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Original

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The impact of synthetic aerosol type on the performance of general ventilation air filters

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Keywords: aerosol neutralization, ISO 16890, general ventilation air filter, fractional efficiency.

Associated conference topics: 1.7, 1.8, 3.3

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The most recent method for assessing the performance of air filters for general ventilation (ISO 16890) uses two types of synthetic test aerosols: a liquid one made of diethylhexyl sebacate (DEHS) particles and a solid one formed by potassium chloride (KCl) crystals.

The generation of these synthetic aerosols is carried out using different methods which cause their particle charge distributions to be different.

The solid aerosol is generated using a KCl aqueous solution. The solution is atomized, and the resulting droplets dried by means of hot dry air. The KCl particles obtained in this way are highly electrically charged, and their electric charge distribution is different from the Boltzmann distribution. The charge distribution of the aerosol challenging the test filter influences the efficiency for each particle size measured. For this reason, ISO 16890 prescribes the use of a neutralizer to bring the charge distribution of the synthetic aerosol to the Boltzmann one. The neutralization process involves exposing the test filter to vapors of isopropyl alcohol (IPA) for 24 hours. In this way, the fractional efficiency is determined in a repeatable and reproducible way.

The DEHS aerosol is generated using a Laskin nozzle. The liquid particles obtained in this way have almost no electric charges on them, but the particle charge distribution is different from the Boltzmann one.

The fibrous media used to manufacture general ventilation filters may or may not possess electrostatic charges on their fibers. In case the filter medium is charged, the different electric charge distribution of the synthetic aerosols produces different results, as shown in Figure 1. In addition, when the filter medium is charged the fractional efficiency measured with the KCl aerosol is higher than the one measured with the DEHS aerosol. The smaller the particle size, the larger the difference between the data provided by the two test aerosols. This behavior agrees with filtration theory, because particles with diameters below 1000 nm are more strongly affected by electric forces than larger particles.

On the other hand, a filter made with fibrous media without electrostatic charges on it does not show any significant difference between the fractional efficiency curves obtained with KCl and DEHS aerosols, as shown in Figure 2.

The two filters were exposed to IPA vapor for 24 hours per the ISO 16890 procedure to remove the electrostatic charges on the fibers. Figure 1 and Figure 2 show the fractional efficiency curves obtained with both aerosols. The efficiency values decreased in both cases as expected, but it is important to note that the two synthetic aerosols can provide similar data only in case the filter media is discharged or was never intentionally charged.

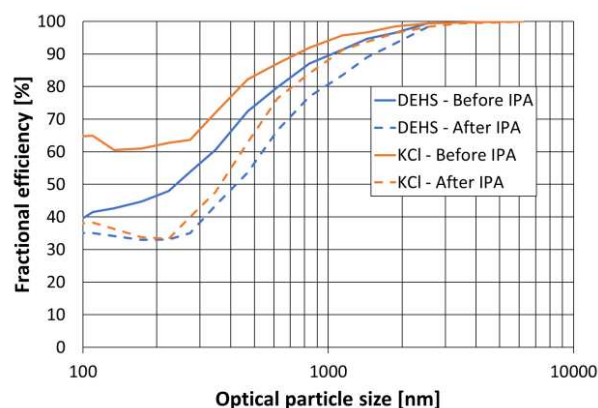


Figure 1. Fractional efficiency of a pocket filter made up of charged fibrous material tested at 3400 m³/h.

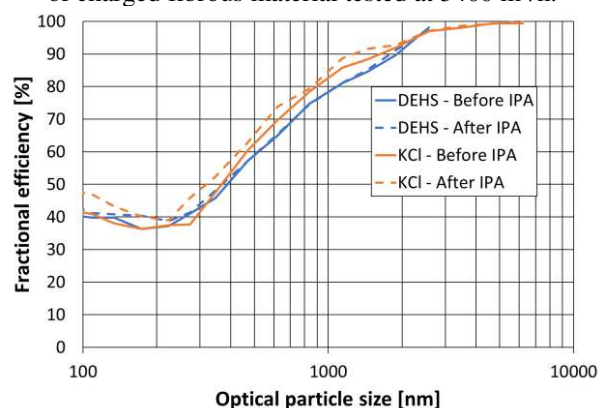
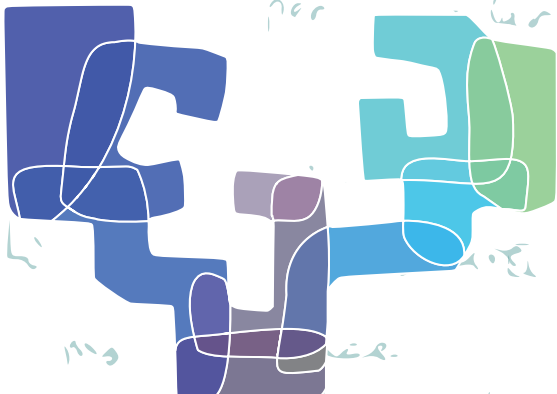


Figure 2. Fractional efficiency of compact filter made up of non-charged fibrous material tested at 3400 m³/h.

This finding is of practical interest. In fact, ISO 16890 adopts DEHS as the reference aerosol between 0.3 and 1 µm, while KCl is the reference aerosol between 1 and 10 µm, to show the effects of aerosol adhesion. DEHS and KCl may be used along the whole size range of the test method (0.3–10 µm) if the laboratory demonstrates on a reference test filter that the fractional efficiency values measured with both aerosols do not differ by more than two percentage points. Therefore, if this requirement were verified on a reference test filter without electrostatic charge, then KCl would be used to measure the efficiency of a filter with electrostatic charge, inconsistent data would be obtained in the determination of the fractional efficiency for the smallest particle size ranges. Laboratories using DEHS between 0.3 and 1 µm and laboratories using KCl in the same size range would then obtain different data. However, they could both claim that the results are valid according to ISO 16890.



AT 2018

AEROSOL TECHNOLOGY

June 17-20, 2018 | Bilbao, Spain

PROGRAM

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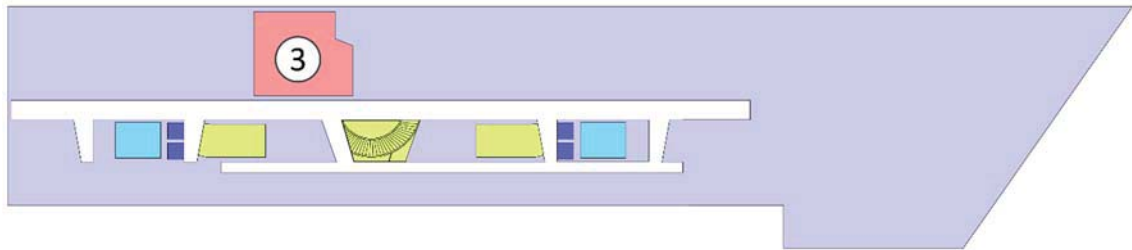
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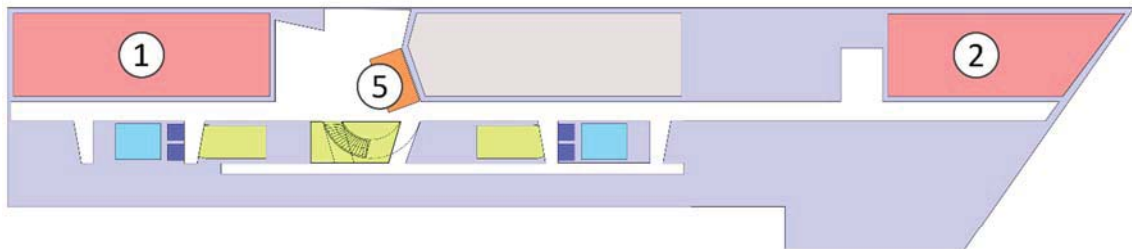
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CONFERENCE VENUE

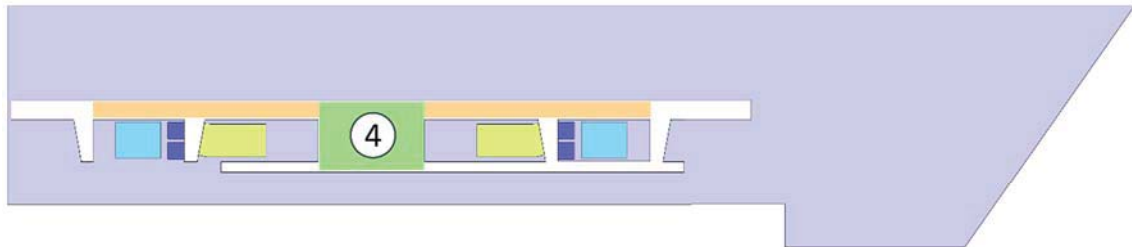
First floor, Level 1



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



Bilbao, Spain

JUNE 17-20, 2018

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y Tecnología de Aerosoles (AECyTA)**



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LOCAL SUPPORT



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, beer, 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

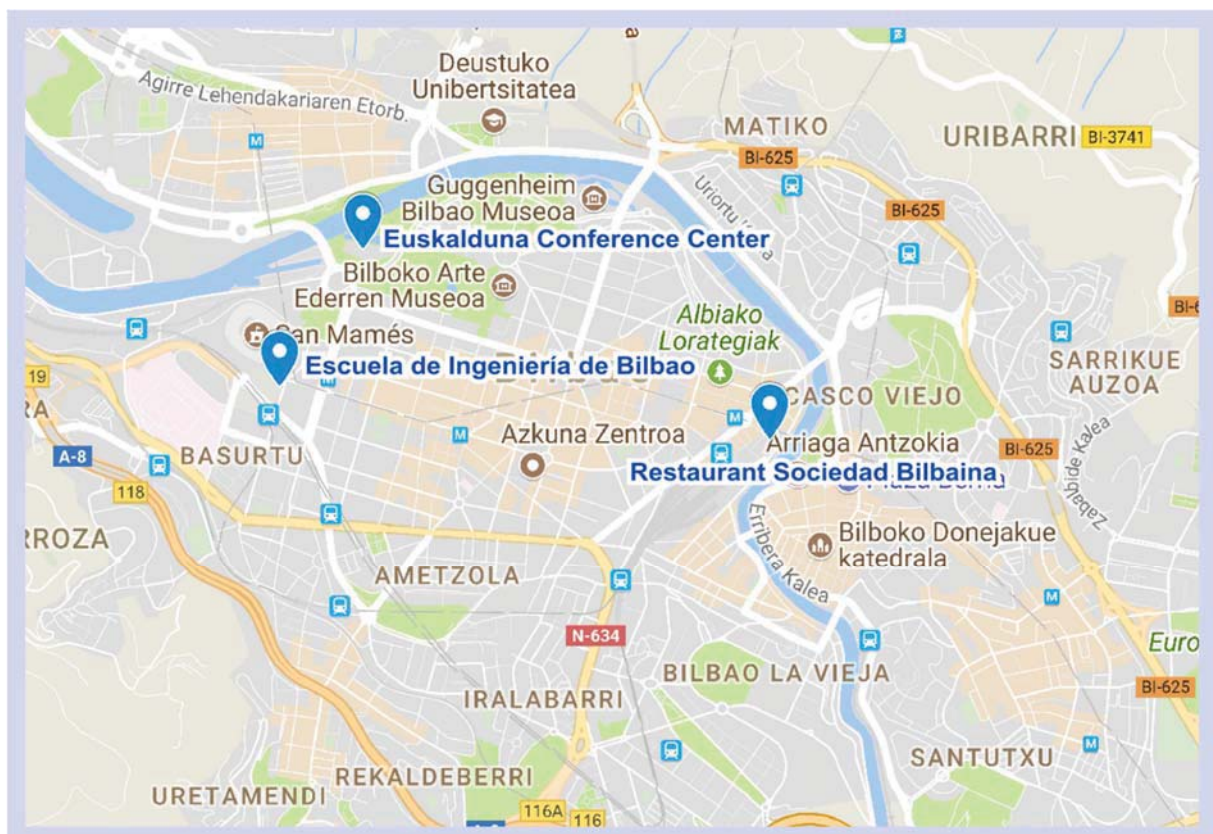
Calle Navarra (Nafarroa Kalea) 1. Bilbao

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
 - o Monday to Sunday: 9:00- 21:00
 - o +34 94 479 57 60
- ALAMEDA MAZARREDO, 66 (Guggenheim)
 - o From Monday to Saturday: 10:00-19:00
 - o 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 <i>Roberta Vecchi</i> President of the European Aerosol Assembly (EAA) <i>Jose L. Castillo</i> AT2018 Co-chair <i>Arantxa Eiguren</i> 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 , <i>California Institute of Technology - CALTECH</i>
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 Morning 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 <i>Prof. Juan Fernandez de la Mora, Yale University</i>		

14:40-15:00	Coffee Break – Level -1		
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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	Monday Poster 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 <i>Prof. Mansoo Choi, Seoul National University</i>		
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 Morning 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 Afternoon Sessions	TA1. Aerosol Materials	TA2. Instrumentation & Characterization III	TA3. Emissions
16:00-18:30	Tuesday Poster 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 <i>Dr. Hartmut Wiggers, University of Duisburg-Essen</i>		
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 Morning 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 Afternoon Sessions	WA1. Aerosol Methods	WA2. Aerosol Sampling	WA3. Instrumentation & Characterization V

Aerosol Technology 2018

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 <i>Dr. Athanasios G. Konstandopoulos, Aerosol & Particle Technology Laboratory, APTL</i> Electrostatic Atomization: Past, Present and Future <i>Prof. Ignacio G. Loscertales, University of Malaga</i> New Technologies for Near-Real Time Measurements of Ambient Aerosol Properties <i>Dr. Arantza Eiguren-Fernández, Aerosol Dynamics Inc.</i>	
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 <i>Roberta Vecchi</i> President of the European Aerosol Assembly (EAA) <i>Jose L. Castillo</i> AT2018 Co-chair <i>Arantxa Eiguren</i> 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 , <i>California Institute of Technology - CALTECH</i>
10:00-10:30	Coffee Break Level -1. Exhibition area

MONDAY, June 18, 2018

Plenary Lecture I sponsored by



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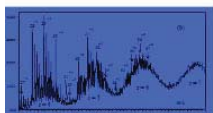
10:30-12:50	Aula Magna 1	Ground Floor. Room P011
Chairs:	Christof Asbach and George Biskos	
Monday Morning 1	MM1. Aerosol Synthesis	
10:30-10:50 MM1-01	Mesoporous carbon nitride nanosphere: preparation, experimental and simulation characterization, and its application as photocatalyst for aerosol-photopolymerization <i>J. Poostforooshan, M. Shaban and A.P. Weber</i>	
10:50-11:10 MM1-02	The NanoDome platform applied as top-on model for multiscale simulations of nanoparticle synthesis <i>P. Wollny, F. Strappaveccia, E. Ghedini, H. Wiggers, A. Kempf and I. Wlokas</i>	
11:10-11:30 MM1-03	Gas phase synthesis of semiconducting silicon and germanium nanoparticles supported by an external seeding unit <i>L. Wergen, M. Domaschke and W. Peukert</i>	
11:30-11:50 MM1-04	Plasmonic alloy particles for enhanced efficiency water splitting <i>M. Valenti, W. Smith, G. Biskos and A. Schmidt-Ott</i>	
11:50-12:10 MM1-05	MnO ₂ aerosol deposition coating for airborne organic pollutants mitigation by integrated system of photothermocatalysis and filtration <i>S. Drdova and J. Wang</i>	
12:10-12:30 MM1-06	Synthesis of Iron-Cobalt oxides nanoparticles loaded crumpled graphene for application to supercapacitors <i>H.D. Jang, H. Chang and C. Lee</i>	
12:30-12:50 MM1-07	Flame synthesis of doped LTO anode materials for next generation Li-ion Batteries <i>T. Karhunen, A. Lähde and J. Jokiniemi</i>	
12:50-13:40	Lunch Break	Level -1. Exhibition area

10:30-12:50	Aula Magna 2	Ground Floor. Room P0M2
Chairs:	Aladár Czitrovsky and Gregory Lewis	
Monday Morning 2	MM2. Instrumentation & Characterization techniques I	
10:30-10:50 MM2-01	CIDAR: Combustion species imaging diagnostics for aero-engine research <i>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</i>	
10:50-11:10 MM2-02	Resolving geometric standard deviation and mobility median from a sensor-type instrument by means of voltage scanning <i>P. Juuti, A. Rostedt, J.M. Mäkelä and J. Keskinen</i>	
11:10-11:30 MM2-03	Flow rate independent electrical aerosol sensor <i>A. Rostedt and J. Keskinen</i>	
11:30-11:50 MM2-04	Characterizing inexpensive aerosol sensor in a laboratory and field experiments <i>J. Kuula, T. Mäkelä, R. Hillamo, J.V. Niemi and H. Timonen</i>	
11:50-12:10 MM2-05	Particle size depending deposition in an electrostatic air-liquid-interface precipitator <i>H. Wiegand, J. Meyer and G. Kasper</i>	
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 <i>J.P.R. Symonds</i>	
12:30-12:50 MM2-07	Using the aerodynamic aerosol classifier to measure particle charge distribution <i>T.J. Johnson, R.T. Nishida, M. Irwin, J.P.R. Symonds, J.S. Olfert and A.M. Boies</i>	
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 Morning 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 <i>W. Netkueakul, S. Chortarea, D. Korejwo, P. Wick, T. Bürki and J. Wang</i>	
10:50-11:10 MM3-02	Quartz functionalization and its effect on toxicity and dustiness <i>A. López-Lilao, S. Estupiñá, M.J. Ibáñez and E. Monfort</i>	
11:10-11:30 MM3-03	Advanced filtration and lung deposition models of realistic airborne carbon nanotube mixtures <i>Y.K. Bahk, P. Sachinidou, X. He and J. Wang</i>	
11:30-11:50 MM3-04	Exposure to process-generated nanoparticles during thermal spraying <i>A. Salmatonidis, C. Ribalta, M. Viana, V. Sanfelix and E. Monfort</i>	
11:50-12:10 MM3-05	Computational and experimental approaches to understand multispecies aerosol evolution and deposition in biologically relevant conditions <i>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</i>	
12:10-12:30 MM3-06	Occupational exposure to nanoparticles: monitoring and management in industrial settings <i>M. Viana, A. Salmatonidis, E. Monfort, V. Sanfélix, A. López-Lilao, G.F. de la Fuente, L.A. Angurel, C. Estepa and J. Díaz</i>	
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 <i>M. Shaban, J. Poostforooshan, S. Reiser, M. Türk and A.P. Weber</i>	
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 <i>Prof. Juan Fernandez de la Mora, Yale University</i>	
14:40-15:00	Coffee Break – Level -1	

Plenary Lecture II sponsored by



15:00-16:40	Aula Magna 1	Ground Floor. Room P0I1
Chairs:	Takafumi Seto and Alexander Bergmann	
Monday Afternoon 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 <i>M. Domaschke, M. Schmidt and W. Peukert</i>	
15:20-15:40 MA1-02	Predictable internally mixed nanoparticles from oscillatory spark ablation between electrodes of different materials <i>J. Feng, N. Ramlawi, G. Biskos and A. Schmidt-Ott</i>	
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 <i>A. Muntean, U. Tuttlies, U. Nieken and M. Seipenbusch</i>	
16:00-16:20 MA1-04	Tuning sub-20nm nanoparticle output from a spark discharge generator <i>M.F.J. Boeije, B. Zijlstra, T.V. Pfeiffer and A. Schmidt-Ott</i>	
16:20-16:40 MA1-05	Ternary alloy nanoparticle production by spark mixing: A source of novel properties <i>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</i>	

15:00-16:40	Aula Magna 2	Ground Floor. Room P0M2
Chairs:	Prem Lobo and Victor Archilla	
Monday Afternoon 2	MA2. High Temperature Aerosols	
15:00-15:20 MA2-01	Impact of aeronautic fuel sulfur and aromatic content on particle emissions <i>I.K. Ortega, D. Delhay, 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</i>	
15:20-15:40 MA2-02	ASPEN Plus model for biomass combustion: gas emissions prediction approach <i>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</i>	
15:40-16:00 MA2-03	Nanoparticle study on a catalytic natural gas burner <i>J. Alanen, N. Kuittinen, R. Hietikko, H. Vesala, Saarikoski, K. Lehtoranta, J. Keskinen and T. Rönkkö</i>	
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 <i>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</i>	
16:20-16:40 MA2-05	Surface analysis in combustion: one step closer to uncovering the molecular building blocks of soot <i>C. Irimiea, A. Faccineto, X. Mercier, I.-K. Ortega, N. Nuns, E. Therssen, P. Desgroux and C. Focsa</i>	

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 <i>H. Chen, X. Zhang, X. Li, J. Li and M. Yao</i>	
15:20-15:40 MA2-02	Bioaerosol samplers for personal and distributed exposure assessment <i>G. Mainelis, T.T. Han, N. Thomas, J. Therkorn and J. Scheinbeim</i>	
15:40-16:00 MA2-03	Airborne microorganisms at anaerobic digestion site <i>S. Bayle, J. Rocher and A. Cadière</i>	
16:00-16:20 MA2-04	Simple and rapid quantification of biological air pollutants with ATP bioluminescence assay using a cotton swab <i>H.R. Kim, J.-W. Park, K.-Y. Yoon, J.H. Byun and J. Hwang</i>	
16:20-16:40 MA2-05	Lipopolysaccharide-mediated PM2.5 dose-dependent inflammatory effects <i>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</i>	

MONDAY POSTER SESSION

16:40-18:30	Monday Poster 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 <i>M. Sorvali, H. Suhonen, M. Nikka, P. Juuti and J.M. Mäkelä</i>
MP-02	Large eddy simulation of the SpraySyn burner for nanoparticle synthesis <i>T. Helmig, E. Borukhovich, I. Wlokas and A. M. Kempf</i>
MP-03	A study on the titania synthesis in a hot-wall reactor <i>M. Domaschke, L. Strunz, A. Hepp and W. Peukert</i>
MP-04	Aerosol synthesis of germanium-silicon hybrid structures in a hot-wall reactor <i>L. Wergen, M. Domaschke and W. Peukert</i>
MP-05	Nanoparticle formation in corona discharge <i>V.A. Zagaynov, V.V. Maksimenko, A.A. Lushnikov, Yu.G. Biryukov and I.E. Agranovsky</i>
MP-06	Production of spherical amphipathic copolymer nanoparticles using aerosol-photopolymerization <i>M. Shaban, J. Poostforooshan and A.P. Weber</i>
MP-07	An aerosol-based method for polymer encapsulation of Ag and SiO ₂ nanoparticles <i>J. Poostforooshan, M. Shaban and A.P. Weber</i>
MP-08	A general route toward fabrication of polymer coated semiconductor nanoparticles with controllable shell thickness by aerosol-photopolymerization technique <i>M. Shaban, J. Poostforooshan and A.P. Weber</i>
MP-09	Impact of emissions from ports of Los Angeles and Long Beach on the oxidative potential of ambient PM _{0.25} measured across the Los Angeles County <i>A. Mousavi, M.H. Sowlat, F. Shirmohammadi, S. Hasheminassab, A. Polidori, M.M. Shafer, J.J. Schauer and C. Sioutas</i>

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

16:40-18:30	Monday Poster Session (MP posters), Snack Break and Exhibition Level -1. Exhibition Area
	Applied Aerosol Processes
MP-18	Electrohydrodynamic pumping of liquid at spraying M.K. Bologa , I.V. Cojevniov, 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 <i>H.J. Han, B.G. Kim and B.G. Park</i>
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 <i>L. Ngo, Y. Carpentier, C. Irimiea, C. Focsa and E. Therssen</i>

16:40-18:30	Monday Poster 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 <i>Y. Ding, P. Weindl, C. Wimmer, P. Mayer, T. Krebs and O. Schmid</i>
MP-26	Degradation of NO ₂ by using TiO ₂ nanoparticle in the presence of UV-light <i>A. Mohamadi Nasrabadi, T. Demirel, C. Nickel, A. Todea and C. Asbach</i>
MP-27	ROS assessment of cerium oxide particles; porous morphology study <i>E. Papaioannou, G. Kastrinaki, S. Petrakis, P. Baltzopoulou and A.G. Konstandopoulos</i>
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 <i>S.I. Kim, H.Y. Lee and J.S. Song</i>
MP-29	Sources and health risk assessment of PM _{2.5} bound heavy metals on men, women and children in Eskişehir, Turkey <i>A. Ari, P. Ertürk Ari and E.O. Gaga</i>
MP-30	Gas–particle partitioning of nicotine in mainstream cigarette smoke <i>E. John, D. Mariner, C. Liu, K.G. McAdam, C.U. Yurteri, S. Dóbe and J. McAughey</i>
MP-31	Vertical profiles of lung deposited surface area (LDSA) concentration measured with a drone in an urban street canyon <i>H. Kuuluvainen, M. Poikkimäki, A. Järvinen, J. Kuula, M. Irjala, M. Dal Maso, J. Keskinen, H. Timonen, J. V.</i>
MP-32	Field testing the newly developed eFilter in Beijing, China <i>L. Salo, Z. Liu, Y. Xie and T. Rönkkö</i>

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

16:40-18:30	Monday Poster 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 <i>E. Zapadinsky, M. Passananti, N. Myllys and H. Vehkämäki</i>
MP-41	A novel miniature inverted burner for a steady generation of soot nanoparticles <i>M. Kazemimanesh, A. Moallemi, J. Corbin, G. Smallwood, P. Lobo and J. Olfert</i>
MP-42	In-field evaluation and comparison of PM2.5 miniaturized monitor <i>F. Borghi, A. Cattaneo, A. Spinazzè, D. Campagnolo, S. Rovelli, L. Del Buono and D.M. Cavallo</i>
MP-43	Characteristics of aerosol from different metals with plasma arc torch <i>S. Choi and N. Chae</i>
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 <i>Prof. Mansoo Choi, Seoul National University</i>	
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 Morning 1	TM1. Aerosol Filtration	
10:30-10:50 TM1-01	Diffusive deposition of aerosols in a fibrous filter <i>C.F. Clement and S.J. Dunnett</i>	
10:50-11:10 TM1-02	Influence of discharging method and aerosol material on the results from standardised tests for electret filters <i>S. Schumacher, R. Jasti and C. Asbach</i>	
11:10-11:30 TM1-03	A CFD modelling of Diesel soot particles capture in wet electrostatic scrubbers <i>M. Esposito, F. Di Natale and A. Lancia</i>	
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 <i>H. Suhonen, A. Laitinen, M. Kortelainen, A. Mesceriakovas, H. Koponen, P. Tiitta, P. Yli-Pirilä, J. Jokiniemi and O. Sippula</i>	
11:50-12:10 TM1-05	Pressure drop optimum region in mist filtration <i>V. Golkarfard, A.J.C. King, S. Abishek, G. Kasper, W. Heikamp and B.J. Mullins</i>	
12:10-12:30 TM1-06	Simulating highly saturated mist/coalescing filters <i>S. Abishek, B.J. Mullins, A.J.C. King and G. Kasper</i>	
12:30-12:50 TM1-07	Series association of fibrous filters for nano-aerosol filtration <i>A. Charvet, S. Bourrous, S. Pacault and D. Thomas</i>	
12:50-13:40	Lunch Break	Level -1. Exhibition area

10:30-12:50	Aula Magna 2	Ground Floor. Room P0M2
Chairs:	Hanns R. Paur and Miguel Vazquez-Pufleau	
Tuesday Morning 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 <i>D.E. Rosner and P Tandon</i>	
10:50-11:10 TM2-02	Aerosol nucleation and growth in chemically reacting systems <i>P.H. McMurry and C. Li</i>	
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 <i>M. Vazquez-Pufleau and P.M. Winkler</i>	
11:30-11:50 TM2-04	Predicting crystallisation in evaporating aerosol droplets <i>F.K.A. Gregson, R.E.H. Miles, J. Robinson, C.P. Royall and J.P. Reid</i>	
11:50-12:10 TM2-05	Numerical experimentations to determine single fibre efficiency <i>N. Bardin-Monnier, A. Charvet and D. Thomas</i>	
12:10-12:30 TM2-06	A field dependent and orientation dependent mobility calculator: The next generation of electrical mobility calculations <i>B. Kapadia, T. Wu and C. Larriba-Andaluz</i>	
12:30-12:50 TM2-07	Collision and alignment of gas-phase carbon nanotubes <i>N. Kateris, C. Hoecker, A. Bhalerao, J. de la Verpilliere, B. Graves and A.M. Boies</i>	
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 Morning 3	TM3. instrumentation & Characterization II	
10:30-10:50 TM3-01	Commercial vs. custom-built LII systems used for non-volatile particulate matter monitoring <i>C. Irimiea, I. K. Ortega, D. Delhaye, M. Sicard, Y. Carpentier, J. Yon, G. Lefevre, C. Focsa and E. Therssen</i>	
10:50-11:10 TM3-02	Detection of aerosols in an industrial context using LIBS (Laser-Induced Breakdown Spectroscopy) <i>C. Dutouquet, O. Le Bihan and E. Frejafon</i>	
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 <i>D. Duca, M. Vojkovic, Y. Carpentier, M. Ziskind, A. Faccinetto and C. Focsa</i>	
11:30-11:50 TM3-04	Using Surface Normalised Aerosol Photoemission Spectroscopy (SN-APES) to investigate condensation effects on gas borne nanoparticles <i>J. Röhrbein and A.P. Weber</i>	
11:50-12:10 TM3-05	Multi-wavelength absorption coefficient measurements of aerosol collected on filters: instrumentation and modelling developments for brown carbon studies <i>V. Bernardoni, A. Forello, R.E. Pileci, S. Valentini, G. Valli, R. Vecchi, L. Caponi, P. Prati and D. Massabò</i>	
12:10-12:30 TM3-06	Study on cluster fragmentation inside an Atmospheric Pressure interface Time Of Flight (APi-TOF) mass spectrometer <i>M. Passananti, E. Zapadinsky, J. Kangasluoma, N. Myllys, M. Attoui and H. Vehkämäki</i>	
12:30-12:50 TM3-07	Elemental analysis of airborne supermicron particles using electrodynamic levitation and laser-induced breakdown spectroscopy <i>P. Heikkilä, J. Rossi, A. Järvinen, A. Rostedt, S. Saari, J. Toivonen and J. Keskinen</i>	
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 Afternoon 1	TA1. Aerosol Materials	
13:40-14:00 TA1-01	Nanostructured catalytic layers prepared by electrospray <i>J.L. Castillo, S. Martin, D. Rodriguez-Perez and P.L. Garcia-Ybarra</i>	
14:00-14:20 TA1-02	Aerosol jets from multiple aerodynamic lenses for generic processing of nanocomposite coatings on large surfaces <i>O. Sublemontier, Y. Rousseau, C. Petit, E. Monsifrot, F. Perry, J-P. Gaston, P. Chapon, M. Stchakovsky, P. Briois, A. Billard and F. Torrent</i>	
14:20-14:40 TA1-03	Aerosol self-assembly of nanostructured dielectric fractals on resonant plasmonic metasurfaces for selective and highly sensitive optical sensing <i>Z. Fusco, M. Rahmani, R. Bo, T. Tran, M. Lockreyc, N. Motta, D. Neshev and A. Tricoli</i>	
14:40-15:00 TA1-04	Optimizing the nanocoating thickness of a superhydrophobic coating <i>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</i>	
15:00-15:20 TA1-05	Enzyme-mimetic luminescent hybrid nanoaggregates as ratiometric hydrogen peroxide biosensors <i>G.A. Sotiriou</i>	
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 <i>A. Martinez and A.P. Weber</i>	
15:40-16:00 TA1-07	Synthesis of superconducting MgB ₂ -Films by the aerosol deposition method (ADM) <i>P. Glosse, D. Hanft, S. Denneker, T. Berthold, M. Oomen, S. Kauffmann-Weiss, E. Günther, F. Weis, M. Weiss, W. Häßler, B. Holzapfel and R. Moos</i>	

13:40-16:00	Aula Magna 2	Ground Floor. Room P0M2
Chairs:	François-Xavier Ouf and Carlos Larriba-Andaluz	
Tuesday Afternoon 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 <i>J. Vanhanen, E. Miettinen and M. Väkevä</i>	
14:00-14:20 TA2-02	Improving the accuracy and precision of sub-10 nm atmospheric nanoparticle measurements with high flow DMPS <i>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</i>	
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. <i>G. Steiner; M. Orzan; I. Nagler; E. Petrakakis and M. Selimovic; C. Tauber; F. Tettich</i>	
14:40-15:00 TA2-04	The principle of the RC-DMA – A novel method for multidimensional aerosol characterization <i>D.B. Rasche and H.-J. Schmid</i>	
15:00-15:20 TA2-05	The Tandem Differential Mobility Analyzer Electrostatic Precipitator (TDMAEP) system for probing the volatility and hygroscopicity of airborne particles <i>G. Biskos and S. Bezantakos</i>	
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 <i>D.R. Oberreit, S. He and J.R. Quant</i>	
15:40-16:00 TA2-07	A high resolution DMA covering the size range up to 70 nm <i>L.J. Perez-Lorenzo, V. Khana, J. Fernandez de la Mora and J.J. Schmitt</i>	

13:40-16:00	Sala de Juntas	First Floor. Room P1I15
Chairs:	Jonathan Symonds and Jesús Rodríguez-Maroto	
Tuesday Afternoon 3	TA3. Emissions	
13:40-14:00 TA3-01	Modelling the nucleation of particles in the plume of ships in the harbour of Helsinki <i>M. Karl, L. Pirjola, A. Karppinen, J. Nikmo, J.-P. Jalkanen, J. Walden and J. Kukkonen</i>	
14:00-14:20 TA3-02	A DMA operating at 200 C for the analysis of engine exhaust nanoparticles. <i>M. Amo-González, C. Barrios, R. Delgado and J. Fernández de la Mora</i>	
14:20-14:40 TA3-03	Measurement of plasma reactor temperature and its effects on aerosol production <i>B. Graves, L. Weller, S. Hochgreb and A. Boies</i>	
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 <i>Y. Carpentier, J.A. Noble, L. Ngo, D. Duca, M. Vojkovic, C. Irimiea, C. Pirim, E. Therssen, G. Lefevre, J. Yon and C. Focsa</i>	
15:00-15:20 TA3-05	Road traffic as a major source of nanocluster aerosol <i>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</i>	
15:20-15:40 TA3-06	Dispersion of traffic related nanocluster aerosol near a major road <i>O. Kangasniemi, H. Kuuluvainen, J. Heikkilä, A. Malinen, L. Pirjola, J. Niemi, H. Timonen, T. Rönkkö and M. Dal Maso</i>	

TUESDAY POSTER SESSION

16:00-18:30	Tuesday Poster 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. Salmattonidis , M. Viana, N. Pérez, A. Alastuey, G. de la Fuente, L.A. Angurel, V. Sanf��lix 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. M��kel��
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	Tuesday Poster 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 <i>P.V. Arsenov, A.A. Efimov and V.V. Ivanov</i>
TP-11	Charge distribution of fine and ultrafine NaCl aerosol particles <i>T. Das, A. Khan, A.Y. Nakhwa, B.K. Sapra and Y.S. Mayya</i>
TP-12	Improvement of steam condensation using electro-physical methods <i>E.I. Agarwal, Iu.A. Bosneaga and M.Ch. Bologa</i>
TP-13	Deconvolution of nanoparticle size distributions measured in combustion processes <i>H. Mätzing, W. Baumann, A. Bologa, A. Loukou, N. Teuscher, P. Vlavakis, H.-J. Gehrman, H.-R. Paur, D. Trimis and D. Stapf</i>
TP-14	Influence of collector geometry on reduction of fly ash re-entrainment from a compact electrostatic precipitator <i>A. Bologa, H.P. Rheinheimer and H.R. Paur</i>
TP-15	The impact of synthetic aerosol type on the performance of general ventilation air filters <i>J.A. Marval Díaz, E. Norata and P. Tronville</i>
TP-16	<i>Unwanted clogging of high efficiency flat sheet filter media in fractional efficiency measurements</i> <i>J.A. Marval Díaz and P. Tronville</i>
TP-17	Filtration characteristics of an electrospinning nanofibers composite air filter medium against soot particles <i>Z. Sun, Y. Liang and J. Wang</i>
TP-18	Testing filters using monodisperse aerosols selected by aerodynamic diameter <i>S.D. Payne, M. Irwin, T.J. Johnson and J.P.R. Symonds</i>

16:00-18:30	Tuesday Poster 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 <i>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</i>
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. Rodríguez-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	<i>Two years measurement of trace elements in PM2.5 at SORPES station, Nanjing, China</i> 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 <i>L. Lintis, A. Coppalle, F.-X. Ouf and C. Vallières</i>

16:00-18:30	Tuesday Poster 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. Calzolari, 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. Yenisoay-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	Tuesday Poster 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. Czitrovsky
TP-37	Surgical smoke characterisation by optical measurement techniques A. Nagy, M. Veres, I. Rigó, I. Vass, I. Kreisz and A. Czitrovsky
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. Bühner, 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	Tuesday Poster 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 <i>T. Trávníčková, J. Havlica, J. Hrubý and V. Ždímal</i>
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	<i>Modification of aerosol properties due to relative humidity</i> D. El Hajj, S. Crumeyrolle, M. Choël, S. Seng, Y. Tobon, Th. Bourrienne 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	Tuesday Poster 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 <i>Dr. Hartmut Wiggers, University of Duisburg-Essen</i>	
9:45-10:00	Poster Award Ceremony	
10:00-10:30	Coffee Break and Exhibition	Level -1. Exhibition area

Plenary Lecture IV sponsored by



10:30-12:50	Aula Magna 1	Ground Floor. Room P0I1
Chairs:	Jan Marijnissen and Christian Lübbert	
Wednesday Morning 1	WM1. Electrosprays	
10:30-10:50 WM1-01	Aerodynamic aspects of electrodynamic fluidization <i>F.J. Higuera</i>	
10:50-11:10 WM1-02	Homogeneous droplets by controlled neutralization of electrosprays <i>A. Carrasco-Munoz, E. Barbero-Colmenar, E. Bodnár, J. Grifoll and J. Rosell-Llompart</i>	
11:10-11:30 WM1-03	Analysis of electrospray space charge singularity near the Taylor cone apex based on a simplified irrotational Eulerian model <i>C. Hernandez-San Jose and M. Arias-Zugasti</i>	
11:30-11:50 WM1-04	Characteristics of water EHDA in the simple-jet mode with whipping breakup <i>L. Manna, F. Kariithi, F. Di Natale, A. Lancia, J.C.M. Marijnissen and L.L.F. Agostinho</i>	
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 <i>V.A. Ganesan and A.P. Weber</i>	
12:10-12:30 WM1-06	Mass transfer processes at the Taylor cone <i>C. Lübbert and W. Peukert</i>	
12:30-12:50 WM1-07	Application of electrospray in thermal desalination in tropical countries <i>L.K. Kiriinya, N. Nyambane, M.J. Gatari, L.L.F. Agostinho and J.C.M. Marijnissen</i>	
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 Morning 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 <i>F.-X. Ouf, Q. Ribeyre, L. Lintis, J. Yon, S. Bau, D. Thomas, C. Vallières and S. Bourrous</i>	
10:50-11:10 WM2-02	Secondary organic aerosol formation from toluene photooxidation using a new method for online submicron aerosol characterization <i>A. Martinez-Valiente, M. Müller, P. Eichler, W. Tan, B. Temime-Roussel, L. Fine, C. Ferronato, A. Wisthaler and B. D'Anna</i>	
11:10-11:30 WM2-03	Particle mass monitoring by Quartz Crystal Microbalance using electrostatic deposition enhancement <i>S. Mülhopt, C. Schlager, T. Krebs, M. Berger and H.-R. Paur</i>	
11:30-11:50 WM2-04	Impact of particle morphology on the particle number response of diffusion chargers <i>M.A. Schriebl and A. Bergmann</i>	
11:50-12:10 WM2-05	Single particle mass spectrometry of solid and liquid test aerosols <i>C. Dameto de España, A. Wonaschütz, J. Burkart and R. Hitzenberger</i>	
12:10-12:30 WM2-06	A new falling droplet chain instrument for studying particle dispersions <i>J.S. Walker, R.E.H. Miles and J.P. Reid</i>	
12:30-12:50 WM2-07	Elemental characterization of size-segregated aerosol samples by Inductively Coupled Plasma Tandem Mass Spectrometry <i>A. Ari, P. Ertürk Arı and E.O. Gaga</i>	
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 Morning 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 <i>C. Asbach, H. Kaminski, J. Lindermann, M. Bässler, C. Monz and A.M. Todea</i>	
10:50-11:10 WM3-02	Nanocluster aerosol emissions of a 3D printer: the effect of nozzle temperature and filament material <i>M. Poikkimäki, V. Koljonen, M. Närhi, O. Kangasniemi, O. Kausiala, N. Leskinen and M. Dal Maso</i>	
11:10-11:30 WM3-03	Study of residential exposure due to ultrafine aerosol particles using a simple indoor model <i>S. Anand, Jayant Krishan and Y.S. Mayya</i>	
11:30-11:50 WM3-04	Measurements of the physicochemical properties of nanoparticles produced via thermal plasma spraying processes in a precision machining workplace. <i>S. Bezzantakos, A. Salmatonidis, M. Viana and G. Biskos</i>	
11:50-12:10 WM3-05	Numerical evaluation of the fate of aerosols produced by the laser cutting of Fukushima fuel debris simulants <i>T. Gélain, E. Porcheron, C. Chagnot and D. Roulet</i>	
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 <i>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</i>	
12:30-12:50 WM3-07	Performance of one- and two-box models as tools for risk assessment: a case study of fertilizer packing <i>C. Ribalta, A.J. Koivisto, A. López-Lilao, S. Estupiñá, M.C. Minguillón, E. Monfort and M. Viana</i>	
12:50-13:40	Lunch Break	Level -1. Exhibition area

13:40-15:00	Aula Magna 1	Ground Floor. Room P0I1
Chairs:	Andrei Bologna and Luewton L.F. Agostinho	
Wednesday Afternoon 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 <i>A. Bologna, H.R.Paur and D.Stapf</i>	
14:00-14:20 WA1-02	Tayloring surface properties of particles by aerosol methods <i>A.P. Weber, M. Bierwirth, J. Röhrbein, M. Shaban and P. Post</i>	
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 <i>C. Lübbert and W. Peukert</i>	
14:40-15:00 WA1-04	Charging mechanism effect on polymer discharge when exposed to organic solvents <i>P. Sachinidou, J. Schaniel and J. Wang</i>	

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

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

SPECIAL SESSION

	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 <i>Dr. Athanasios G. Konstandopoulos, Aerosol & Particle Technology Laboratory, APTL</i>
15:40-16:20	Electrostatic Atomization: Past, Present and Future <i>Prof. Ignacio G. Loscertales, University of Malaga</i>
16:20-17:00	New Technologies for Near-Real Time Measurements of Ambient Aerosol Properties <i>Dr. Arantza Eiguren-Fernández, Aerosol Dynamics Inc.</i>
17:00-17:15	Conference Closing
17:15	End of Conference