



### 14<sup>th</sup> International Symposium on Microbial Ecology

*The Power of the Small*  
Copenhagen, Denmark, 19-24 August 2012

#### SUMMARY

Every now and again, the Danish capital Copenhagen experiences an extremely sunny and hot summer's day. As it happens, ISME14 started on that particular day in August 2012. As the sun shone brightly on Tivoli Gardens, the colourful scenic houses of Nyhavn and the Little Mermaid Statue, over 2000 microbial ecologists descended onto the city to find their way to the Bella Center where the meeting was to take place. The metro brought the scientists to the outskirts of the city, where the newly built Bella Sky Hotel towered over the convention center. To enjoy the summery weather for as long as possible, the delegates to ISME14 all arrived shortly before the opening ceremony, in which ISME President Steven Lindow and Local Organiser Chair Jan Sørensen welcomed everyone to the meeting. After Søren Molin warmed up the audience with his overview of microbial ecology in Denmark throughout the years, first keynote speaker Minik Rosing got everyone fired up by offering a geologist's point of view on microbial evolution. The official part of the afternoon ended when a herd of overheated Vikings entered the massive plenary room for some sword play to deal with ancient grudges with the Swedes. Fortunately, the subsequent opening reception offered sufficient beverages to cool down the delegates, allowing them to actively interact with their friends, peers and colleagues.

In the next days, delegates were presented with a riveting scientific program. Morning programs were typically invited lectures presented in plenum or in parallel sessions devoted to specific topics. After lunch breaks the sessions continued all afternoon by numerous contributed lectures, conveniently interrupted by poster sessions where a large number of talented young researchers made their first entry to a large, international audience by presenting their own observations from laboratory or field work. Monday evening was a particularly long day for everybody, including a number of parallel roundtable discussions in the evening. Looking at the scientific program during the week, the classical perspectives of microbial activity such as growth and distribution, together with degradation and element cycling in soil, water, biofilms and gradient environments were well covered. Fascinating research was also presented by work in extreme environments, from energy-poor deep-sea sediments to infection sites of the human body. Novel organisms and traits continue to be in focus for much research effort and the ever-expanding fields in these years of meta-genomics and meta-transcriptomics combined with new bioinformatics tools show us that there is still so much diversity of microorganisms and their functions to be found out there. Expanding methodologies are the single-cell and high-resolution technologies looking into each cells performance such as specific gene expression or other metabolic activity in the cells, even in the complex, natural communities. Finally, it was interesting to see also how modelling may now be used predictively to study complex community functions.

The change in weather on Tuesday did not undermine the exciting and relaxed atmosphere. Almost every delegate assembled during the Tiedje Award evening to witness Stephen Giovannoni's turn to shine, as he was awarded the prestigious Tiedje Award for his contributions to the field of microbial ecology. As always, the Wednesday was a day off, as is common during ISME meetings, to allow delegates to explore Copenhagen and its surroundings in between the rain showers. On Thursday, everyone was back again to



listen to Nicole Dubillier's thrilling talk on omics. In the evening it was time for the ISME Party, which had sold out all of its tickets early in the week. At the Øksnehallen, in Copenhagen's city center, the band played for several hours, and afterwards, partygoers took over the podium, until it was time to go home. This meant it was an early morning on Friday, but a crowd had gathered anyway to see Victoria Orphan receiving the Young Investigator's Award.

Ken Neelson provided everyone with some food for thought at his closing talk, after a long but rewarding week of science. The Award ceremony not only gave us poster winners, a DC White Award winner and a MO BIO Award winner, but also introduced us to two new awards. The Brock Award acknowledges postdocs giving an outstanding talk, and the Bill Costerton Award recognizes new theories in the field, in honour of its namesake, who sadly passed away earlier this year.

Newly instated ISME President Michael Wagner revealed that ISME16 is to take place in Montréal, Canada, and the South Koreans got everyone excited for ISME15 in Seoul, which is to take place in two years' time. Copenhagen was a remarkable host city, contributing to the relaxed atmosphere and providing ISME with its biggest meeting to date. This once again proves that the field is still blooming, and promises great things for the future of microbial ecology.

ISME is grateful for a successful meeting, and would like to thank all delegates, speakers, sponsors, exhibitors and volunteers for their contribution.

### FACTS AND FIGURES

Abstracts/papers received	2155
Keynote Presentations	7
Bird's Eye View Presenters	2
Invited Presentations	112
Round Table Sessions	8
Contributed Papers selected for Oral presentation	287
Contributed Papers selected for Poster presentation	1764
Number of Attendees	2215

### SCIENTIFIC AWARDS

**The Jim Tiedje Award:** This is presented by ISME to an exalted microbial ecologist who is recognized for his or her Outstanding Lifetime contribution to the field of microbial ecology. Past winners of this award include Bo Barker Jørgensen (2010), Norman Pace (2008), Gijs Kuenen (2006) and Farooq Azam (2004). The 2012 awardee is **Stephen Giovannoni**, Oregon State University, USA, who presented his award lecture on the evening of Tuesday, 21 August, 2012.

**The ISME Young Investigators Award:** This award recognises early career microbial ecologists who have made significant contributions to this field. Past winners of this award include Marc Strous (2010), Forest Rohwer (2008), Phil Hugenholtz (2006) and Ian Head (2004). The recipient of the 2012 award is **Victoria Orphan**, Caltech, USA.



**ISME Student Poster Award:** This is reserved for students, or graduates within two years of graduation as long as they are the first author on a submitted poster presentation. The ISME14 recipients are:

- **Rika Anderson** (University of Washington, USA), “Viral manipulation of the genetic landscape of hydrothermal vent microbial communities”
- **Hans Bernstein** (Montana State University; Center for Biofilm Engineering, USA), “Synthetic escherichia coli consortia engineered for syntrophy demonstrate enhanced biomass productivity”
- **Jörg Deutzmann** (University of Konstanz, Germany), “Anaerobic denitrifying methane oxidation in a deep oligotrophic freshwater lake”
- **Melissa Garren** (Massachusetts Institute Of Technology, USA), “Behavior and Interaction Mechanisms of a Marine Pathogen”
- **Janice Gee Kay Hui** (Centre for Marine Bio-Innovation, University of New South Wales, Australia), “Mechanisms leading to establishment of superinfective Pf4 phage in Pseudomonas aeruginosa PAO1 biofilms”
- **Alice Langerhuus** (Center for Geomicrobiology, Department of Bioscience, Aarhus University, Denmark), “Estimating bacterial activity and turnover of vegetative cells, bacterial necromass and TOC in Aarhus Bay sediment”
- **Stefan Neuenschwander** (Limnological Station, University of Zurich, Switzerland), “Flow-sorting of uncultivable ultramicrobacteria according to their taxonomic affiliation”
- **Byron Pedler** (Scripps Institution of Oceanography, University of California San Diego, USA), “Ecophysiology of a large planktonic marine Alteromonas that consumes an unexpectedly high fraction of dissolved organic carbon”
- **Tomohiro Tobino** (The University of Tokyo, Japan), “Evaluation of oligonucleotide probe-based gene capture for recovering environmental functional gene diversity”

**The D.C. White Award:** David C. White’s vision was to honour and respect the power of quantitative analytical chemistry to microbial ecology. Thus, this award is presented to the most innovative poster at the ISME Symposia. The inaugural 2012 award was presented to **Tomohiro Tobino** (University of Tokyo, Japan).

**The MOBIO Award:** Gold Sponsor MOBIO Laboratories, Inc. presented the MO BIO Award for the best poster at the symposium. The award was granted to **Rika Anderson** (University of Washington, USA).

**The Bill Costerton Award:** In honour of Bill Costerton, the award is granted to the author of the poster that best involves new theories in microbial ecology and wider inter-disciplinary significance. The first time award was presented to **Melissa Garren** (MIT, USA).

**The Tom Brock Awards** acknowledge the accomplishments and promise of outstanding postdoctoral research associates on the basis of the presentations that they make at the ISME Symposium. The awards were granted to **Michaela Salcher** (Limnological Station, University of Zurich, Switzerland) and **Yutaka Yawata** (MIT, USA)

### Travel Awards

ISME made funds available for travel awards for a minimum of 30 young scientists. The grants were:

- Europe € 200
- Rest of the World € 750

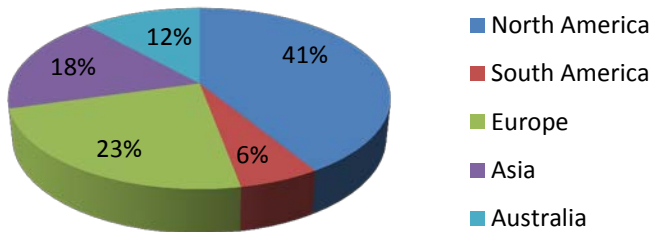
We received a total of 250 submissions and were able to grant 42 ISME Travel Awards.



**ISME Travel Grants:**

Thabata Maria Alvarez	Brazil	Nikolaus Leisch	Austria
Emma Aronson	USA	Yan Wei Lim	USA
Frank Aylward	USA	Sebastian Lücker	Austria
Gaelen Burke	USA	Chengwei Luo	USA
Ying Chen	China	Fei Luo	Canada
Léa Cabrol	Chile	Kerensa McElroy	Australia
Carolyn Churchland	Canada	Harish Nagarajan	USA
Lina Faller	USA	Rashid Nazir	Netherlands
Sabine Filker	Germany	Andreas Oikonomou	Germany
Omri Finkel	Israel	Mélanie M Paulin	Canada
Jane Fowler	Canada	Alexander Probst	Germany
Roland Hatzenpichler	USA	Laura Saunder	Canada
Haruna Hiraizumi	Japan	Shengjing Shi	USA
Marissa Hirst	USA	Etienne Slabbert	South Africa
Kelsea Jewell	USA	Haim Treves	Israel
Timothy Johnson	USA	Jacob Valenzuela	USA
Janine Kamke	Germany	Nathan Walworth	USA
Betty Kientz	France	Roland Wenter	USA
Sylvia Klaubauf	Netherlands	Dana Willner	Australia
Lena Koenig	Austria	Daniela Wischer	United Kingdom
Tae Kwon Lee	South Korea	Keunje Yoo	South Korea

## Distribution Travel Awards



## FEMS Young Scientist Meeting Grant

We received a total of 86 submissions and were able to grant 9 FEMS Young Scientist Meeting Grants.

Yana Aizanberg-Gershtein, Israel  
 Virginia Helena Albarracin, Germany  
 Ozge Eyice, United Kingdom  
 Maya Haimovich – Dayan, Israel  
 Jenni Hultman, Finland

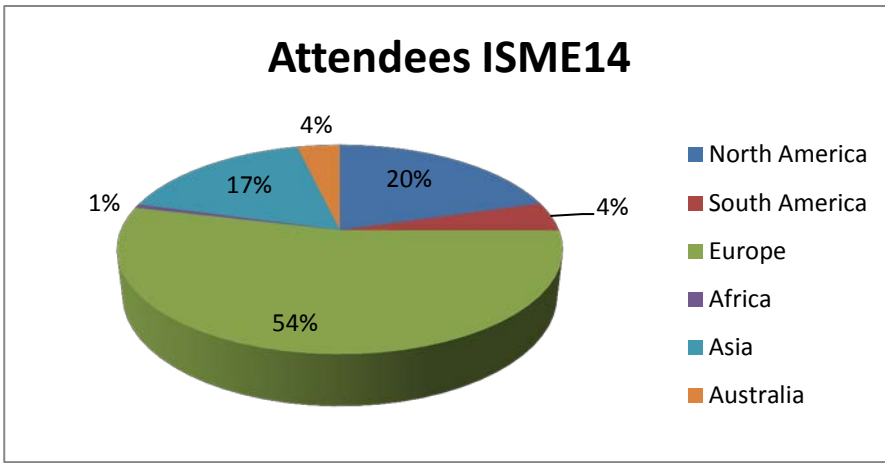
Denis Karlov, Russia  
 Olena Moshynets, Ukraine  
 Hagai Raanan, Israel  
 Ondrej Uhlík, Czech Republic



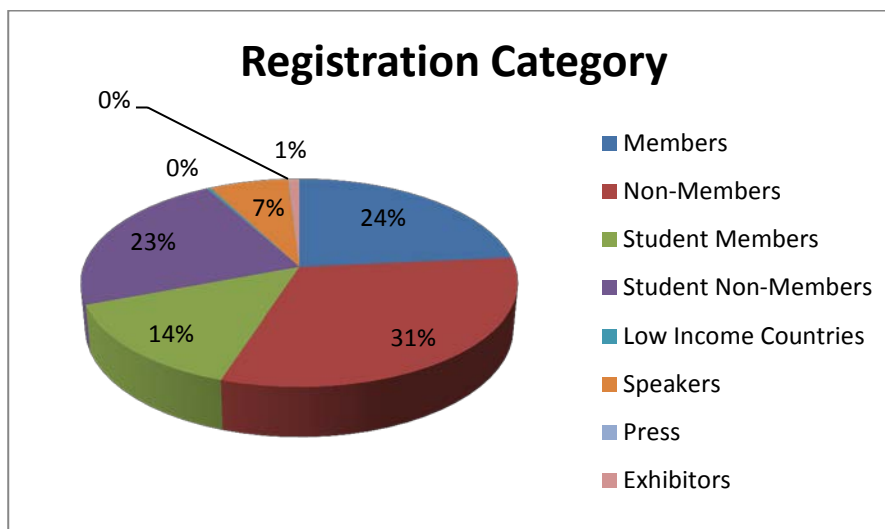
**FACTS ON REGISTRATION AND ATTENDANCE**

**Total Number of Attendees:** 2215, from 61 Countries

**Breakdown of Attendees per Region:**



**Breakdown of Registration per Category:**



### POSTERS

Total number of Posters: 1764

Session No.	Title	Number of Posters
PS.01	Empowered by Microbes	62
PS.02	Light and Microbial Life	29
PS.03	Microbes in a Changing Ocean	54
PS.04	Microbial Community Diversity: 16S and beyond Main authors A - C	49
PS.05	Microbial Dispersion and Biogeography – is everything everywhere?	73
PS.06	Microbial Gradient Communities	30
PS.07	Microbial Interactions and Behavior	104
PS.08	Microbial Symbioses	71
PS.09	Pathways and Physiology	60
PS.10	Single Cell Microbiology	29
PS.11	Archaea: important players in diverse microbial ecosystems	51
PS.12	Genetic Potential and Expression: key functions in microbial communities	95
PS.13	Managing Microbial Communities	82
PS.14	Microbial Community Diversity: 16S and beyond Main Authors D - M	94
PS.15	Mobility of Genes and the Species Concept	17
PS.16	Soil Microbiology and Heterogeneity	157
PS.17	The Starving Majority; life at low energy flux	14
PS.18	The Unknowns; rare ones and unculturables	27
PS.19	Virus-Bacteria Interactions	35
PS.20	Bioinformatics in Microbial Ecology	46
PS.21	Microbial Community Diversity: 16S and beyond Main Authors N - Z	116
PS.22	Microbial Disease Ecology	82
PS.23	Microbial Element Cycling; from genes to turnover	80
PS.24	Microbial Life in Extreme Environments	117
PS.25	Microbial Origin and Evolution	22
PS.26	Novel High-Resolution Technologies	11
PS.27	Plant-Microbe Interactions	91
PS.28	Predictive Models of Microbial Communities	12
PS.29	Protistan Ecology: beyond diversity	18
PS.30	Syntrophy and Electron Flow in Microbial Communities	20
PS.31	ESF coordinated collaborative research programme Ecological and Evolutionary Functional Genomics (Euro-EEFG) “Understanding the functioning of microbes and microbial communities in their natural habitat: are we shedding light in the black box?”	14



## VENUE

ISME14 took place at Bella Center, Copenhagen.

Accommodation was outsourced to a third party and is not part of the ISME14 organisation.

## SOCIAL EVENTS

### **ISME Party – Øksnehallen**

Number of Attendees: 880, of which 174 registered onsite

The Tours were outsourced to a third party and are not part of the ISME14 organisation. Numbers for the tours are therefore unknown.

## LIST OF SPONSORS

**Platinum Sponsor:** Novozymes



**Gold Sponsor:** MOBIO Laboratories, Inc.



**Sponsors:**

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Knud Højgaards Fund

Knud Højgaards Fond



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Cameca



Genoscreen



Microbial Society of Korea



Nature Publishing Group



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Thermo Scientific



Unisense



Wiley-Blackwell





### **SYMPOSIUM MANAGEMENT**

#### **Symposium Management:**

Sarash de Wilde, the Netherlands (Office Manager)  
Sabine van Wegen, the Netherlands  
Sionna Gras-Smith, the Netherlands  
Anouk van Veen, the Netherlands

#### **Organising Committees:**

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Hilary Lappin-Scott (UK)  
Past President  
Hans van Veen (The Netherlands)  
Secretary Treasurer

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Bill Mohn (Canada)  
Jim Fredrickson (USA)  
Alexandra Worden (USA)  
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Liping Zhao (China)

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