

# SCIENTIFIC PROGRAMME

## Saturday 4<sup>th</sup> March 2017

- 17.00 Registration and Poster Assembly
- 19.30 Welcome to Meeting / Welcome Buffet

## Sunday 5<sup>th</sup> March 2017

The Conference is Open!

### Session 1 The Environment

\*Denotes presentation by a student.

Chair: *Xabier Lopez* (Euskal Herriko University, Donostia, Spain)

08.55 Introduction by the Chair

9.00 Platform 1

**The unique inorganic chemistry of hydroxyaluminosilicates**

*Christopher Exley* (Keele University, United Kingdom)

9.20 Discussion

9.30 Platform 2

**Aluminium buffering in soil solutions**

*Igor Povar* (Institute of Chemistry of the Academy of Sciences of Moldova)

9.50 Discussion

10.00 Platform 3

**Aluminium effects on marine phytoplankton: Implications for a revised iron hypothesis – aluminium hypothesis**

*Linbin Zhou* (Chinese Academy of Sciences, Guangzhou, China)

10.20 Discussion

### 10.30 **COFFEE**

10.50 Platform 4

**Temporal changes in the acidification status of mountainous forest soils with an emphasis on aluminium**

*Ondřej Drábek* (Czech University of Life Sciences Prague, Czech Republic)

11.10 Discussion

11.20 Oral Poster 1\*

**Behaviour of aluminium in forest soils with respect to content and speciation of low molecular mass organic acids (LMMOA)**

*Petra Hubová* (Czech University of Life Sciences Prague, Czech Republic)

11.25 Discussion

11.30 Platform 5

**Interaction of acidophilic microbial cells with dissolved aluminium and silica under anoxic conditions: A geochemical perspective with emphasis on biomineralisation**

*Javier Sánchez-España* (Spanish Geological Survey, Madrid, Spain)

11.50 Discussion

12.00 Platform 6

**Evaluation of aluminium mobility using fungal exometabolites and the application of this method to soils**

*Martin Urík* (Comenius University in Bratislava, Slovakia)

12.20 Discussion

12.30 Oral Poster 2\*

**Evaluation of aluminium leaching from various natural and synthetic phases as affected by the presence of various species of *Aspergillus***

*Filip Polák* (Comenius University in Bratislava, Slovakia)

12.35 Discussion

12.40 Platform 7\*

**Exotic bamboo affects mineral dissolution in an acid soil of the savannas domain in Brazil?**

*Cristiane D. Sarmiento* (Federal University of Minas Gerais, Belo Horizonte, Brazil)

13.00 Discussion

### 13.10 **LUNCH**

## Session 2

### Plants

\*Denotes presentation by a student.

# Denotes a 15+5 minute Platform Presentation

Chair: *Gea Guerriero* (Luxembourg Institute of Science and Technology, Luxembourg)

14.25 Introduction by the Chair

14.30 Platform 8\*

**Using two different fluors to identify the location of aluminium in plant cells**

*Jacqueline Cerdas-Solano* (CICY, Mérida, México)

14.50 Discussion

15.00 Platform 9

**The effects of aluminium toxicity on caffeine production and signal transduction mechanisms in cell suspensions of *Coffea arabica***

*Teresa Hernández-Sotomayor* (CICY, Mérida, México)

15.20 Discussion

15.30 Oral Poster 3\*

**Relationship between aluminium stress and caffeine biosynthesis in cell suspensions of *Coffea Arabica* L.**

*Roberto Pech-Kú* (CICY, Mérida, México)

15.35 Discussion

15.40 Oral Poster 4\*

**Role of superoxide dismutase activity in aluminium tolerance in suspension cells of *Coffea Arabica* L.**

*Laura Esquivel-Hernández* (CICY, Mérida, México)

15.45 Discussion

15.50 Platform 10\*

**Measuring extracellular trapping of metals by plant root border cells**

*David Huskey* (University of Arizona, Tucson, USA)

16.10 Discussion

16.20 **TEA**

16.50 Platform 11

**Proteomic changes in roots of *Urochloa decumbens* during the activation phase of aluminium tolerance**

*Charlotte Poschenrieder* (Autonomous University of Barcelona, Spain)

17.10 Discussion

17.20 Platform 12<sup>#</sup>

**A chimeric ALMT-type malate transporter shows enhanced response to aluminium and lanthanide ions**

*Takayuki Sasaki* (Okayama University, Japan)

17.35 Discussion

17.40 Platform 13<sup>#</sup>

**Avoidance mechanism involving ROS production in plant cells under aluminium stress**

*Yoko Yamamoto* (Okayama University, Japan)

17.55 Discussion

18.00 Oral Poster 5\*

**A new mechanism of aluminium-induced cell death involving the vacuolar processing enzyme in both cultured-cell and root systems of tobacco**

*Koki Karia* (Okayama University, Japan)

18.05 Discussion

18.10 Oral Poster 6

**A positive relationship between aluminium in chloroplasts and the photosynthetic rate of an aluminium hyper-accumulator**

*Leide de Andrade* (Embrapa Cerrados, Planaltina, Brazil)

18.15 Discussion

18.20 **END OF FIRST DAY**

20.15 **DINNER**

21.15 **Social Event**

**Monday 6<sup>th</sup> March 2017**

**Session 3**  
**Silicon**

\*Denotes presentation by a student.

Chair: *Ondřej Drábek* (Czech University of Life Sciences Prague, Czech Republic)

08.25 Introduction by the Chair

08.30 Platform 14

**Silicon and plants: more than just a “tonic”**

*Gea Guerriero* (Luxembourg Institute of Science and Technology, Luxembourg)

08.50 Discussion

09.00 Platform 15

**Silica deposition in giant horsetail from the Peruvian Amazon**

*Christopher Exley* (Keele University, United Kingdom)

09.20 Discussion

09.30 Platform 16

**SISAFE® platform: an innovative nanoparticle drug delivery technology**

*Flavia Sutera* (SiSaf Ltd. Belfast, United Kingdom)

09.50 Discussion

10.00 **COFFEE**

**Session 4**  
**Cell and Animal Models**

\*Denotes presentation by a student.

Chair: *Antonio BS Poleo* (Affiliation)

10.30 Platform 17

**Tissue aluminium accumulation in the presence of silicon**

*Denise Bohrer* (Federal University of Santa Maria, Brazil)

10.50 Discussion

11.00 Platform 18

**Adjuvant effects from aluminum-containing vaccines are controversial enough: chronic dietary aluminum ingestion produces adverse adjuvant autoimmune inflammatory effects in the small intestine**

*Judie Walton* (University of New South Wales, Australia)

11.20 Discussion

11.30 Platform 19\*

**Aluminum exposure for 60 days impairs spermatogenesis and sperm quality in rats**

*Caroline Martinez* (Federal University of Pampa, Uruguaiiana, Brazil)

11.50 Discussion

12.00 Oral Poster 7\*

**Cell-specific response to particulate matter: Potential role of metals such as aluminum, copper, and iron**

*Jaaziel Castro* (Western University of Health Sciences, California, USA)

12.05 Discussion

12.10 Oral Poster 8\*

***Ilex paraguariensis*: a potential antioxidant addressing aluminum toxicity in an experimental model of Alzheimer's disease**

*Carla Alves* (Federal Institute of Education, Science and Technology of Rio Grande do Sul (IFRS), Sertão, Brazil)

12.15 Discussion

12.20 Platform 20

**Progressive inflammatory pathology in the brain and retina of aluminium-fed 5xFAD transgenic mice**

*Yuhai Zhao* (LSU Health Sciences Center, New Orleans, USA)

12.40 Discussion

12.50 Oral Poster 9\*

**Genome wide transcriptome analysis in the hippocampus of aluminium-treated rats**

*Yirong Xu* (Shanxi Medical University, Taiyuan, China)

12.55 Discussion

13.00 Platform 21

**A proposed approach to the assessment of aluminum burden in the central nervous system**

*John Savory* (University of Virginia, Charlottesville, USA)

13.20 Discussion

13.30 **LUNCH**

**FREE AFTERNOON/Excursion**

20.00 **DINNER**

*Tuesday 7<sup>th</sup> March 2017*

Session 5  
Human Exposure

\*Denotes presentation by a student.

# Denotes a 15+5 minute Platform Presentation

Chair: *Teresa Hernández-Sotomayor* (CICY, Mérida, México)

8.25 Introduction by the Chair

8.30 Platform 22

**Aluminium and breast cancer: an overview of the current status**

*Philippa Darbre* (University of Reading, United Kingdom)

08.50 Discussion

09.00 Platform 23\*

**Breast cancer and the use of underarm hygiene products with aluminium-salts:  
A case control study**

*Caroline Linhart* (Medical University of Innsbruck, Austria)

09.20 Discussion

09.30 Platform 24<sup>#</sup>

**Physician versus scholar: the British controversy about aluminium in the 1930's**

*Florence Hachez-Leroy* (Centre de recherches historiques (UMR 8558, EHESS/CNRS), Paris, France)

09.45 Discussion

09.50 Platform 25<sup>#</sup>

**Magic bullet or snake oil? Aluminium dust and the prevention of silicosis in Western Australia, 1948-1963**

*Criena Fitzgerald* (University of Western Australia, Perth, Australia)

10.05 Discussion

10.10 Platform 26<sup>#</sup>

**The McIntyre powder project: A retrospective study of the health effects of respirable aluminium dust in a cohort of Ontario miners**

*Janice Martell* (OHCOW, Ontario, Canada)

10.25 Discussion

10.30 **COFFEE**

11.00 Platform 27

**In vivo measurement of aluminium in bone; recent experience and current capabilities**

*Fiona McNeill* (McMaster University, Hamilton, Canada)

11.20 Discussion

11.30 Platform 28

**Classical fluorescent molecular probes for the identification of aluminium and related neuropathologies in familial Alzheimer's disease (fAD) brain tissue**

*Matthew Mold* (Keele University, United Kingdom)

11.50 Discussion

12.00 Platform 29

**Association between H3K4me3/BDNF and cognitive function in workers occupationally exposed to aluminium**

*Qiao Niu* (Shanxi Medical University, Taiyuan, China)

12.20 Discussion

12.30 Oral Poster 10\*

**Impact of occupational aluminium exposure on cognitive function and lymphocyte glutamate receptor protein**

*Pei Ren* (Shanxi Medical University, Taiyuan, China)

12.35 Discussion

12.40 Platform 30<sup>#</sup>

**Thomas M Riddick, an unsung pioneer of the aluminium age**

*Esko Meloni* (Enopop, Tmi, Finland)

12.55 Discussion

13.00 **LUNCH**



## Session 6 Human Exposure cont.

\*Denotes presentation by a student.

**All Platform Presentations in this final session are 15+5 minute talks.**

Chair: *Philippa Darbre* (University of Reading, United Kingdom)

14.15 Introduction by the Chair

14.20 Platform 31

**Mapping the affinity of aluminum to biomolecules, using a computational approach.**

*Xabier Lopez* (Euskal Herriko University, Donostia, Spain)

14.35 Discussion

14.40 Platform 32

**Assessing the solubility of aluminium adjuvants in the lysosomal compartment and the consequent impact upon the viability of phagocytic immune populations**

*Emma Shardlow* (Keele University, United Kingdom)

14.55 Discussion

15.00 Platform 33\*

**Cognitive and behavioural studies in sheep over immunized with aluminium-containing vaccines**

*Javier Asín* (University of Zaragoza, Spain)

15.15 Discussion

15.20 Platform 34

**Transcriptomic analysis of aluminum effects on intestinal tissues from control and Crohn's disease patients.**

*Mathilde Body-Malapel* (University of Lille, France)

15.35 Discussion

15.40 Platform 35

**Aluminium, mercury and microRNA (miRNA) signalling in autism spectrum disorder (ASD)**

*Walter Lukiw* (LSU Health Sciences Center, New Orleans, USA)

15.55 Discussion

16.00 Platform 36

**Alum adjuvant neurotoxicity and its biodisposition assessment in mice following intramuscular injections using nanodiamond technology**

*Housam Eidi* (UBC, Vancouver, Canada)

16.15 Discussion

16.20 Platform 37

**Macrophagic myofasciitis-associated cognitive dysfunction: A reappraisal of neuropsychological profile**

*Jérôme Authier* (Paris Est-Creteil University, Creteil, France)

16.35 Discussion

16.40 **TEA**

Final Session Chair: *Christopher Exley* (Keele University, United Kingdom)

JD Birchall Lecture

17.25 **Introduction by Chair**

17.30 **Macrophagic myofasciitis: Aluminium hydroxide and susceptibility genes**

*Romain Gherardi* (Paris Est-Creteil University, Creteil, France)

18.20 Discussion

18.30 **CONCLUSION OF MEETING**

*20.00 Conference Dinner*

## **List of Additional Posters**

\*Denotes presentation by a student.

Poster 1

**Distribution of aluminium soluble and insoluble, organic and inorganic chemical species in natural aqueous systems**

Igor Povar (Institute of Chemistry of the Academy of Sciences of Moldova)

Poster 2

**Relationship among the nitrogen source and aluminium toxicity in suspension cells of *Coffea arabica* L.**

Muñoz-Sánchez J. Armando (CICY, Mérida, México) E-mail: [arms@cicy.mx](mailto:arms@cicy.mx)

Poster 3

**NMDAR- ERK signal pathway mediates expression of H3K9ac, H3K9me2 in the hippocampus of chronically aluminium treated rats**

Qiao Niu (Shanxi Medical University, Taiyuan ,China)

Poster 4\*

**Long-term studies in subcutaneous reactions following inoculation with aluminium-containing products in sheep**

Javier Asín (University of Zaragoza, Spain)

Poster 5\*

**Human exposure to aluminium:How much aluminium is in our everyday diet?**

Raquel Rodriguez (University of Toledo, Spain)

Poster 6

**Non-linear dose-response of aluminium hydroxide adjuvant particles: selective low dose neurotoxicity**

Housam Eidi (UBC, Vancouver, Canada)

Poster 7\*

**Characterization of substituent effects and binding features of different Al(III)-chelator complexes**

Gabriele Dalla Torre (Euskal Herriko University, Donostia, Spain)

Poster 8

**Predictive value of cerebral FDG-PET for diagnosing aluminium hydroxide-induced Macrophagic Myofasciitis (MMF)**

Jérôme Authier (Paris Est-Creteil University, Creteil, France)

Poster 9

**Aluminium exposure and markers of iron homeostasis in human breast cells *in vitro***

*Philippa Darbre* (University of Reading, United Kingdom)

Poster 10\*

**Aluminum exposure promotes vascular dysfunction and increases blood pressure in rats: a concerted action of NAD(P)H oxidase and COX-2**

*Caroline Martinez* (Federal University of Pampa, Uruguaiana, Brazil)

Poster 11

**A technique for *in vivo* bone aluminium measurement: present performance and prospects for a transportable system**

*Fiona McNeill* (McMaster University, Hamilton, Canada)

Poster 12

**Evaluation of aluminium levels in Alzheimer's Disease subjects involved in a ketogenic diet study**

*Angela Juby* (University of Alberta, Edmonton, Canada)

Poster 13\*

**An *in vitro* model of the gastrointestinal absorption of aluminium in human infants.**

*Isabel Rodriguez Nunez-Milara* (Keele University, United Kingdom)