

BIANNUAL NEWSLETTER

EDITORSHIP :: changes

Dear ISMET Community,

3 years ago, I started my training to become the ISMET News editor. In these three years, the ISMET News has continued to evolve, hoping to provide an outlet for major news of our Society, important events, awards, and research and education efforts. Our Newsletter Committee provides ideas and write original articles for the issues. But many articles are also derived from contributions from you, the ISMET community. Our goal, beyond keeping you informed, is to keep you engaged in our Society as you learn from our efforts.

Dr. Elizabeth Heidrich (Newcastle University) will be your next ISMET News editor. She has taken this important responsibility and is currently learning the publication process. She will continue to have an excellent team behind her. Belén Barroeta, our Publishing Coordinator, has provided a crucial contribution to each issue and has ensured continuity along the three editors so far. The Newsletter Committee will also guide Elizabeth in her new endeavor. Despite these constants, I know changes will come to ISMET News. Innovation and new ideas always come with new leadership. I look forward to seeing the new issues!

César I. Torres
ISMET News Editor



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Falk Harnisch



Dr. Falk Harnisch is a Group leader at the Helmholtz-Centre for Environmental Research - UFZ and Privatdozent (~Associated Professor) at the Leipzig University, both Germany. He has been active in the field for over a decade and has published more than 100 papers, his h-index in google scholar is 40. Falk's journey in MET started at the University of Greifswald as student of biochemistry with Uwe Schröder, with whom he went to Braunschweig after obtaining his PhD with distinction in 2009. After a fruitful and enjoyable detour as Visiting Academic (2011) to the University of Queensland (Australia) he started his own group in

Leipzig in 2012 where he obtained his habilitation in 2016. Falk received numerous awards and scholarships most recently the UFZ Research Award. Starting from the fundamentals of abiotic and microbial electrocatalysis his work recently focused on the ecology & thermodynamics of electroactives as well as the integration of electroorganic & microbial synthesis for creating electrobiorefineries.

Zhiyong Ren



DZhiyong Ren is a Professor in the Department of Civil and Environmental Engineering and the Andlinger Center for Energy and the Environment at Princeton University. Prior to joining Princeton he was on faculty at University of Colorado for 10 years. Jason has been working in microbial electrochemistry since 2004 with topics including MFC/MEC, MDC/MCDC, energy harvesting, and recently bioelectrochemical soil remediation and nutrient recovery. Currently his lab focuses on understanding the microbial-material interface with the goal of exploring and improving resource recovery and wastewater treatment. Jason

has published more than 110 peer-reviewed journal articles with an H index 36, and he co-founded a start-up company with student to hopefully commercialize microbial electrochemical technologies.

Tian Zhang



Dr. Tian Zhang is a Chair Professor in the School of Chemistry, Chemical Engineering and Life Science at Wuhan University of Technology in China since 2016. She is an awardee of the Chinese “Thousand Talents Program for Distinguished Young Scholars”. From 2013 to 2017, she worked as a Senior Researcher and Group leader at the Novo Nordisk Foundation Center for Bio-sustainability, Technical University of

Denmark. She was a Post-doctoral Research Associate in the Microbiology department of the University of Massachusetts, Amherst, USA from 2008 to 2013. Her main research area is bioelectrochemical technologies including microbial electrosynthesis, electrode-assisted bioremediation, microbial fuel cells, etc.

ISMET 7

International Society for Microbial Electrochemistry and Technology

GLOBAL CONFERENCE



www.ismet7.com



Keynote speakers :
Prof. Derek Lovley
Prof. Ioannis Ieropoulos
Prof. Shunichi Ishii
Prof. Mirella Di Lorenzo
Prof. Sebastia Puig
Prof. Stefano Freguia
Prof. Yujie Feng

October 7-14.2019

O K I N A W A

Report on AP ISMET 4, Goa, India

Bioelectrochemical and electrochemical approaches for decentralized sanitation



AP-ISMET 4 Group Photo

This summary captures a Three- day programme of presentations, panel discussions and interactive dialogue at the conference on the latest advances in the field of Bioelectrochemical and electrochemical approaches for decentralized sanitation, which took place from 13-16 November 2018, Goa.

The response to this was overwhelming, registrations and inquiries kept pouring in. We also received a request for on the spot registrations from local professionals who wanted to enhance their knowledge through the workshop. There were 27 Oral presentations and 12 Poster Presentation in the Conference.

The meeting started in the with the lightening of the lamps and the welcome speech form the Director of the institute Professor Raghurama G. At the outset, Dr. Srikanth Mutnuri presented a summary of the proceedings of the three-day workshop. After that, Professor Willy Verstraete gave talk on “Which microbial technologies show major potential for the needs of the next decades?”. He focused on the general aspect of current situation in the field and also gave an insight for the future aspects and development required.

The conference was set to focus on four different aspects. On day 2, it focused on microbiology and in the afternoon it focussed on technology and components aspects. The session was started by

Dr. Sarah Glaven on the topic “The role of microbial communities in bioelectrochemical systems for energy generation and storage”. Professor Korneel Rabaey gave talk on “Electroactive biofilms – the more control, the more questions”. The technology and component session started with the lecture from Professor Makarand Gangrekar on the topic “Bioelectrochemical system with modified cement cation exchange membrane for kitchen wastewater treatment and electricity generation”. There was also a session on “Terminology and data representation” presented by Professor Korneel rabaey and Dr. Sarah Glaven. On day 3, the session started with a focus on sanitation from the lecture of Professor S Venkata Mohan he gave an insight on “Microbial Electrochemical Technology: Multi-facet Applications” and process session in the afternoon. On day 4, a field trip was organised to visit “Single household electrochemical” and 100 people equivalent Electrochemical system treating black water from the campus.

Professor Srikanth Mutnuri, conveyed his gratitude to all participants, particularly session moderators, panellists and presenters in his capacity as conference chairperson. He extended his thanks to the local organizing committee an, the funding agencies ISMET, and expressed his satisfaction with the interactive nature of the discussions while congratulating participants on the extensive networking that had taken place.

Srikanth Mutnuri, BITS Pilani, Goa, India



Field Visit

Report on NA ISMET-4, Minneapolis-St. Paul, USA



The 4th meeting of the North American branch of the International Society for Microbial Electrochemistry and Technology was held from October 10-12, 2018 at the University of Minnesota, Minneapolis-St. Paul, Minnesota, USA. A total of 78 participants attended. The meeting was co-led by Jeff Gralnick and Daniel Bond from University of Minnesota, with help from organizers Annette Rowe (U Cincinnati), Chi Ho Chan, Abhiney Jain, and Rebacca Calvo from University of Minnesota. Two pre-conference workshops were held on: Computational analysis of Microbial Communities (organized by Jon Badalamenti), and Setting Up and Running “Bond” reactors (organized by Komal Joshi). The official conference started Wednesday evening at the bioengineering marvel that is Surly Brewing Company. Jeff Gralnick, gave the opening remarks, and introduced the first keynote speaker of the conference. Korneel Rabaey, from Ghent University in Belgium gave a great overview of their applied microbial electrochemical technologies research.

The following day was a full day of talks with two wonderful keynotes given by Amelia-Elena Rotaru, from the University of Oden and Oriana Bretscher founder and CEO of Aquacycle. The morning was started off with an exciting talk from

Amelia-Elena Rotaru, “Time Warp”, focused on the new findings in area of Direct Interspecies Electron Transfer and it was followed by a series of great talks on mechanisms of electron transfer in a diverse array of microbes from cable bacteria to disease causing *Pseudomonas*. The afternoon session focused on applied topics ranging from fixing Nitrogen to producing hydrogen peroxide and liquid fuels. Oriana Bretscher, “Warp Speed” presented their work on using MFCs for real world water treatment. A poster session was held at the Bell Museum that evening. The final day of talks started off with a keynote from Tom Clarke (University of East Anglia), “Never Tell me the Odds!” taking us through the world of crystal structures and the presenting his new structure for MtrA. The rest of the morning was devoted to a range of talks, engineering microbes for new capabilities. The meeting wrapped up about noon, though an informal discussion on some of the highlights from the conference and field carried on through the afternoon. Our student poster award winner from Michigan State University was Kody Duhl, and our best student presentation went to Joshua Atkinson from Rice University.

– Annie Rowe
Biological Sciences, University of Cincinnati



From the 12th to 14th September 2018, the 4th EU-ISMET conference was hosted in Newcastle upon Tyne, UK, the city where it all started back in 1910 with the studies into the first microbial fuel cells by M.C. Potter. The 186 participants from 21 countries made the meeting a great success, presenting the latest breakthroughs in microbial electrochemistry and applications of bioelectrochemical systems. The sessions focussing on microbial electrosynthesis, water treatment and bioremediation attracted special interest with popular topics such as CO₂ conversion, organic pollutants removal and metal recovery. Attendees enjoyed presentations of a very high quality, as did the scientific committee who gave awards for the best presentations. Leire Caizán-Juanarena, of Wageningen University, was awarded the best oral presentation for her work on “Biofilm visualization on single granular bio-anodes with Magnetic Resonance Imaging”. The prize for the best poster presentation went to Xu Zhang, of Ghent University, for her study on the “Impact of the transition between periodic and continuous polarization on electroactive biofilms”. Finally, Mareike Engel of University of Kaiserslautern won the ISMET President’s choice presentation prize for her presentation entitled “Where do flavins in electro-fermentations with *Clostridium acetobutylicum* come from?”. As the first of the three regional meetings in 2018, the EU-ISMET conference also initiated the discussion on the need to standardise the nomenclature related to microbial electrochemistry. The outcome of the discussions in the three meetings will lead to a survey for the ISMET community to decide on a more consistent nomenclature to use.

See you all in Okinawa for the next global meeting!

The EU-ISMET 2018 organizing committee

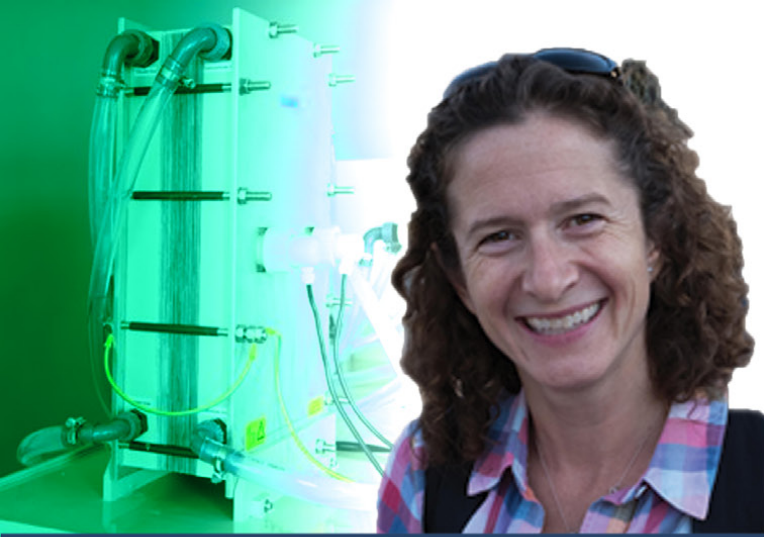
Ludovic Jourdin

Jo Philips



Ludovic Jourdin would like to announce his move to TU Delft, Department of Biotechnology, where he started a tenure track / assistant professorship as of the 1st of October 2018. Jourdin would like to thank the sub-Department of Environmental Technology, Wageningen University, for the last 3 years he spent there as a postdoc. Now at TU Delft, Jourdin is starting his own group on Microbial Electrochemistry and Technology. He will build on past experiences, and follow up on the development of novel microbial electrochemical conversions that are relevant to nowadays' global and societal challenges, with a special emphasis on bioproduction processes from waste. His aim is to implement these biotechnologies to contribute towards a more sustainable society by transforming the linear use of materials and resources into circular use resources where they are recovered and reused rather than wasted. "Alone we can do so little; together we can do so much." -Helen Keller. Ludovic Jourdin believes that collaboration is essential for successful and fruitful research. Jourdin will also soon release some PhD vacancies, so please pass these vacancies on to any excellent candidates.

Jo Philips started this fall as assistant professor at the Department of Engineering of Aarhus University (Denmark), after being a postdoc in the labs of Korneel Rabaey (UGent, Belgium) (2014 -2018) and Derek Lovely (UMass, USA) (2012 -2014). She will investigate the physiology of acetogenic bacteria and apply her insights to improve syngas fermentations and microbial electrosynthesis from CO₂ and renewable electricity. Her research will initially focus on the mechanisms of extracellular electron uptake and biofilm formation by acetogens. In addition, she is interested in biocorrosion, bioremediation and bioelectrochemical processes in general. She will collaborate with the Center of Electromicrobiology at Aarhus University. You can contact her at jo.philips@eng.au.dk.



Sarah Strycharz-Glaven

It was a busy fall for ISMET as we held our 2018 Regional Meeting in Newcastle, UK, Minneapolis, MN, and Goa, India. I was fortunate enough to attend each meeting and amazed to see how much our community has grown and continues to thrive. Each meeting had its own focus; from applied uses of bioelectrochemical systems in Newcastle, to fundamental microbiology and electrochemistry in Minnesota, to wastewater treatment in Goa. The ISMET community is having a huge impact on microbial electrochemistry and electromicrobiology. Thanks to all of you who attended the meetings! ISMET is a grass roots organization and it is your participation at these events that keeps us going. If you are looking to publish work you presented at any 2018 meeting please consider the *Frontiers in Energy Research* ISMET collection edited by myself, Uwe Schroeder, and members of the regional meeting organizing committees. In addition, there will be a *FUEL CELLS* topical issue highlighting the EU-ISMET meeting.

In 2019, we will meet for ISMET7 in Okinawa. The website for ISMET7 is up and running and the list of invited speakers looks incredible. I hope to see you there for what will surely be one of the best meetings yet. We are also looking ahead to the 2020 regional meetings and locations will be announced soon.

ISMET meetings are not only a time for us to get together and share exciting science, they are also a time to say goodbye to our hardworking board members at the end of their 3 year terms and welcome new board members elected by the ISMET community. This year we said goodbye to Yujie Feng (AP-ISMET), Frédéric Barriere (EU-ISMET), and Hal May (NA-ISMET). We welcomed to the board Tian Zhang (AP-ISMET), Falk Harnisch (EU-ISMET), and Jason Ren (NA-ISMET).

At each regional meeting this year we raised the issue of ISMET nomenclature. Beginning with a well-attended panel discussion at EU-ISMET past and present members of the ISMET board laid out a case for reexamining the terminology we use to describe our technologies and organisms we study. The ISMET is a dynamic community where we welcome new members and are always finding new applications for microbial electrochemistry and electromicrobiology. As a society, it is up to us to set guidelines and define terms so that we have consistency and understanding both within and outside our ISMET. Professor Korneel Rabaey and I are hard at work compiling what we took away from our discussions at the regional meetings and will formulate a poll for all meeting attendees. The results of this poll will be shared on the ISMET website with the hopes of providing consensus on a few key terms for the ISMET.

Once again, thank you for your support of ISMET and your continued contributions to the science of microbial electrochemistry and electromicrobiology. As a final reminder, we are coming up on the new year so after you ring in 2019 don't forget to renew your membership!

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