

In This Issue:

- Introduction of the new ICorr President to Aberdeen Branch
- Plans for the Institute of Corrosion over the next 2 years
- Acoustic Emission to detect both cracking and corrosion activity
- The practical application of AE within the energy sector was further explored
- Further possibilities, such as using ground penetrating radar GPR

Winter Meetings:

February 28th 2017

Palm Court Hotel
18.00 for 18.30 start
Monitoring high temperature corrosion attack; correlation between Crude corrosiveness and result from online corrosion monitoring
Ruth Wardman

March 28th 2017

Industrial visit: Cosasco (BOD)
Bridge of Don, Aberdeen
Details to be advised.
Latest advances in real-time monitoring and Safe Retrieval.

April 28th 2017

Palm Court Hotel
18.00 for 18.30 start
Cathodic Protection using simulation technique to help assess CP current of buried Subsea Pipeline Anodes from field gradient measurements

May 30th 2017

Palm Court Hotel
18.00 for 18.30 start
Inspection – A review of state of the art measurement for corrosion under insulation risk.

The January branch meeting was held at the Aberdeen Palm Court Hotel on Tuesday the 31st January 2017, with 49 attendees from local Aberdeen based companies.

After a formal safety announcement, the branch Chair Stephen Tate introduced the first guest speaker of the evening, Sarah Vasey, the new ICorr President for 2017 and 2018.

Sarah enthusiastically took us through the Institute's plans for improvement of the bi-monthly journal – Corrosion Management (CM) which is being re-launched with a new format with greater technical content and extended papers, together with improvements to the ICorr website. Sarah made clear that training would become a key focus for the Institute, with improved professional development for members towards Chartered Engineer status. At the end of the evening, Sarah met with all the members of the Aberdeen Committee, many of whom have more than 5 years' service with the branch.



The technical presentation followed with Dr Nadimul Faisal and Dr Ghazi Droubi, both lecturers from the School of Engineering at Robert Gordon University (RGU) in Aberdeen who outlined the main goals of their current research programme, into the potential for Acoustic Emission (AE) to detect both cracking and corrosion activity.

Acoustic Emission (AE) is a non-destructive technique (NDT) sensor based technique which measures the detection and the conversion of high frequency (between 100 kHz to 1 MHz) elastic waves generated by the rapid release of energy to electrical signals.

AE is released when a crack propagates in the specimens during corrosion. AE equipment is particularly sensitive to material changes / events and RGU are currently seeking industrial partners to deploy their findings in further AE test programmes. They proceeded to demonstrate their recent findings from an extensive range of RGU experiments. Sample's tested included Aluminium and Steel thin plates (rectangular shape) in different corrosive environments.

It is important to note that the AE from corrosion usually releases much less energy than emission from crack growth, and so is more difficult to detect in the field environment however the results do present a trend (as an exponential curve) between the concentration of the corrosive environment and the energy of the acoustic emission signal. Since AE only occurs when corrosion scales fracture,

corrosion needs to be active, and however the presence of inactive corrosion may be found by causing the scale to fracture by changing the strain sufficiently in the base material.



An extensive range of questions followed from the large audience during which, the practical application of AE within the energy sector was further explored.

Generally, the role of AE was perceived as being in support of other NDT technologies and for specialised applications such as inspection of tank floors and occasionally appropriate for more critical components of high value, or high production impact.

Recent advances in wireless technologies have been opened up further possibilities, such as using ground penetrating radar, GPR based monitoring of subsurface structural corrosion, a method which can be useful for monitoring corrosion in extreme environmental conditions. RGU intend to develop further their ongoing research programme and to incorporate all their findings later into a technical paper for the CM Journal.

The chair thanked RGU staff for their excellently prepared presentation and for providing the audience with an interesting and thought provoking evening.

For information about the Aberdeen branch activities please contact our branch secretary, Frances Chalmers, ICorrABZ@gmail.com.

Alternatively, a calendar of local events of interest to corrosion professionals in the Aberdeen area and the opportunity to sign up to the branch mailing list is available at <https://sites.google.com/site/icorrabz/home>

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