla and E. Mezquida*
MP-37	Effects of asymmetric streamlines on the operation of a Vienna type DMA ***I. Ibarra**, J.J. Rodriguez Maroto, E. Rojas, D. Sanz, E. Mezquida, G. Aragón, V Archilla and C. Gutiérrez-Cañas*
MP-38	Compact and flexible tandem DMA system for aerosol-based production, handling and measurement of engineered nanoparticles ***B.O. Meuller**, K. Deppert, M.E. Messing and M.H. Magnusson*
MP-39	Using COMSOL multiphysics as a tool to predict aerosol deposition spot size of an electrostatic precipitator (ESP) ***C. Preger**, R.T. Hallberg, L. Södergren, M.E. Messing and M.H. Magnusson*

16:40-18:30	**M**onday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Aerosol Measurement Techniques
MP-40	Modelling on atmospheric cluster fragmentation inside a mass spectrometer ***E. Zapadinsky**, M. Passananti, N. Myllys and H. Vehkämäki*
MP-41	A novel miniature inverted burner for a steady generation of soot nanoparticles *M. Kazemimanesh, A. Moallemi, J. Corbin, G. Smallwood, P. Lobo and **J. Olfert***
MP-42	In-field evaluation and comparison of PM2.5 miniaturized monitor ***F. Borghi**, A. Cattaneo, A. Spinazzè, D. Campagnolo, S. Rovelli, L. Del Buono and D.M. Cavallo*
MP-43	Characteristics of aerosol from different metals with plasma arc torch ***S. Choi** and N. Chae*

18:30	**End of Conference Day**

TUESDAY

8:30	**Registration**
	Areto Nagusia – Aula Magna 1 **Ground Floor. Room P0I1**
Chairs:	**Alfred Weber and Jose L. Castillo**
9:00-10:00	**Plenary Lecture III** Three Dimensional Nanoprinting via Aerosol Technology ***Prof. Mansoo Choi**, Seoul National University*
10:00-10:30	**Coffee Break and Exhibition** **Level -1. Exhibition area**

Plenary Lecture III sponsored by

10:30-12:50	**Aula Magna 1** **Ground Floor. Room P0I1**
Chairs:	**Ana López-Liao and Benjamin J. Mullins**
Tuesday **M**orning **1**	**TM1.** Aerosol Filtration
10:30-10:50 **TM1-01**	Diffusive deposition of aerosols in a fibrous filter ***C.F. Clement*** *and S.J. Dunnett*
10:50-11:10 **TM1-02**	Influence of discharging method and aerosol material on the results from standardised tests for electret filters *S. Schumacher, R. Jasti and* ***C. Asbach***
11:10-11:30 **TM1-03**	A CFD modelling of Diesel soot particles capture in wet electrostatic scrubbers *M. Esposito,* ***F. Di Natale*** *and A. Lancia*
11:30-11:50 **TM1-04**	A shielded corona charger system for improving particle filtration efficiency of flue gas scrubbers and cyclones in small biomass-fired boilers *H. Suhonen, A. Laitinen, M. Kortelainen, A. Mesceriakovas, H. Koponen, P. Tiitta, P. Yli-Pirilä,* ***J. Jokiniemi*** *and O. Sippula*
11:50-12:10 **TM1-05**	Pressure drop optimum region in mist filtration *V. Golkarfard, A.J.C. King, S. Abishek, G. Kasper, W. Heikamp and* ***B.J. Mullins***
12:10-12:30 **TM1-06**	Simulating highly saturated mist/coalescing filters *S. Abishek,* ***B.J. Mullins****, A.J.C. King and G. Kasper*
12:30-12:50 **TM1-07**	Series association of fibrous filters for nano-aerosol filtration ***A. Charvet****, S. Bourrous, S. Pacault and D. Thomas*
12:50-13:40	**Lunch Break** **Level -1. Exhibition area**

TUESDAY, June 19, 2018

10:30-12:50	**Aula Magna 2** **Ground Floor. Room P0M2**
Chairs:	**Hanns R. Paur and Miguel Vazquez-Pufleau**
Tuesday **M**orning **2**	**TM2.** Aerosol Processes
10:30-10:50 **TM2-01**	Knudsen transition effects on the thermophoretic properties of fractal-like aggregates; implications of 'momentum shielding' for thermophoretic sampling from high-pressure flames ***D.E. Rosner*** *and P Tandon*
10:50-11:10 **TM2-02**	Aerosol nucleation and growth in chemically reacting systems ***P.H. McMurry*** *and C. Li*
11:10-11:30 **TM2-03**	Measurement of the condensational growth in the free molecular regime via simultaneous detection of constant angle Mie scattering at two different wavelengths ***M. Vazquez-Pufleau*** *and P.M. Winkler*
11:30-11:50 **TM2-04**	Predicting crystallisation in evaporating aerosol droplets ***F.K.A. Gregson****, R.E.H. Miles, J. Robinson, C.P. Royall and J.P. Reid*
11:50-12:10 **TM2-05**	Numerical experimentations to determine single fibre efficiency ***N. Bardin-Monnier****, A. Charvet and D. Thomas*
12:10-12:30 **TM2-06**	A field dependent and orientation dependent mobility calculator: The next generation of electrical mobility calculations *B. Kapadia, T. Wu and* ***C. Larriba-Andaluz***
12:30-12:50 **TM2-07**	Collision and alignment of gas-phase carbon nanotubes *N. Kateris, C. Hoecker, A. Bhalerao, J. de la Verpilliere, B. Graves and* ***A.M. Boies***
12:50-13:40	**Lunch Break** **Level -1. Exhibition area**

10:30-12:50	**Sala de Juntas** **First Floor. Room P1I15**
Chairs:	**Dereck Oberreit and Manuel Alonso**
Tuesday **M**orning **3**	**TM3.** instrumentation & Characterization II
10:30-10:50 **TM3-01**	Commercial vs. custom-built LII systems used for non-volatile particulate matter monitoring ***C. Irimiea**, I. K. Ortega, D. Delhaye, M. Sicard, Y. Carpentier, J. Yon, G. Lefevre, C. Focsa and E. Therssen*
10:50-11:10 **TM3-02**	Detection of aerosols in an industrial context using LIBS (Laser-Induced Breakdown Spectroscopy) ***C. Dutouquet**, O. Le Bihan and E. Frejafon*
11:10-11:30 **TM3-03**	Laser desorption of aromatic species from carbonaceous aerosol surrogates: estimation of the adsorption energy from pulse-to-pulse decay ***D. Duca**, M. Vojkovic, Y. Carpentier, M. Ziskind, A. Faccinetto and C. Focsa*
11:30-11:50 **TM3-04**	Using Surface Normalised Aerosol Photoemission Spectroscopy (SN-APES) to investigate condensation effects on gas borne nanoparticles ***J. Röhrbein** and A.P. Weber*
11:50-12:10 **TM3-05**	Multi-wavelength absorption coefficient measurements of aerosol collected on filters: instrumentation and modelling developments for brown carbon studies *V. Bernardoni, A.Forello, R.E. Pileci, S. Valentini, G. Valli, **R. Vecchi**, L. Caponi, P.Prati and D. Massabò*
12:10-12:30 **TM3-06**	Study on cluster fragmentation inside an Atmospheric Pressure interface Time Of Flight (APi-TOF) mass spectrometer ***M. Passananti**, E. Zapadinsky, J. Kangasluoma, N. Myllys, M. Attoui and H. Vehkämäki*
12:30-12:50 **TM3-07**	Elemental analysis of airborne supermicron particles using electrodynamic levitation and laser-induced breakdown spectroscopy ***P. Heikkilä**, J. Rossi, A. Järvinen, A. Rostedt, S. Saari, J. Toivonen and J. Keskinen*
12:50-13:40	**Lunch Break** **Level -1. Exhibition area**

13:40-16:00	**Aula Magna 1** **Ground Floor. Room P0I1**
Chairs:	**Jing Wang and Andreas Schmidt-Ott**
Tuesday **A**fternoon **1**	**TA1.** Aerosol Materials
13:40-14:00 **TA1-01**	Nanostructured catalytic layers prepared by electrospray ***J.L. Castillo**, S. Martin, D. Rodriguez-Perez and P.L. Garcia-Ybarra*
14:00-14:20 **TA1-02**	Aerosol jets from multiple aerodynamic lenses for generic processing of nanocomposite coatings on large surfaces ***O. Sublemontier**, Y. Rousseau, C. Petit, E. Monsifrot, F. Perry, J-P. Gaston, P. Chapon, M. Stchakovsky, P. Briois, A. Billard and F. Torrent*
14:20-14:40 **TA1-03**	Aerosol self-assembly of nanostructured dielectric fractals on resonant plasmonic metasurfaces for selective and highly sensitive optical sensing *Z. Fusco, M. Rahmani, R. Bo, T. Tran, M. Lockreyc, N. Motta, D. Neshev and **A. Tricoli***
14:40-15:00 **TA1-04**	Optimizing the nanocoating thickness of a superhydrophobic coating ***J. Haapanen**, P. Juuti, M. Aromaa, H. Teisala, M. Tuominen, M. Sillanpää, M. Stepien, J.J. Saarinen, M. Toivakka, J. Kuusipalo and J.M. Mäkelä*
15:00-15:20 **TA1-05**	Enzyme-mimetic luminescent hybrid nanoaggregates as ratiometric hydrogen peroxide biosensors ***G.A. Sotiriou***
15:20-15:40 **TA1-06**	Aerosol synthesis of various supported metal catalyst particles with tuneable pore sizes, defined metal crystallite sizes and different loadings ***A. Martinez** and A.P. Weber*
15:40-16:00 **TA1-07**	Synthesis of superconducting MgB2-Films by the aerosol deposition method (ADM) *P. Glosse, D. Hanft, S. Denneler, T. Berthold, M. Oomen, S. Kauffmann-Weiss, E. Günther, **F. Weis**, M. Weiss, W. Häßler, B. Holzapfel and R. Moos*

13:40-16:00	**Aula Magna 2** **Ground Floor. Room P0M2**
Chairs:	**François-Xavier Ouf and Carlos Larriba-Andaluz**
Tuesday **A**fternoon **2**	**TA2.** Instrumentation & Characterization techniques III
13:40-14:00 **TA2-01**	Fast resolving aerosol particle number size distribution measurement using a battery of Airmodus A20 butanol Condensation Particle Counters ***J. Vanhanen**, E. Miettinen and M. Väkevä*
14:00-14:20 **TA2-02**	Improving the accuracy and precision of sub-10 nm atmospheric nanoparticle measurements with high flow DMPS **J. *Kangasluoma**, L.R. Ahonen, T. Laurila, R. Cai, J. Enroth, S. Buenrostro Mazon, F. Korhonen, P.P. Aalto, M. Kulmala, M. Attoui and T. Petäjä*
14:20-14:40 **TA2-03**	Improving airborne nanoparticle and cluster detection with the butanol based laminar flow condensation nuclei counters Grimm 5.403 and 5.412. ***G. Steiner**; M. Orzan; I. Nagler; E. Petrakakis and M. Selimovic; C. Tauber; F. Tettich*
14:40-15:00 **TA2-04**	The principle of the RC-DMA – A novel method for multidimensional aerosol characterization ***D.B. Rasche** and H.-J. Schmid*
15:00-15:20 **TA2-05**	The Tandem Differential Mobility Analyzer Electrostatic Precipitator (TDMAEP) system for probing the volatility and hygroscopicity of airborne particles ***G. Biskos** and S. Bezantakos*
15:20-15:40 **TA2-06**	Design and characterization of a new Annular Flow Ion Mobility Spectrometer (AFIMS) for use in a liquid nanoparticle sizer system ***D.R. Oberreit**, S. He and J.R. Quant*
15:40-16:00 **TA2-07**	A high resolution DMA covering the size range up to 70 nm ***L.J. Perez-Lorenzo**, V. Khana, J. Fernandez de la Mora and J.J. Schmitt*

13:40-16:00	**Sala de Juntas** **First Floor. Room P1I15**
Chairs:	**Jonathan Symonds and Jesús Rodríguez-Maroto**
Tuesday **A**fternoon **3**	**TA3.** Emissions
13:40-14:00 **TA3-01**	Modelling the nucleation of particles in the plume of ships in the harbour of Helsinki ***M. Karl**, L. Pirjola, A. Karppinen, J. Nikmo, J.-P. Jalkanen, J. Walden and J. Kukkonen*
14:00-14:20 **TA3-02**	A DMA operating at 200 C for the analysis of engine exhaust nanoparticles. ***M. Amo-González**, C. Barrios, R. Delgado and J. Fernández de la Mora*
14:20-14:40 **TA3-03**	Measurement of plasma reactor temperature and its effects on aerosol production ***B. Graves**, L. Weller, S. Hochgreb and A. Boies*
14:40-15:00 **TA3-04**	Simultaneous sampling of the solid and gas-phase semi-volatile fractions of propane-based CAST soot samples: chemical differentiation using mass spectrometry ***Y. Carpentier**, J.A. Noble, L. Ngo, D. Duca, M. Vojkovic, C. Irimiea, C. Pirim, E. Therssen, G. Lefevre, J. Yon and C. Focsa*
15:00-15:20 **TA3-05**	Road traffic as a major source of nanocluster aerosol *H. Kuuluvainen, T. Rönkkö, P. Karjalainen, **J. Keskinen**, R. Hillamo, J.V. Niemi, L. Pirjola, H.J. Timonen, S. Saarikoski, E. Saukko, A. Järvinen, H. Silvennoinen, A. Rostedt, M. Olin, J. Yli-Ojanperä, P. Nousiainen, A. Kousa and M. Dal Maso*
15:20-15:40 **TA3-06**	Dispersion of traffic related nanocluster aerosol near a major road ***O. Kangasniemi**, H. Kuuluvainen, J. Heikkilä, A. Malinen, L. Pirjola, J. Niemi, H. Timonen, T. Rönkkö and M. Dal Maso*

TUESDAY POSTER SESSION

16:00-18:30	**T**uesday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Applied Aerosol Processes
TP-01	Nanoparticle formation mechanisms during laser ablation of ceramic tiles ***A. Salmatonidis**, M. Viana, N. Pérez, A. Alastuey, G. de la Fuente, L.A. Angurel, V. Sanfélix and E. Monfort*
TP-02	Optically stable and near-UV activated nanophosphors for in-vitro dynamic bioimaging ***G.A. Sotiriou***
TP-03	Flame deposition of pH responsive nanoparticle films for biofilm microenvironment evaluation ***P.E. Merkl** and G.A. Sotiriou*
TP-04	Production of piezoelectric polymers in a one-step spray-drying process *L. Kreft, S. Beuermann, P. Wierach and **A.P. Weber***
TP-05	Modification of the mechanical stability of nanoparticle agglomerates by a versatile aerosol coating process ***M. Bierwirth**, P. Post and A.P. Webe*
TP-06	Adjusting the deposition flux of flame generated aerosol nanoparticles in a coating application ***M. Nikka**, P. Juuti, M. Sorvali, J. Haapanen and J.M. Mäkelä*
TP-07	Electrospray synthesis of porous cathode material for lithium ion batteries ***S.W. Karuga**, M.J. Gatari, J.C.M Marijnissen and E.M. Kelder*
TP-08	High electrochemical performance of crumpled paper ball-like Si-CNT-GR composites for lithium ion battery anode materials ***H. Chang**, S.K. Kim and H.D. Jang*
TP-09	Calculation of the diameter of a particle beam at the exit from a micro nozzle by computational fluid dynamics ***A.A. Efimov**, N.V. Protas, P.V. Arsenov and V.V. Ivanov*

16:00-18:30	**T**uesday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Applied Aerosol Processes
TP-10	Influence of number of printing layers and substrate temperature on the aspect ratio of the printed line in the aerosol jet printing process *P.V. Arsenov, **A.A. Efimov** and V.V. Ivanov*
TP-11	Charge distribution of fine and ultrafine NaCl aerosol particles ***T. Das**, A. Khan, A.Y. Nakhwa, B.K. Sapra and Y.S. Mayya*
TP-12	Improvement of steam condensation using electro-physical methods *E.I. Agarwal, **Iu.A. Bosneaga** and M.Ch. Bologa*
TP-13	Deconvolution of nanoparticle size distributions measured in combustion processes *H. Mätzing, W. Baumann, A. Bologa, A. Loukou, N. Teuscher, P. Vlavakis, H.-J. Gehrmann, **H.-R. Paur**, D. Trimis and D. Stapf*
TP-14	Influence of collector geometry on reduction of fly ash re-entrainment from a compact electrostatic precipitator ***A. Bologa**, H.P. Rheinheimer and H.R. Paur*
TP-15	The impact of synthetic aerosol type on the performance of general ventilation air filters ***J.A. Marval Díaz**, E. Norata and P. Tronville*
TP-16	*Unwanted clogging of high efficiency flat sheet filter media in fractional efficiency measurements* *J**.A. Marval Díaz** and P. Tronville*
TP-17	Filtration characteristics of an electrospinning nanofibers composite air filter medium against soot particles ***Z. Sun**, Y. Liang and J. Wang*
TP-18	Testing filters using monodisperse aerosols selected by aerodynamic diameter *S.D. Payne, M. Irwin, T.J. Johnson and **J.P.R. Symonds***

16:00-18:30	**T**uesday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Applied Aerosol Processes
TP-19	Single fiber capture probability for the mechanism of diffusion ***M. Alonso***
TP-20	Laboratory scale study for KCl vapour and particle emissions from poplar and spruce bark combustion ***T. Mylläri**, J. Viljanen, N. DeMartini, P. Karjalainen, J. Toivonen, J. Keskinen and T. Rönkkö*
TP-21	Characterization of a novel combustion aerosol standard generator for aeronautic fuel *D. Delhaye, M. Olin, H. Timonen, C. Irimiea, J. Alanen, K. Teinillä, P. Simonen, S. Saarikoski, J. Kalliokoski, P. Karjalainen, L. Jing, C. Focsa, M. Dal Maso, E. Asmi, T. Rönkkö and **I.K. Ortega***
TP-22	Solid particles generation by biomass combustion: simulation with MTDATA ***I. Gómez**, I. Ibarra, G. Aragon, I. Mugica, D. Sanz, E. Rojas, J.J. Rodríguez-Maroto, C. Gutiérrez-Canas, R. Ramos, E. Borjabad and R. Escalada*
TP-23	Influence of fuel and operating parameters on PAHs in biomass combustion fly ash. CLEANBIOM project ***D. Sanz**, E. Rojas, J.J. Rodriguez-Maroto, I. Ibarra, S. Garcia-Alonso, R. Ramos, E. Borjabad, R. Escalada, G. Aragon, C. Gutierrez-Canas, I. Celades and S. Gomar*
TP-24	Temporospatial variation in major ion chemistry of secondary inorganic aerosols in Northern Zhejiang Province, China ***J. He**, J.S. Xu and H.H. Xu*
TP-25	*Two years measurement of trace elements in PM2.5 at SORPES station, Nanjing, China* ***X. Chi**, L. Wang, L. Zheng and S. Zhang*
TP-26	Water uptake by soot cake emitted during industrial fires: influence of primary particle diameter, cake porosity and soot composition *L. Lintis, A. Coppalle, **F.-X. Ouf** and C. Vallières*

16:00-18:30	**T**uesday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Applied Aerosol Processes
TP-27	Particle emission characterization when incinerating halogen- and sulfur- containing nanowaste using a lab scale tubular furnace operating at 1100°C ***C. Dutouquet**, L. Meunier, A. Joubert, R. Boudhan, S. Durécu, L. Le Coq and O. Le Bihan*
TP-28	Variability of aerosol optical properties during different seasons over North India ***K. Taneja**, S. Ahmad, K. Ahmad and S.D. Attri*
TP-29	Annual evolution of ultrafine particles and new particle formation in León (NW Iberia) *C. Blanco-Alegre, A.I. Calvo, F. Oduber, A. Castro, A. Martínez-Fernández, E. Blanco-Alonso and R. Fraile*
TP-30	A winter Saharan dust intrusion at León: air quality and health impacts ***F. Oduber**, C. Blanco-Alegre, A. I. Calvo, A. Castro, A. Martínez, R. Fraile, T. Nunes, C. Alves, F. Lucarelli, S. Nava, G. Calzolai, D. Fernández-González, A.M. Vega-Maray and R.M. Valencia-Barrera*
TP-31	Study of air pollution in selected stations in Spain: one year study *A. Martínez-Fernández, S. Sainz-Villegas, C. Blanco-Alegre, **F. Oduber**, A.I. Calvo, A. Castro and R. Fraile*
TP-32	Size-related composition of airborne particles in Beijing and Switzerland ***Y. Yue**, H. Chen, A. Setyan, M. Elser, M. Dietrich, J. Li, T. Zhang, X. Zhang, Y. Zheng, J. Wang and M. Yao*
TP-33	Intraday and seasonal variation of atmospheric PM: Relation of EC and OC content of PM with the gaseous pollutants in high altitude suburban location *P. Ertürk Arı, A. Arı, D. Karakaş and **S. Yenisoy-Karakaş***
TP-34	Size segregated concentrations of sulphurous aerosol in a thermal power plant area of Turkey ***P. Ertürk Arı**, A. Arı and E.O. Gaga*

16:00-18:30	**T**uesday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Aerosol & Health
TP-35	Comparison of bacterial aerosols characteristics with simulated lung lining fluid and phosphate buffered solution ***F. Shen**, M. Niu and T. Zhu*
TP-36	The effect of delayed actuation of pressurized metered dose inhaler on the size distribution of the inhaled aerosols ***Sz. Kugler**, A. Kerekes, A. Nagy and A. Czitrovszky*
TP-37	Surgical smoke characterisation by optical measurement techniques ***A. Nagy**, M. Veres, I. Rigó, I. Vass, I. Kreisz and A. Czitrovszky*
TP-38	Artifacts in PM measurements caused by atmospheric water vapour ***Gy. Kiss**, K. Imre and Á. Molnár*
TP-39	Physico-chemical characterization of particles and volatile organic compounds emitted by e-cigarettes and heat-not-burn products, compared to a reference tobacco cigarette ***A. Setyan**, T. Bührer, F. Leuzinger, W. Netkueakul, M. Patrick, N.V. Heeb, R. Haag and J. Wang*
TP-40	Assessing nanoparticle exposures associated with the laser metal deposition (LMD) operating process and its control strategy ***Y.F. Wang**, H.Y. Sun, and P.J. Tsai*
TP-41	Long-term multiple volatile organic compounds exposure assessment for a semiconductor foundry industry ***Y.C. Kuo**, Y.F. Wang, S.M. Wang and P.J. Tsai*

16:00-18:30	**T**uesday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Aerosol Measurement Techniques & Basic Aerosol Processes
TP-42	Laminar co-flow tube – measurement device for binary and ternary nucleation *T. Trávníčková, J. Havlica, J. Hrubý and* ***V. Ždímal***
TP-43	Determination of the atmospheric aerosol extinction coefficient using a visual comparator ***H. Horvath***
TP-44	Electrical calibration setup utilizing singly charged particles with a size range ranging from a few nanometres up to five micrometres ***A. Järvinen****, J. Keskinen and J. Yli-Ojanperä*
TP-45	*Modification of aerosol properties due to relative humidity* ***D. El Hajj****, S. Crumeyrolle, M. Choël, S. Seng, Y. Tobon, Th. Bourrianne and I. Chiapello*
TP-46	Size-selective sampling and chemical analysis of single-cylinder engine ultra-fine particulate matter ***D. Duca****, J. A. Noble, Y. Carpentier, M. Vojkovic, S. Legendre, A. Manz, R. Grzeszik, M. Lyska, T. Tritscher, J. Spielvogel, M. Rieker and C. Focsa*
TP-47	Observations of single pollen grains after ageing under controlled environment ***S. Seng****, M. Fawal, M. Moreau, A.-M. Blanchenet, J. Farah, N. Visez, Y. A. Tobón and M. Choël*
TP-48	Characterisation of Nanoparticle Size Distributions ***C. Prüfert****, P. Brinkmann, T. Beitz, K. Pagel and H.-G. Löhmannsröben*
TP-49	High-temperature solid particle emission measurements in the sub-23 nm mobility size range with the advanced half-mini DMA ***P. Baltzopoulou****, A.D. Melas, D. Deloglou, N.D. Vlachos, E. Papaioannou, J.F. de la Mora and A.G. Konstandopoulos*

16:00-18:30	**T**uesday **P**oster Session (MP posters), Snack Break and Exhibition **Level -1. Exhibition Area**
	Aerosol Measurement Techniques & Basic Aerosol Processes
TP-50	Development of the emission traverse probe for aerosol sampling in turbojet test cells ***G. Aragón**, V. Archilla, E. Mezquida, D. Hormigo, G. Barrera, J. Rodríguez-Maroto, M. Pujadas, B. Ahedo, E. Rojas, D. Sanz and I. Ibarra*
TP-51	CIDAR project, development of a non-intrusive capability for soot measurement in aircraft engine emissions ***V. Archilla**, G. Aragón, P. Wright, K. Ozanyan, J. Black, M. Lengden, I. Burns, W. Johnstone, V. Polo, M. Beltran and M. Johnson*
TP-52	Modelling the effects of evaporation and recondensation of volatiles in in situ absorption measurements of aerosols ***B.R. Visser**, N. Karlen, L. Drinovec, G. Močnik and E. Weingartner*
TP-53	A numerical study on the relation between the active surface area and the orientationally-averaged projected area of fractal-like aggregates ***A.D. Melas** and Y. Drossinos*
TP-54	The impact of rheology on the outcome of collisions between drying droplets ***R.E.H. Miles**, J.S. Walker and J.P. Reid*
TP-55	Conformation-dependent dynamics of macromolecular ions in the gas phase under an electrostatic field ***T. Tamadate**, H. Higashi, M. Kumita, Y. Otani and T. Seto*
TP-56	Experimental and numerical investigation of nanoparticle properties in spray flames ***R. Tischendorf** and H.-J. Schmid*

18:30	**End of Conference Day**

WEDNESDAY

8:30	**Registration**
	Areto Nagusia – Aula Magna 1 Ground Floor. Room P0I1
Chairs:	**Gerhard Kasper and Ignacio G. Loscertales**
8:45-9:45	**Plenary Lecture IV** Synthesis of Functional Nanomaterials in the Gas Phase ***Dr. Hartmut Wiggers**, University of Duisburg-Essen*
9:45-10:00	**Poster Award Ceremony**
10:00-10:30	**Coffee Break and Exhibition Level -1. Exhibition area**

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10:30-12:50	**Aula Magna 1** **Ground Floor. Room P0I1**
Chairs:	**Jan Marijnissen and Christian Lübbert**
Wednesday **M**orning **1**	**WM1.** Electrosprays
10:30-10:50 **WM1-01**	Aerodynamic aspects of electrodynamic fluidization ***F.J. Higuera***
10:50-11:10 **WM1-02**	Homogeneous droplets by controlled neutralization of electrosprays ***A. Carrasco-Munoz**, E. Barbero-Colmenar, E. Bodnár, J. Grifoll and J. Rosell-Llompart*
11:10-11:30 **WM1-03**	Analysis of electrospray space charge singularity near the Taylor cone apex based on a simplified irrotational Eulerian model *C. Hernandez-San Jose and **M. Arias-Zugasti***
11:30-11:50 **WM1-04**	Characteristics of water EHDA in the simple-jet mode with whipping breakup ***L. Manna**, F. Kariithi, F. Di Natale, A. Lancia, J.C.M. Marijnissen and L.L.F. Agostinho*
11:50-12:10 **WM1-05**	Investigating the use of an Electrohydrodynamic Atomization (EHDA) system in Flame Assisted Spray Pyrolysis (FASP) for synthesis of nanoparticles ***V.A. Ganesan** and A.P. Weber*
12:10-12:30 **WM1-06**	Mass transfer processes at the Taylor cone ***C. Lübbert** and W. Peukert*
12:30-12:50 **WM1-07**	Application of electrospray in thermal desalination in tropical countries ***L.K. Kiriinya**, N. Nyambane, M.J. Gatari, L.L.F. Agostinho and J.C.M. Marijnissen*
12:50-13:40	**Lunch Break** **Level -1. Exhibition area**

10:30-12:50	**Aula Magna 2** **Ground Floor. Room P0M2**
Chairs:	**Francisco J. Romay and Vladimir Zdimal**
Wednesday **M**orning **2**	**WM2.** Instrumentation & Characterization techniques IV
10:30-10:50 **WM2-01**	A semi-automatic analysis tool for the determination of primary particle size, overlap coefficient and specific surface area of nanoparticles aggregates ***F.-X. Ouf**, Q. Ribeyre, L. Lintis, J. Yon, S. Bau, D. Thomas, C. Vallières and S. Bourrous*
10:50-11:10 **WM2-02**	Secondary organic aerosol formation from toluene photoxidation using a new method for online submicron aerosol characterization ***A. Martinez-Valiente**, M. Müller, P. Eichler, W. Tan, B. Temime-Roussel, L. Fine, C. Ferronato, A. Wisthaler and B. D'Anna*
11:10-11:30 **WM2-03**	Particle mass monitoring by Quartz Crystal Microbalance using electrostatic deposition enhancement ***S. Mülhopt**, C. Schlager, T. Krebs, M. Berger and H.-R. Paur*
11:30-11:50 **WM2-04**	Impact of particle morphology on the particle number response of diffusion chargers ***M.A. Schriefl** and A. Bergmann*
11:50-12:10 **WM2-05**	Single particle mass spectrometry of solid and liquid test aerosols ***C. Dameto de España**, A. Wonaschütz, J. Burkart and R. Hitzenberger*
12:10-12:30 **WM2-06**	A new falling droplet chain instrument for studying particle dispersions *J.S. Walker, **R.E.H. Miles** and J.P. Reid*
12:30-12:50 **WM2-07**	Elemental characterization of size-segregated aerosol samples by Inductively Coupled Plasma Tandem Mass Spectrometry ***A. Arı,** P. Ertürk Arı and E.O. Gaga*
12:50-13:40	**Lunch Break** **Level -1. Exhibition area**

10:30-12:50	**Sala de Juntas** **First Floor. Room P1I15**
Chairs:	**François Gensdarmes and Jyrki M. Mäkelä**
Wednesday **M**orning **3**	**WM3.** Indoor and Workplace Environments
10:30-10:50 **WM3-01**	Applicability of optical aerosol spectrometers and low-cost photometers for the surveillance of workplace exposure concentrations ***C. Asbach**, H. Kaminski, J. Lindermann, M. Bässler, C. Monz and A.M. Todea*
10:50-11:10 **WM3-02**	Nanocluster aerosol emissions of a 3D printer: the effect of nozzle temperature and filament material ***M. Poikkimäki**, V. Koljonen, M. Närhi, O. Kangasniemi, O. Kausiala, N. Leskinen and M. Dal Maso*
11:10-11:30 **WM3-03**	Study of residential exposure due to ultrafine aerosol particles using a simple indoor model ***S. Anand**, Jayant Krishan and Y.S. Mayya*
11:30-11:50 **WM3-04**	Measurements of the physicochemical properties of nanoparticles produced via thermal plasma spraying processes in a precision machining workplace. *S. Bezantakos, A. Salmatonidis, M. Viana and **G. Biskos***
11:50-12:10 **WM3-05**	Numerical evaluation of the fate of aerosols produced by the laser cutting of Fukushima fuel debris simulants ***T. Gélain**, E. Porcheron, C. Chagnot and D. Roulet*
12:10-12:30 **WM3-06**	Measurement of aerosol emissions in machinery and occupational exposure to MWCNT in pilot manufacturing of new carbon nanotube-based nano-enabled products for the aeronautic and automotive sectors ***J.M. Lopez de Ipina**, S. Florez, R. Seddon, I. Gaztelumendi, A. Vavouliotis, G. Koutsoukis, B. Lopez Romano, L. Sanchez, P. Latko, P. Duralek, J. Cabezas and C. Gutierrez-Canas*
12:30-12:50 **WM3-07**	Performance of one- and two-box models as tools for risk assessment: a case study of fertilizer packing ***C. Ribalta**, A.J. Koivisto, A. López-Lilao, S. Estupiñá, M.C. Minguillón, E. Monfort and M. Viana*
12:50-13:40	**Lunch Break** **Level -1. Exhibition area**

13:40-15:00	**Aula Magna 1** **Ground Floor. Room P0I1**
Chairs:	**Andrei Bologa and Luewton L.F. Agostinho**
Wednesday **A**fternoon **1**	**WA1.** Aerosol methods
13:40-14:00 **WA1-01**	Influence of exhaust gas temperature and corona suppression phenomena on mass collection efficiency of a space charge electrostatic precipitator ***A. Bologa**, H.R.Paur and D.Stapf*
14:00-14:20 **WA1-02**	Tayloring surface properties of particles by aerosol methods ***A.P. Weber**, M. Bierwirth, J. Röhrbein, M. Shaban and P. Post*
14:20-14:40 **WA1-03**	The inner electric state of electrosprayed drops and its impact on transfer probabilities macro-molecules to the gas phase ***C. Lübbert** and W. Peukert*
14:40-15:00 **WA1-04**	Charging mechanism effect on polymer discharge when exposed to organic solvents *P. Sachinidou, J. Schaniel and **J. Wang***

13:40-15:00	**Aula Magna 2** **Ground Floor. Room P0M2**
Chairs:	**Iñaki Múgica**
Wednesday **A**fternoon **2**	**WA2.** Aerosol sampling
13:40-14:00 **WA2-01**	Development and evaluation of a catalytic stripper for sub-23 nm solid particle measurements *V. Koidi, **A.D. Melas**, D. Deloglou, D. Zarvalis and A.G. Konstandopoulos*
14:00-14:20 **WA2-02**	A counter flow denuder for engine exhaust conditioning: first laboratory experiments ***M. Bainschab**, P. Karjalainen, J. Keskinen and A. Bergmann*
14:20-14:40 **WA2-03**	Role of water in PM10 mass concentration in urban air ***K. Imre**, Á. Molnár and Gy. Kiss*
14:40-15:00 **WA2-04**	Ejector-based sampling from low-pressure aerosol reactors ***T. Rosenberger**, D. Kiesler, F.E. Kruis, A. Münzer and H. Wiggers*

13:40-16:00	**Sala de Juntas** **First Floor. Room P1I15**
Chairs:	**Rachael Miles and Ismael K. Ortega**
Wednesday **A**fternoon **3**	**WA3.** Instrumentation & Characterization techniques V
13:40-14:00 **WA3-01**	Morphochemical characteristics and toxic potential of Saharan dust advections ***B. Moroni**, D. Cappelletti, S. Crocchianti, M. Grotti, C. Petroselli, B. Sebastiani and R. Selvaggi*
14:00-14:20 **WA3-02**	Influence of wall air flow properties on the resuspension kinetics of microparticles in ventilated duct under accelerated flow ***F. Theron**, D. Debba and L. Le Coq*
14:20-14:40 **WA3-03**	Hygroscopic behaviours of ammonium sulfate/organic mixtures including dicarboxylic acid and oligomer ***H. Bouzidi**, A. Zuend, J. Ondracek, J. Schwarz and V. Zdimal*
14:40-15:00 **WA3-04**	Study of the durability of supported nanoparticles produced by aerosol methods for catalysis ***S. Thorberg**, C.B.M. Poulie, D. Strand, M.H. Magnusson and M.E. Messing*

SPECIAL SESSION

WEDNESDAY, June 20, 2018

	Areto Nagusia – Aula Magna 1 **Ground Floor. Room P0I1**
Chairs:	**Joan Rosell-Llompart and Manuel Arias**
	Joint Special Session
15:00-15:40	Everything You Always Wanted to Know About Aerosol Technology but You Were Afraid to Ask *Dr. Athanasios G. Konstandopoulos, Aerosol & Particle Technology Laboratory, APTL*
15:40-16:20	Electrostatic Atomization: Past, Present and Future *Prof. Ignacio G. Loscertales, University of Malaga*
16:20-17:00	New Technologies for Near-Real Time Measurements of Ambient Aerosol Properties *Dr. Arantza Eiguren-Fernández, Aerosol Dynamics Inc.*
17:00-17:15	Conference Closing

17:15	**End of Conference**