

Conference Report from the ISE Regional Student Meeting, Ireland



Friday 27th October 2017

Tyndall National Institute

Cork, Ireland



Summary of the Event:

Members of the Electrochemical Materials and Energy Group from Tyndall National Institute took the initiative to host the first ISE regional student meeting in Ireland. This meeting was sponsored by the International Society of Electrochemistry who provided financial support, and by various groups and faculties in Tyndall who provided administrative support that allowed the meeting to run smoothly. A twitter account (@echemIRL) was also created to advertise and promote the event on social media. Since the conclusion of the event this account has been used to highlight upcoming electrochemistry events, articles of interest and meetings throughout the country.

The event had 30 attendees throughout the day from various research groups across the country. These included PhD students, postdoctoral researchers and academics that all made their way to Tyndall for this event. The overall goal of this meeting was to facilitate those in the field to network with peers to promote discussions about their work and to enable potential future collaborations between research groups. Students also used this meeting as a method of improving their presenting skills for future conferences. The theme of this meeting was kept general to encourage presentations on a wide range of electrochemical applications. It was felt that this would allow attendees to see the wide range of applications available for electrochemical techniques beyond the scope of their own research.

Attendees met in Tyndall from 9:30 to 16:30 on Friday the 27th of October. The program consisted of 3 presentation sessions, 2 coffee breaks and 1 lunch break. Each break was spent networking between attendees. The presentation sessions consisted of 14 presentations by PhD students and a brief discussion about the activities of the ISE in Ireland given by the ISE regional representative. There was no formal poster session; however students were invited to bring posters which were hung on the wall of the meeting room to promote further discussion about their work.

After the conclusion of the meeting, attendees were invited to Reardans Bar where food was provided for everyone in attendance.

Full Event Report:

The event was open for registration from 9 in the morning. A welcome reception was held for the attendees with tea and coffee being provided for everyone.



Ian Seymour (Tyndall) giving the welcoming speech to the attendees and during the presentation of his research work

The first session started with a welcome message from Ian Seymour on behalf of the Electrochemical Materials and Energy Group. Ian was also the first presenter of the day and so he continued to present his work on *“Interdigitated Nanowire Electrode Arrays for Enhanced Electrochemical Sensing”*.

Following this Xinxin Xiao from the University of Limerick gave a presentation entitled “*Contact Lenses Supported Enzymatic Biofuel Cells*”. This work was carried out in the Bernal Institute under the supervision of Professor Edmond Magner and discussed some of the challenges of electrochemistry in biological media.



Xinxin Xiao introducing his topic

Next up was James Behan from Trinity College Dublin who discussed his work entitled *“Combined Optoelectronic and Electrochemical Characterisation of Nitrogenated Amorphous Carbon Electrodes”*. This presentation considered the electrochemical characterisation of materials used for biosensing and electrocatalysis.



James Behan discussing his work on future electrocatalysts

Robert Kennedy from Institute of Technology Tallaght presented next on a topic entitled “*Rapid electrochemical analysis of firearm residue for forensic applications*”. His work looked at the development of a portable sensor for the detection of gunshot residue.



Robert Kennedy discussing some of the difficulties in getting samples of gunshot residue

The final student presentation of the first session was given by Caoimhe Robinson of Tyndall National Institute. Her presentation entitled *“Implementation of Microneedle Devices as an Electrochemical Sensing Platform”* was a general review of the applications of said devices with a brief discussion on future applications being developed currently in Tyndall.



Caoimhe Robinson highlights the current uses for microneedle devices

To wrap up the first session Dr. James Rohan, the regional representative for the ISE gave a brief talk on the activities of the society. This talk highlighted upcoming events along with the benefits of being involved with the society.



Dr. James Rohan highlighting the activities of the ISE in Ireland and the attendees enjoying the lunch provided and networking

Lunch was then served in the adjacent room. During this time the attendees engaged in conversation with each other and also got to meet some academics from Tyndall. This led to interesting discussions regarding new techniques being used in the field along with the advantages associated with having access to different fabrication facilities. Attendees exchanged email addresses for further discussions in the future.

The second presentation session began with Sam Kingston from the University of Limerick who presented on his work entitled “*Synthesis and Characterisation of Magnetic Nanotube Arrays via Electroless Deposition*”. He discussed a lot of the advantages associated with electroless plating methods which provoked interesting discussions at the next coffee break.



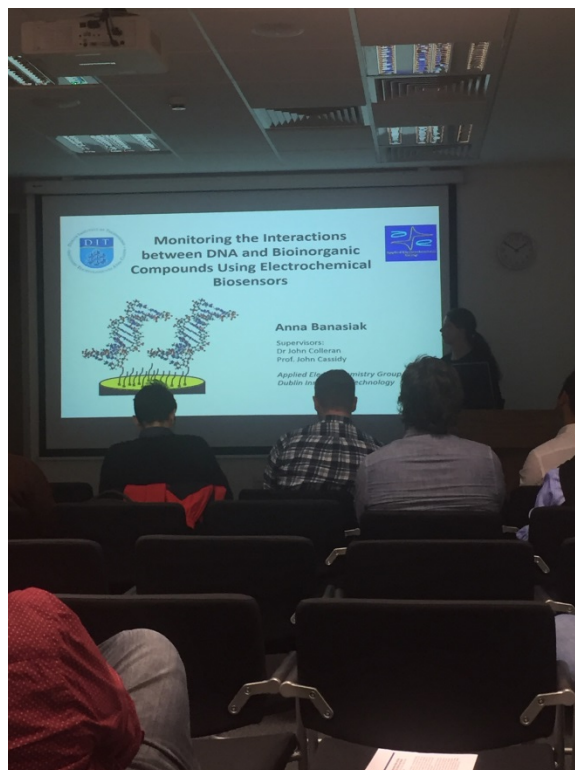
Sam Kingston highlighting some of the benefits associated with electroless deposition

Next up was Maria Al Hajji again from the University of Limerick who gave a presentation entitled “*The Effect of Carbon Electrode Surface History on The Vanadium Flow Batteries*”. This talk dealt with the enhancement of Vanadium Flow batteries by differing methods of pre-treatment.



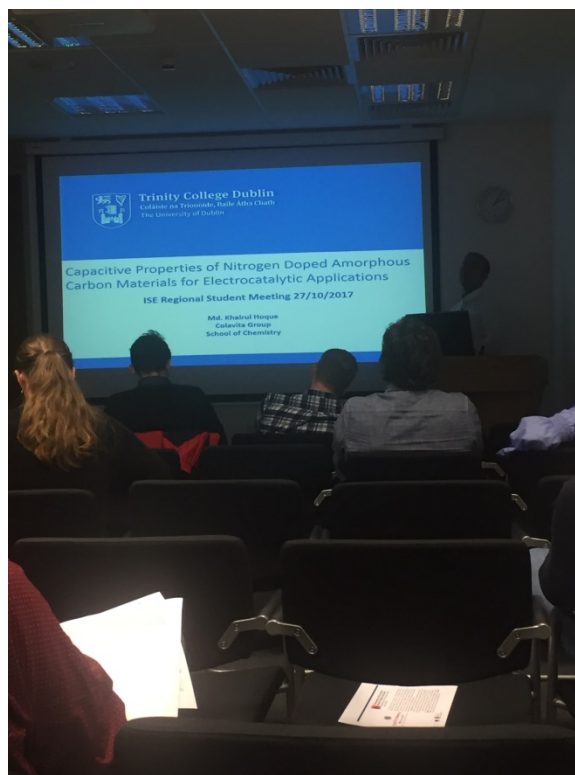
Maria Al Hajji highlighting the importance of pre-treatment for Vanadium Flow Batteries

Anna Banasiak from Dublin Institute of Technology followed this talk with her presentation regarding *“Monitoring the Interactions between DNA and Bioinorganic Compounds Using Electrochemical Biosensors”*. This talk was particularly interesting as it discussed the interactions of DNA with potential cancer treatment drugs.



Anna Banasiak explaining the application of bioinorganic compounds as cancer fighting drugs

Following this Md. Khairul Hoque from Trinity College in Dublin gave a presentation of his work entitled *“Capacitive Properties of Nitrogen Doped Amorphous Carbon Materials for Electrocatalytic Applications”*. This was related to a talk given earlier in the day by James Behan and discussed other properties of the materials this group were using as potential electrocatalysts.



Md. Khairul Hoque discussing further characterisation techniques for future electrocatalysts

To finish up the second presentation session Adam Myles, again from Trinity gave a presentation on *“Carbohydrate coatings for biofouling mitigation: Lactose coatings for improved implantable electrochemical sensors”* which discussed coatings that can be applied to electrodes to sterically block biofouling by preventing access of large biomolecules to the electrode surface.



Adam Myles giving the final presentation of the second session on his work

At this point a short break for further networking was given with tea, coffee and biscuits provided for all the attendees. This led to a discussion regarding planning subsequent national student meetings with the University of Limerick suggested as the venue for the first of those.

The third and final presentation session started with Andrés Molina Osorio from the University of Limerick who gave a talk on *“Photoelectrochemical Analysis of Photo-induced Electron Transfer at the Interface between Two Immiscible Liquids”*. His work involves using a complex experimental set-up to illustrate how solar energy can be trapped by a photoactive film placed in the boundary between two immiscible liquids. This particular talk led to quite a few questions as many of the student attendees weren’t familiar with this particular set-up and were very interested by it.



The final presentation session being opened by Andrés Molina Osorio

The next presentation was given by Camilo Menezes from the Institute of Technology Tallaght. His talk, entitled *“Electronic Biosensors for Reliable Detection of Molecular Biomarkers of Pregnancy in Dairy Cattle”* discussed the necessity of early detection of pregnancy in dairy cattle. His work, currently in early research stage is on identifying which biomarkers can be potentially used to give the earliest indication of successful insemination of cattle.



Camilo Menezes discussing the need for early indication of pregnancy in cattle

The final presentation of the day was given by Louise McGrath from Tyndall National Institute. She is another member of the Electrochemical Materials and Energy Group and gave a presentation on the work she does entitled "*Ionic Liquid Based Electrolytes for Next Generation Li-ion Batteries*". Her presentation gave an overview of some of the existing battery technologies and highlighted her work in identifying new electrolytes that could be used in future battery technologies.



The final presentation of the day given by Louise McGrath from the Electrochemical Materials and Energy Group

The meeting was closed by Ian Seymour who thanked everyone for their attendance, presentation and discussion of their work. Those who contributed time in setting up the event and ensured the day ran smoothly were thanked for their effort. After this all the attendees were invited to Reardans Bar for an informal networking reception. Food and drinks were served and all the attendees spent their time chatting and getting to know each other. As the event coincided with the start of Cork's Jazz Festival, many attendees made plans to go and enjoy the music around the city.



Ian Seymour closing the meeting and inviting the attendees to Reardans for an informal reception

Acknowledgements:

I would firstly like to thank the ISE for providing the funds necessary to get this meeting up and running. I am extremely grateful also to Dr. James Rohan who gave his full support to this event and highlighted all the necessary requirements needed to get the organisation of the event started. Special thanks to the members of the Electrochemical Materials and Energy Group and the Nanotechnology Group that gave their assistance prior to and during the day of the event, without whom there would have been no flyers or posters and certainly no photographic evidence of the event. I would also like to thank the various members of the administrative, security and safety staff at Tyndall who provided me with the information required to advertise such a meeting and assisted me in getting the meeting room ready on the day. Finally a big thank you to the catering staff at Tyndall who provided lunch, tea, coffee and biscuits for us throughout the day.



Student attendees for the ISE Regional Meeting