

# **ISA Ireland Section**

## **2010 Honours and Awards**



*University College Cork*  
*Monday 13 December 2010*

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*Setting the Standard for Automation™*

## ISA Ireland President Mr. David O'Brien

I would like to welcome you all here this evening, to our 29<sup>th</sup> Annual Honours and Awards Ceremony. We hold this annual ceremony to acknowledge and encourage excellence for those training for careers in Instrumentation, Systems and Automation.

This year we have five awards, four of which have been submitted by Third Level institutions and one from the membership of our section. I would like to welcome the recipients and their families.



We are delighted each sponsor is represented here this evening, this clearly shows the industry's awareness and support for promoting and awarding excellence. I would like to thank UCC for allowing the use of this very elegant and historic Common Room. I hope you all have a very relaxed and enjoyable evening as we celebrate excellence in our industry.

### About ISA Worldwide

ISA – The Instrumentation, Systems, and Automation Society has nearly 30,000 members in 95 countries. The ISA is a global, non-profit, educational organisation connecting people and ideas in automation and control. The Society fosters advancement in the theory, design, manufacture and use of sensors, instruments, computers and systems for automation and control in a wide variety of applications. ISA is a leading technical training organisation and a respected publisher of books and standards.

ISA also serves the professional development and certification needs of industry professionals and practitioners with its Certified Automation Professional (CAP), Certified Control Systems Technician® (CCST®), Certified Industrial Maintenance Mechanics (CIMM) programs and the Control Systems Engineers (CSE) license.

### ISA Ireland Section

The Ireland Section, which is voluntary, with a membership of over 330, received its charter in 1978. Its purpose is to bring together all personnel involved in instrumentation and related disciplines in order to enhance their capabilities in instrumentation design, manufacture and use. The Ireland section has successfully set up and supports two Student Sections, one in Cork Institute of Technology and another in FAS, Bishopstown.

The sections calendar of events, for the coming year will see:

- Five Technical Talks.
- Two Plant Tours.
- Annual Honours & Awards ceremony.
- Annual Golf Outing



## Craftsman Award

### Criteria:

To be awarded, on the nomination of FAS training Centers and/ or Carlow Institute of Technology, to the best final year Instrumentation Apprentice for notable academic and practical achievements in Instrumentation.

**Recipient:** Mr. Eoghan Geary  
Ballyduff, Co. Waterford.

**Nominated by:** Mr. Jim Doyle, Lecturer,  
Institute of Technology Carlow.

Eoghan served his apprenticeship as an Instrumentation/ Electrical craftsperson with Dornan Engineering, Little Island, Co. Cork. From August 2007 to-date he has completed phase 2/4/6 in Cork FAS and Carlow IT. From day one his attitude and commitment was exceptional.

The E/I phase 6 class (March – June 2010) were an exceptionally good group of apprentices. However Eoghan stood out from the rest both for his very good class work, attention to detail and leadership qualities in the class. His individual results in each topic were the highest in a very competitive group and for this I would have no hesitation in nominating him for the award.

His lowest mark in the six examinations in phase 4 was 96% with the class average between 82 % and 85%. In phase 6 his lowest marks was 97% with the class average being between 80% and 82%. I am delighted to nominate Eoghan for the 2010 ISA Craftsman Award in recognition of his accomplishments.



## Degree Award

### Criteria:

To be awarded, on any nomination, to the best final year degree student specialising in any area of Instrumentation and Control.

**Recipient:** Mr. Gary O'Halloran,  
Mallow, Co. Cork.

**Nominated by:** Dr. Liam McDonnell,  
Head, Department of Applied Physics &  
Instrumentation, Cork Institute of Technology

Gary O'Halloran commenced third-level education studies as a part time evening student at Cork institute of Technology and successfully completed the higher certificate in Science in Industrial Measurement and Control in June 2008 whilst working for a local pharmaceutical manufacturer.



On that course Gary was a grade A student obtaining the maximum GPA of 4.0 and a classification of Pass with Distinction. Gary then continued his studies as a part-time evening student on the BA in Applied Physics and Instrumentation in June 2009 with a classification of Pass with Distinction. Gary's overall mark was 89.4% and he was the top student in his class. Gary's academic ability is demonstrated by his result which shows marks in the range 76-98% with eight marks in the range 90-98% in process automation and SCADA.

As Gary had considerable industrial experience already, he carried out an in-house project instead of the industrial placement. The aim of this project was to utilise the Tecquipment CE2000 software to develop programs that could be used to elucidate the concept of PID control for second and third year students. I was present at Gary's presentation of his work and I was particularly impressed at the thoroughness of his work, the quality of his report and the excellent communication skills that he demonstrated.

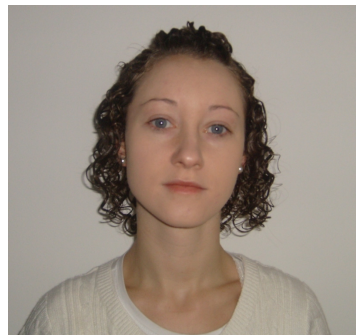
Gary is a diligent, responsible and ambitious student who is now studying on the BSc Honours in Applied Physics and Instrumentation course at Cork Institute of technology. I have no doubt that he will be as successful in that course as he was on his BSc in Applied Physics and Instrumentation course. Gary is nominated for the ISA Degree Award for his tremendous academic achievement at degree level and the wonderful example that he has set for other students, whether part-time or full-time.

## Honour's Degree Award

### Criteria:

To be awarded, on any nomination of any third-level institution, to the best fourth-year honour's degree student studying instrumentation/applied physics in Ireland. The award comprises a medallion and the Ger Dullea bursary of €750 which is to be used to assist in postgraduate studies.

**Recipient:** Ms. Nichola Walsh  
Christchurch, Dublin 8.



**Nominated by:** Dr. Enda McGlynn.  
Department of Science, Dublin City University

It is the wish of the staff of the School of Physical Sciences in DCU to nominate Ms. Nichola Walsh (who recently graduated from the B.Sc. (Hons.) in Applied Physics degree system Program) primarily for her outstanding fourth year project entitled "Psychoacoustic Delay Generator", which we feel is an excellent example of the application of physics to an important problem in a domain not normally regarded as "core physics" demonstrating the breadth of skills and potential contribution of applied physics graduates.

Nichola had to utilize her core physics knowledge and abilities while learning how to deal

with the necessities of a new application area (including challenges such as ethical approval issues for tests on human volunteers) and she dealt with all these issues with great professionalism. Furthermore, the project developed instrumentation for the quantification and analysis of a challenging issue in the domain of psychoacoustics which puts it squarely in the domain of the ISA in our opinion.

For both these reasons we feel that Ms. Walsh should be considered for the Honours Degree award of the ISA – Ireland Section. We also note that Nichola's project has been awarded the Fryar medal from DCU for the outstanding final year project across all physics degree programs.

One method which may be used to test for fraudulent claims of this nature is by means of a psychoacoustic delay. The aim of the project was to construct a device to delay speech which could be used to locate the time delay corresponding to the maximum interference of fluent speech. A program was created using LabView to implement the audio delay and a speech analysis software package used for subsequent recording and analysing of the recorded data. A full technical project report (74 pages) was submitted at the end of semester 2, in addition to a presentation and a literature survey. Both of these were submitted for this award.

In addition to Nichola's fourth year project, we also summaries the relevant aspects of her overall academic performance, this included results between 72% and 80% in six subjects in her fourth year. This Resulted in a final degree classification 1<sup>st</sup> class Honours (H1).

## Post Graduate Award

### Criteria:

To be awarded, on any nomination of any third-level institution, to the best Post Graduate student awarded Phd/Bsc in Instrumentation / Applied Physics in Ireland.

**Recipient:** Mr. Ciaran Peyton  
.Swinford, Co. Mayo.



**Nominated by:** Professor Loraine Hanlon.  
School of Physics University College Dublin

The contributions for which the above named nominee should be recognised are: *Thesis on:* Portable Spectrometer System for Characterising the Optical Properties of Water. Thorough analysis of the technical requirements at the component level to construct a cost effective spectral reflectometer system, for non-contact water optical property determination. Complete re-analysis of optical technology options back to first principles ending with a fraction of the cost of previous prototypes.

Development of ultra-sensitive signal integration processes using multiple frame analogue video capture. Thorough re-evaluation of the underlying radiative transfer processes which describe the science behind the detection of optically distinctive constituents in water bodies; leading to an integrated system capable of non-contact and fouling free estimation of water

constituent concentrations. Instrument concept 'know-how' now incorporated into a license agreement between UCD and Spectral Signatures Ltd. 3 papers under preparation for publication on theoretical and validation aspects of the study.

This thesis details the development of an in-situ active portable spectrometry system capable of sampling across the whole visible spectrum at spectral resolutions down to a few nm for remote sensing of the optical properties of water. This submersible system also provides the capability of monitoring the optical properties within the water column by giving a profiling capability. A computationally light weight Radiative Transfer Model (RTM) has been developed for water application. This model is shown to provide estimates of basic ecosystem parameters in waters of varying depth with a lambertian reflecting bottom. The RTM model has been adapted to the spectral resolution of the instrument and comparisons between model and instrument system measurements for a number of constituent scenarios are described.

By minimising the difference between model predictions and corresponding measurements, constituent concentrations have been estimated and compared with independent concentration measurements. Producing correlation coefficients better than 0.96 in all cases. This simple RTM, incorporated into minimisation based inversion method, can be applied to real measurements to estimate constituent levels in waters of varying depths and has applications in remote sensing and profiling of open ocean and coastal waters.

## Instrument Pioneer Award

### Criteria:

To be awarded, on the nomination of two or more Society Members, in recognition of a lifetime devoted to Instrumentation and Control in Ireland

**Recipient:** Mr. Peter MacDonald,  
Kinsale Co.Cork.

**Nominated by:** Mr. John Sweeney

**Nominated by:** Mr. David O'Brien



With Eli Lilly in the early 1980's Peter supported the introduction of computer automation to the Kinsale site. In its time this was a major advance in manufacturing thinking. Kinsale was one of the first Lilly bulk manufacturing plants to be automated. Continuous control and sequential operations were for the first time built and coded into a computer processor unit and through human machine interfaces were manipulated by operations personnel.

The plant witnessed in turn the power of faultless repetition of processing tasks which was to become the foundation of manufacturing excellence. Peter was to the fore in introducing, troubleshooting, integration and management of this early automation system.

In the mid 1980's the automation system was upgraded to DCS. Peter was the driving force behind this change which led to an explosion of use in control systems across the site. Peter continued to be the key resource to introduce and shakedown this new technology and through his exploitation of fiber optic technology to knit these systems together into a process

automation network for the site. Peter supported the drive and desire to automate processes which in turn improved productivity and raised throughput.

In the early 1980's Peter developed and introduced an on-line Ozone detection system for use in a production process. This was a first for Lilly and ultimately enabled a continuous process to be set up which would have been unthinkable without this technology. This was replicated at other plant sites. It was in effect one of the first processes to have an online process analytical technology (PAT) solution.

The site in the early 1990's became increasingly interested in lowering the quantity of volatile organic material released from site manufacturing operations and embarked on a project to install one of the first regenerative thermal oxidizers for this purpose. Critical measurement of % volatile organics for the safe operation of this system was designed and installed by Peter utilising an online / real-time infrared detection system which is still the basis of operation and safety to this day.

This combined with a safety instrumented explosion suppression system and a calorimetric gas analyzer has also been in operation with this duct and thermal oxidizer unit since start-up. Peter has expanded this fume capture system to cater for the addition of new manufacturing facilities and the basic design concept has been robust and enduring over its service life and has been able to cater for these changes.

Peter was requested to install online incinerator stack gas analyzers to measure residual carbon monoxide, chloride and hydrocarbon content of stack gases. Peter sourced, installed and commissioned this new array of process analytical technologies to assist site operations to be ready for the emerging European legislation which would govern the operation of incineration plant. Peter has maintained and upgraded this equipment over the years and has formed a contract with the German National Air Monitoring board for periodic calibration and certification of this vital compliance equipment.

Peter has combined this measuring capability with a recognized data analysis capability (plc based) to continuously analyze and predict on a real time basis incinerator performance and ensure that hourly and daily expectations with respect to stack gas emissions are met. This combined system is programmed to interrupt incineration operations automatically and remove the permissive for a restart until a sufficient interval has elapsed to restore the site to a compliant footing for a given time interval.

Increasing expectations around continuous monitoring of liquid effluent and gaseous emissions led Peter to introduce incinerator stack gas particle analysers and continuous hydrocarbon monitors for ground water flowing from the site. Peter was responsible for the design and introduction of the burner safety management systems for the incinerators both liquid, solid and fume that have been introduced to the site down through the years.

# **Honours & Awards 2010 Program of Events**

- 18:00** Arrival of the Lord Mayor Councillor Michael O'Connell.  
**18:10** Chairman of the Honours & Awards Committee, Mr. Brian Curtis, will begin proceedings.  
**18:15** Formal opening by Lord Mayor Councillor Michael O'Connell  
**18:20** Response by the President of ISA Ireland Section Mr. David O'Brien
- 18:25** Presentation of Awards
- |                            |                      |                     |
|----------------------------|----------------------|---------------------|
| ❖ Craftsman Award          | Mr. Eoghan Geary,    | IT Carlow           |
| ❖ Degree Award             | Mr. Gary O'Halloran, | Cork IT             |
| ❖ Honours Degree Award     | Ms. Nichola Walsh,   | DCU                 |
| ❖ Post Graduate Award      | Mr. Ciaran Peyton,   | UCD                 |
| ❖ Instrument Pioneer Award | Mr. Peter MacDonald, | Eli Lilly (Retired) |
- 18:55** Response from the Winner of Pioneer Award, Mr. Peter MacDonald.  
**19:00** Photographs of Award winners with the Lord Mayor.  
**19:15** Photographs of Sponsors with the Lord Mayor.  
**19:30** Reception.  
**20:30** Close of Honours and Awards Reception.

The Ireland section of ISA has conducted an annual Honours & Awards programme since 1980. This programme is intended to acknowledge and encourage excellence amongst those involved in, and those training for, careers in Automation, Instrumentation and related areas of technology.

Without the continued support of our sponsors this annual event could not take place.

**DPS Engineering      Janssen Pharmaceuticals      O'Sheas Electrical**  
**RPS Group              Schering Plough (Brinny)      Valve Services**

And the Education Centres, a sincere appreciation of the lecturers and students for submitting nominations:

**Cork Institute of Technology**  
**Dublin City University**  
**Galway Mayo Institute of Technology**  
**Trinity College Dublin**  
**University College Galway**

**Institute of Technology Carlow,**  
**Institute of Technology Talaght**  
**Institute of Technology Tralee**  
**University College Dublin**  
**Waterford Institute of Technology**



*Seasons Greetings to One and All*

