



Collective **inspiration**

Lancashire and Cumbria Network

Newsletter Vol. 7 No. 2
January 2011



www.theiet.org/lancscumbria

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Cover picture

Astute Class Submarine.
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I N T R O D U C T I O N

“ Welcome to the second part of this session. I apologise that the newsletter has missed the first date of the session but some of the information on events was delayed. I hope that you find that we have an interesting programme of events covering a wide area of our Network. The initial events in the Western Cumbria area have been well attended and we look forward to running events in that area in the future.

Please look at the website as there may be additional events that are notified by e-mail and on the website. I hope that you have found the previous newsletters to your satisfaction and that we keep you informed about the Local Network. If you have any comments please do not hesitate to contact me at mbell@theiet.org or on 07870 666917.

”

The Editor

Next Issue

The next issue of the IET Lancashire and Cumbria Network newsletter will come out in September 2011.

Please send copy to the editor at mbell@theiet.org by 1 August 2011.

“ May I start by wishing you all a happy and prosperous new year. Our last session produced a batch of good and well attended events with our members in Cumbria organising a number of meetings in that area.

Despite the snow and ice, we had a ‘full house’ at our lunchtime meeting at Grange over Sands last November. It is encouraging that our retired members committee continue to provide interesting topics, combined with good venues. These meetings go a long way in promoting the IET name to the general public.

The second half of our season starts with a joint meeting with I Mech Eng meeting at the Swallow Hotel and it is my aim to continue to involve other organisations in our network events.

I am sure the variety of events and venues we organise, contribute to our success in keeping us near the top of the attendance figures for the IET Networks.

Please continue with your support and as I have said many times, please let your committee know if there is anything special you would like us to put on for you and we will do our best to oblige.

I look forward to seeing you at our events.

”
Jim Hindle - Chairman

Registration for Events

The Network used the Plus! For Events online registration system to collect pre-registration details for some of the events that were held in the last session. This enables members and non-members to register for events. The network has used it previously for visit registration and it has worked well. There is no need to register for the event but it will help in organizing the event if you do. You can still attend the event without registering. For events which have a meal after the event then it is important to ensure that the booking form is returned to the organizer.

This system has been introduced to help Networks extend their reach and increase their audiences. The online registration system also makes life easier for the Network by:

- Collecting metrics information automatically
- Producing sign-in sheets quickly and easily
- Gathering feedback from attendees after an event

As a result of networks using the online registration system the Network will be able to send emails to non-members as well as members to alert them to Local Network events that are happening in their area. When a non-member registers their interest in attending a Local Network event using the online registration system we get their agreement and their details are stored. Staff are then able to add them to the circulation list for every promotional email that goes out on behalf of the Network in the future.

Become more involved with the local IET Community by joining us

Would you like to meet up with fellow-engineers from other organisations?

Do you want to expand your own skills while contributing something to your profession?

Are you interested in attracting the next generation of engineers?

What ideas do you have for your local IET community?

However you want to become involved, e-mail me, Mike Bell mbell@theiet.org to express an interest. You do not need lots of spare time – many of our committee are busy people. The area of involvement and the amount of time you spend is up to you though we will have specific needs in the following areas over the coming year:

- Liaison with University students and staff,
- Joining and being involved with the local committee,
- Publicising events to local IET members and the wider community,
- Arranging visits or events,
- Liaison with other professional institutions,
- Recruitment of new members to the IET

Helping in these areas would be an excellent way of extending your network of contacts within the professional engineering arena, or simply expanding your personal horizons. Not all of them would need you to attend committee meetings and we meet around every eight weeks except in the summer. Take on a much responsibility as you wish; it is your choice.

IET members, men and women, of all ages and grades are welcome. We always encourage 'new blood' to refresh our Network and the widest possible range of people will help us to maximise our relevance in Lancashire & Cumbria.

Email me now at [mbell@theiet](mailto:mbell@theiet.org) without any obligation telling me where your interest lies. If you wish, send me your telephone number and preferred time if you want to discuss matters on the phone. Alternatively, we could meet at one of our events.

Thanks, and I hope you'll consider joining us as active volunteers. You will be surprised how the amount of effort you put into helping the IET is returned magnified in a variety of other life enhancing ways."

If you wish to get involved please contact the Network Secretary, Mike Bell, mbell@theiet.org, tel 07870 666917

Become a Mentor with the IET Mentoring Service

Demand for mentors is growing fast. The IET need new mentors throughout the UK to meet current demand and will need more in 2011.

Could you spare one or two hours a month? Would you like to share your knowledge and experience to the benefit of others? If yes, read on!

If you or anyone you know might be interested in this exciting opportunity to encourage, support and guide other engineers at key stages within their careers we would be pleased to hear from you.

Most members applying for a mentor through the Mentoring Service are hoping to achieve Professional Registration (CEng, IEng or EngTech). If you are CEng, IEng or EngTech-registered and would like to support other members towards achieving Professional Registration, contact us today. Full training and support will be provided.

Web: www.theiet.org/mentoring

Email: mentoring@theiet.org

Tel: 01438 767647



IET Connect- the IET Benevolent Fund

Life can change suddenly for anyone. In some cases an injury, illness or accident may cause unexpected financial difficulties; in others, advice and information may be all that's needed.

IET Connect has a range of services for IET members and their dependants. We can refer you to a free legal helpline for personal and employment matters. For members who have been unemployed for more than 4 months, and with less than £16,000 in savings, we offer an Outplacement Scheme giving one to one support to help you get back into work.

If you are struggling to meet an unexpected cost, or going through a difficult patch financially, we may also be able to give short term financial assistance. For help managing debts, we can refer you to independent money advice to help to get back in control.

We also offer specialist advice on State benefits and funding and can put you in touch with other organizations for help with a particular situation.

IET Connect can also assist with a wide range of care needs through its Speirs Fund which offers funding towards respite breaks, independence and help at home, right through to care home fee top up.

If you are facing a difficulty, financially or otherwise, then the earlier you contact us the better.

For more information on services and funding please contact the IET Connect helpline on 0845 685 0685 or email ietconnect@theiet.org.

IET Connect's work is entirely funded by donations and legacies from IET members. Please visit www.ietconnect.org for more information on how we can help or go to www.justgiving.com/ietconnect if you would like to make a donation online.

Forthcoming Events

For latest news on local network activities go to www.theiet.org/lancscumbria. It is hoped to run some additional visits and lectures during the year. These will be shown on the website and there will be notification by e-mail. Details of other Institutions events will also be shown on the website.

Why do we need a Smart Grid? (or “don’t you tell me my Grid is dumb!”)

Date: Wednesday 12th January 2011
Time: 6.00pm for 6.30pm
Speaker: David Healey, Smart Grid Solutions
Venue: Swallow Hotel, Preston New Rd, Samlesbury, Preston, PR5 0UL
Contact: Jim Hindle
01282 771355
jim.hindle@btinternet.com

What is the reality behind the term “Smart Grid”?

An analysis of how Smart we actually need to get

The early Smart initiatives

- Initial developments within UK
- Ofgem's Low Carbon Network Fund projects
- International experiences / case studies

Immediate impacts and issues for today's Electricity / Energy industries

- Reassessment of the UK Regulatory model
- The need to invest in Engineering skills
- Local demand and energy balancing

For over 20 years, David has been involved in creating new business opportunities within the power utility and telecommunications sectors. In particular, he has specialised in technology and early stage business development with private and public bodies from around the world.

During this time David has been involved in the full range of the engineering product value chain, from software and silicon systems design, hardware product development/production to network operation and service delivery.

In 1989 David led the first diversification into telecommunications by a UK power utility at NORWEB. David was then seconded to National Grid where he reported directly to the Chairman, David Jefferies. David was tasked with creating a business unit which was launched as Energis in 1992 and sold by NGC in 1998 for over £1 billion.

In 1994, David led the team at NORWEB, which founded and patented the world's first Powerline or Broadband Power Line (BPL) technology. David subsequently created and chaired the Powerline Forum trade association and went on to play a founding role in development of the BPL industry worldwide.

Appointed in 1999 as Special Advisor on Telecommunications to the European Commission, David was in turn appointed inaugural Chairman of the European Telecommunications Standards Institute (ETSI) BPL Committee. David is acknowledged as an authority within the Powerline industry around the world.

David subsequently founded Smart Grid Solutions (SGS) which includes experienced industry experts from the fields of telecoms, power distribution and software application development. SGS has been retained by technology vendors, power utilities and government agencies to advise on new development and investment in power distribution and renewable energy.

David was recently appointed Smart Grid Practice Lead at SAIC, a fortune 500 Technology and Engineering Group.

Reactor Fuel and Core Design

Date: Wednesday 12th January 2011
Time: 7.00pm for 7.30pm
Speaker: Tim Abrams
Venue: Forum 28, Duke Street, Barrow, LA14 1HH
Organised by: Joint with PESC
Contact: Ralph Hobson
01229 583762
ralph@thehobsons.co.uk

Fuel is the one major component of a nuclear power plant that is intended to be regularly replaced, and consequently the fuel design often evolves significantly over the lifetime of the plant. This talk will explore some of the major design considerations relevant to nuclear fuel elements and to the performance of the reactor core.

New Variational Models for Selective Image Segmentation

Date: Wednesday 26th January 2011
Time: 5.00pm for 5.15pm
Speaker: Professor Ke Chen, Centre for Mathematical Imaging Techniques and Department of Mathematical Sciences, University of Liverpool. Joint with UCLan
Venue: Room MB38, Maudland Building, University of Central Lancashire
Contact: Simon Platt
01772 893341
spplatt@uclan.ac.uk

Edge detection algorithms were the traditional methods for finding feature edges in an image but noise can seriously reduce the effectiveness of such models. More recently, variational segmentation models provide more effective and reliable tools for image processing applications. The Chan-Vese (2001) model in two dimensions is effective and widely used.

In this talk, I shall first present some new multigrid algorithms for this model in the three dimensional setting. Then I show some recent works of selective segmentation where pre-defined geometric constraints guide the segmentation models. Such problems are more common in medical imaging than the usual segmentation. Numerical experiments will demonstrate the advantages of the new models over existing results. Collaborators related to this work include Noor Badshah (Peshawar, Pakistan), Jian-ping Zhang and Bo Yu (Dalian, China) and Lavdie Rada (Liverpool).

Gravity

Date: Wednesday 9th February 2011
Time: 6.00pm for 6.30pm
Speaker: Professor Robin Tucker,
Lancaster University,
Joint with IOP
Venue: Room MB49, Maudland
Building, University of Central
Lancashire
Contact: Richard Harrison
01524 733898
rharriso@btinternet.com

There is one force that has been studied the longest but is still causing fundamental problems to physicists and cosmologists. Newton and Einstein contributed major theories but gravity is still a hot research topic. Come and hear more.

CAR PARKING AT THE UNIVERSITY OF CENTRAL LANCASHIRE

The Lancashire and Cumbria Network organises events at venues which offer free car parking. At UCLan, members and guests attending IET events may park free of charge on university car parks on display of a special flyer on the car dashboard. Flyers are available at all events or by email in advance on request. For more details please contact Simon Platt, spplatt@uclan.ac.uk.

The Super Fast Broadband – how Engineers will give us Internet Unlimited

Date: Thursday 24th February 2011
Time: 10.30am for 11.00am
Speaker: Professor Nigel Linge of Salford University
Venue: Farington Lodge, Stanifield Lane, Farington, Preston, PR25 4QR
Organised by: Retired Members
Contact: Brian Flynn
53 Wilderswood Close,
Whittle-le-Woods, Chorley,
Lancs PR6 7SH
01772 330278

Prof. Nigel Linge held our attention when he visited us to talk about the first Transatlantic telephone cable. We are very pleased that he is joining us again to tell us about the development of the telephone network from the simple telephone of 100 years ago to the dramatic changes, over those same wires, giving us access to a multimedia driven digital world. We can now send and receive email, upload pictures, watch television, find information on virtually any subject, etc – and order our shopping! The talk will explore how this transformation has been made possible by Engineers as we trace the journey to tomorrow's *Super Fast Broadband* - based on fibre optics.

Farington Lodge Hotel is a new venue for us. This listed characterful Georgian house is set in 3 acres of grounds, close to the intersection of the M6, M61 and M65.

A cup of tea/coffee will be available on arrival from 10.30 am and the talk will commence at 11.00 am. This will be followed by a 2-course lunch and coffee. Please advise of any special dietary needs. All members, their partners and guests, are very welcome.

Please send all applications on the enclosed flyer before February 19th to Brian Flynn, 53 Wilderswood Close, Whittle-le-Woods, Chorley, Lancs PR6 7SH.

Sludge Processing Extraction Head with Patented On-line Clean-in-Place Capability

Date: Thursday 24th February 2011
Time: 7.00pm for 7.30pm
Speaker: NUVIA
Venue: UCLan Westlakes Campus,
Samuel Lindow Building,
Westlakes Science and
Technology Park, Whitehaven,
CA24 3JY
Contact: Darren Johnston
07843271224
darrenjohnston555@
googlemail.com

There are a number of cooling ponds built for the UK's Magnox programme which now pose one of the most difficult clean-up challenges in the UK. These legacy ponds have accumulated significant inventories of waste materials, including sludges from the corrosion of fuel cladding, fuel fragments and other debris during operating life.

It is intended to remove the sludge from these ponds as an early stage in the clean-up process and process it into a safe, passive state for interim storage. The presence of large solid items within the sludge may present a difficulty in sludge processing giving the potential for blockages in piping systems, and it is normal practice to prevent larger items being extracted with the sludge using a coarse filter

These coarse filters can become blinded and the work which will be discussed at the lecture covers development trials undertaken with simulant sludges which demonstrate that, using a novel, patented, design of extraction head, simulant sludges can be successfully processed through a coarse filter which has the capability to be cleaned on-line and in-situ.

To register for this event please send an email to: Sellafield.IET@sellafieldsites.com

The
Samuel Lindow
Foundation 
University of Central Lancashire

 the Nuclear Institute
Cumbria Branch

Clean Coal

Date: Wednesday 9th March 2011
Time: 7.00pm for 7.30pm
Speaker: Dr G Morrison, Clean Coal Centre
Venue: Forum 28 ,Duke Street, Barrow, LA14 1HH
Organised by: Joint with PESC
Contact: Ralph Hobson
01229 583762
ralph@thehobsons.co.uk

Conventional pollutants from coal-fired power stations, such as oxides of nitrogen, NOx, oxides of sulphur, SOx, and dust or particulates, are now well controlled. However, to be regarded as 'clean' coal plants must reduce the amount of CO2 they produce. CO2 is a greenhouse gas implicated in climate change. Coal plants produce about twice as much CO2 as a gas plant for a given power output.

The proportion of electricity generated from coal-fired power stations in the UK has fallen from more than 70% in the 1980s to just over 30% today with much of the difference being taken up by gas plants. Nevertheless, the Coalition Government sees a place for 'clean coal' in the generating mix of the future and is supporting a £1 billion demonstration of carbon capture and storage at a UK coal-fired power station.

Globally, coal provides more than 40% of the world's electricity. Even as developed economies move ever more rapidly to renewable energies as a means of decarbonising their electricity supply, the role of coal in producing electricity will rise in the future because of the astonishing programme of building coal-fired power stations in countries such as China and India. China alone has been building around 100 GWe of capacity each year in recent years, more than the total installed generating capacity of the UK. Clean coal technologies need to be developed and deployed rapidly if the world is to meet commitments to reduce carbon emissions.

Tonic High Voltage and Fibre Optic Sub-Sea Connectors

Date: Thursday 10th March 2011
Time: 7.00pm for 7.30pm
Speaker: Mike Henry, Business Manager
Venue: Crooklands Hotel, Kendal
Organised by: Joint with K&DES
Contact: Richard Harrison
01524 733898
rharriso@btinternet.com

Tronic have been the world leaders in the design, manufacture and installation of subsea wet mateable electrical connector systems for the last 30 years. Our current range of subsea connector systems are designed and manufactured to withstand the harsh environmental conditions associated with deep-sea oil and gas production.

The presentation will provide an overview of how our design, qualification and production processes provide subsea electrical/optical connectivity that meets the very high reliability requirements demanded by the oil and gas industry.

Building The Big Ditch

Date: Thursday 17th March 2011
Time: 6.30pm for 7.00pm
Speaker: Glen Atkinson
Venue: Whitehall Country Hotel,
Darwen, BB3 2JU
Organised by: Joint with Blackburn Engineers
Contact: Jim Hindle
20 Cowley Crescent, Padiham,
Lancs. BB12 8SX
01282 771355

Glen Atkinson will present his lecture using Victorian 'magic lantern' slides, complete with lantern, on the construction of the Manchester Ship Canal.

We will see the equipment used in moving all the material, with all the working safety precautions used at that time. No doubt they will be different to our modern health and safety regulations!

Dinner is at 7.00 p.m. and will be followed by the talk; it is possible to attend the talk, which will start at approx 9.00pm without the meal if desired. Booking for the meal is essential. Detail of the cost of the meal is available from Jim Hindle. The cost of the meal is £20.00 each. Bookings to Jim Hindle, 20 Cowley Crescent, Padiham, Lancs. BB12 8SX, 01282 771355. using the flyer enclosed.

How to Insure Power Generation Plant in the World Market

Date: Tuesday 29th March 2011
Time: 6.00pm for 6.30pm
Speaker: Alan Fitzpatrick
Venue: Swallow Hotel,
Preston New Rd, Samlesbury,
Preston, PR5 0UL
Contact: Jim Hindle
01282 771355
jim.hindle@btinternet.com

This presentation will look at at the insurance of power generation plant from a Risk Engineers perspective using examples of renewable energy and the traditional coal / gas fired power stations, taking the opportunity to feedback industry topics and claims during the presentation.

Land Registry: What it does for us

Date: Thursday 7th April 2011
Time: 10.30am for 11.00am
Speaker: Vymer Speakman of The Land Registry
Venue: Mytton Fold, Whalley Road,
Lango , Blackburn, BB6 8AB
Contact: Doug Howe
50 Queensway, Penwortham,
Preston PR1 0DT
01772 743948

Whenever we purchase property in the United Kingdom we use the services of the Land Registry. This Government Department, self-financing and consumer focused, aims to provide ready access to guaranteed land information so that confident dealings in property can take place. Accuracy and prevention of fraud are just two of the many aspects that are important. As a result of the latest technology and the slow down in the property market, local offices such as that at Lytham are being closed and much change is taking place.

We will learn more about the services that the Land Registry provides and how it is expected to develop in the future.

Parking, and disabled facilities are available.

A cup of tea/coffee will be available on arrival from 10.30 am and the talk will commence at 11.00 am.

This will be followed by an optional 3-course lunch, costing £18.

All members, their partners and guests, are very welcome.

Please send all applications on the enclosed flyer before 4th April to Doug Howe, 50 Queensway, Penwortham, Preston PR1 0DT.



WEDNESDAY, 12 JANUARY 2011 - SWALLOW HOTEL, SAMLESBURY, 6.00 FOR 6.30 P.M.

**WHY DO WE NEED A SMART GRID?
(OR "DON'T YOU TELL ME MY GRID IS DUMB?")**

David Healey, Smart Grid Solutions
Talk at Swallow Hotel, Preston New Rd, Samlesbury, Preston, PR5 0UL
Contact Jim Hindle, 20 Cowley Crescent, Padham, Lancs.
BB12 8SX, **01282 771355**.

WEDNESDAY, 12 JANUARY 2011 - BARROW, 7.00 FOR 7.30 P.M.

REACTOR FUEL AND CORE DESIGN

Tim Abrams
Talk at Forum 28 ,Duke Street, Barrow, LA14 1HH
Contact Ralph Hobson: **01229 563762**, ralph@thehobsons.co.uk

WEDNESDAY, 26 JANUARY 2011 - UCLAN PRESTON 5.00 FOR 5.15PM.

APPLIED DIGITAL SIGNAL AND IMAGE PROCESSING.

Professor Ke Chen, University of Liverpool
Talk at UCLan Preston Room MB38 Maudland Building
Contact Simon Platt: **01772 893341**, spplatt@uclan.ac.uk

WEDNESDAY, 9 FEBRUARY 2011 - UCLAN PRESTON 6.00 FOR 6.30PM.

GRAVITY

Professor Robin Tucker, Lancaster University
Joint with the IOP
Talk at UCLan Preston, Room 49 Maudland Building
Contact Richard Harrison, **01524 733898**, rharrison@btinternet.com

THURSDAY 24 FEBRUARY 2011 - FARINGTON LODGE, PRESTON 10.30 FOR 11.00 A.M.

THE SUPER FAST BROADBAND – HOW ENGINEERS WILL GIVE US INTERNET UNLIMITED

Professor Nigel Linge
Talk and optional Lunch at the Farington Lodge, Stanifield Lane, Farington, Preston, PR25 4QR

Contact Brian Flynn, 53 Widerswood Close, Whittle-le-Woods, Chorley, Lancs PR6 7SH. Tel: **01772 330278**

THURSDAY 24 FEBRUARY 2011 - UCLAN WESTLAKES CAMPUS, WHITEHAVEN, 7.00 FOR 7.30 P.M.

SLUDGE PROCESSING EXTRACTION HEAD WITH PATENTED ON-LINE CLEAN-IN-PLACE CAPABILITY

Talk at the UCLan Westlakes Campus, Samuel Lindow Building, Westlakes Science and Technology Park, Whitehaven, CA24 3JY
Contact Darren Johnston: **07843271224**, darrenjohnston555@googlemail.com

WEDNESDAY 9 MARCH 2011 – BARROW, 7.00 FOR 7.30 P.M.

CLEAN COAL

Dr G Morrison, Clean Coal Centre
Joint with PESC

Talk at Forum 28 ,Duke Street, Barrow, LA14 1HH
Contact Ralph Hobson: **01229 563762**, ralph@thehobsons.co.uk

THURSDAY, 10 MARCH 2011 - CROOKLANDS HOTEL, KENDAL 7.00 FOR 7.30 P.M.

TONIC HIGH VOLTAGE AND FIBRE OPTIC SUB-SEA CONNECTORS

Joint with K&DES
Mike Henry, Business Manager
Talk at Crooklands Hotel, nr Kendal, LA7 7NW
Contact Richard Harrison, **01524 733898**, rharrison@btinternet.com

THURSDAY 17 MARCH 2011 - WHITEHALL COUNTRY CLUB 6.30 FOR 7.00 P.M.

BUILDING THE BIG DITCH (MANCHESTER SHIP CANAL)

Mr Glen Atkinson
Dinner and Talk at Whitehall Country Hotel, Darwen, BB3 2JU
Contact Jim Hindle, 20 Cowley Crescent, Padham, Lancs.
BB12 8SX, **01282 771355**.

TUESDAY 29 MARCH 2011 - SWALLOW HOTEL, SAMLESBURY, 6.00 FOR 6.30 P.M.

HOW TO INSURE POWER GENERATION PLANT IN THE WORLD MARKET

Alan Fitzpatrick
Talk at Swallow Hotel, Preston New Rd, Samlesbury, Preston, PR5 0UL
Contact Jim Hindle, 20 Cowley Crescent, Padham, Lancs.
BB12 8SX, **01282 771355**.

THURSDAY 7 APRIL 2011 - MYTTON FOLD, LANGO, BLACKBURN 10.30 FOR 11.00 A.M.

LAND REGISTRY: WHAT IT DOES FOR US

Vymer Speakman of The Land Registry

Talk and optional Lunch at Mytton Fold Hotel, Langho, nr Blackburn BB6 8AB
Contact Doug Howe, 50 Queensway, Penwortham, Preston PR1 0DT **01772 743948**

THURSDAY 14 APRIL 2011 - WHITEHAVEN, 7.00 FOR 7.30 P.M.

ASTUTE SUBMARINE

Rear Admiral Tim Chittenden BAE Systems

Talk at the UCLan Westlakes Campus, Samuel Lindow Building, Westlakes Science and Technology Park, Whitehaven, CA24 3JY
Contact Darren Johnston: **07843271224**, darrenjohnston555@googlemail.com

TUESDAY, 10 MAY 2011 - UCLAN, PRESTON 5-8PM

ROUTES TO REGISTRATION PRESENTATION EVENING

Talk at C&T Building, Room 101, University of Central Lancashire
Contact Michelle Busson, at Tel. **01438 767658** or mailto: dmckenzie@theiet

WEDNESDAY, 11 MAY 2011 - PRESTON, 2-8PM,

ROUTES TO REGISTRATION CLINIC

Tickled Trout Hotel, Preston New Road, Preston, PR5 0UJ
Contact Michelle Busson, at Tel. **01438 767658**
or to getregistered@theiet.org with the heading "Preston - 11 May".

THURSDAY 12 MAY 2011 - SHAP, 10.30 FOR 11.00 A.M.

THIRLMERE AQUEDUCT – PAST AND PRESENT, AND THE WATER SUPPLY NETWORK IN THE NORTHWEST

John Butcher, United Utilities

Talk and optional Lunch at the Shap Wells Hotel, nr Shap CA10 3QU
Contact George Heaton, Garth Cottage, Yealand Road, Yealand Conyers, Camforth LA5 9SG Tel: **01524 736554**

THURSDAY, 26 MAY 2011 - UCLAN, PRESTON 6.00 FOR 6.30 P.M.

YOUNGER MEMBERS' PRESENT AROUND THE WORLD COMPETITION

Talk at C&T Building, Room 101, University of Central Lancashire
Contact Simon Platt: **01772 893341**, spplatt@uclan.ac.uk

WEDNESDAY 15 JUNE 2011 - CROFTERS HOTEL, CABUS, GARSTANG 6.00 FOR 6.30 P.M.

GUEST EVENING, CUMBRIAN FLOODS

Glyn Vaughan, Area Flood and Coastal Risk Manager Environment Agency
Talk and Dinner at the Crofters Hotel
Contact Mike Bell, mbell@theiet.org, **07870 666917**

TUESDAY, 20 SEPTEMBER 2011 - SWALLOW HOTEL, SAMLESBURY, 6.00 FOR 6.30 P.M.

FORMATION OF THE SOLAR SYSTEM

Robin Catchpole, Research Astronomer, Institute of Astronomy, Cambridge.

Talk at Swallow Hotel, Preston New Rd, Samlesbury, Preston, PR5 0UL
Contact Jim Hindle, 20 Cowley Crescent, Padham, Lancs.
BB12 8SX, **01282 771355**

Astute Submarine

Date: Thursday 14th April 2011
Time: 7.00pm for 7.30pm
Speaker: Rear Admiral Tim Chittenden
BAE Systems
Venue: UCLan Westlakes Campus,
Samuel Lindow Building,
Westlakes Science and
Technology Park, Whitehaven,
CA24 3JY
Contact: Darren Johnston
07843271224
darrenjohnston555@
gmail.com

Synopsis

- Introduction to BAE Systems at Barrow
- The defence need for Submarines
- A description of the Astute Class SSN, what it does and how it compares with other projects.
- A brief description of the basis of the design and how it all comes together. Including the use of previously proven technology and modern CAD tools etc to produce an integrated design.
- Some examples of how we build and commission the submarine including the modern techniques such as modular build which exploit the new design tools.

Registration

Registration for this event is essential using the following link:

<http://localevents.theiet.org/register.php?event=47f56e>

or via

www.theiet.org/lancscumbria

The
Samuel Lindow
Foundation



Routes to Registration Presentation Evening

Date: Tuesday 10th May 2011
Time: 5.00pm for 5.30pm
Speaker: Louise Parfrey of IET
Venue: C&T Building, Room 101,
University of Central Lancashire
Contact: Michelle Busson
01438 767658
mbusson@theiet.org

Getting registered as a Professional Engineer is about more than getting letters after your name. Increasingly, employers are placing value on registration as CEng, IEng, Eng Tech and ICT Tech. The IET has recently introduced changes in the process to make things simpler.

If you want to know more about registration and the changes being introduced then we can help. Louise Parfrey from the IET will be making a presentation covering membership, the route to registration (UKSPEC), and how the IET can help you develop your career. The event is aimed at engineers working in large and small companies in Lancashire and Cumbria, students from Engineering Departments but all are welcome. Pre-registration is not necessary. There will be the opportunity for one-to-one informal interviews with a registration adviser

The presentation will begin at 1730. Light refreshments will be served. Parking is available immediately behind the venue.

For further information on the above events please contact Tony Gill (tonyandgeorgiagill@tiscali.co.uk) or 01200-425911.

CAR PARKING AT THE UNIVERSITY OF CENTRAL LANCASHIRE

The Lancashire and Cumbria Network organises events at venues which offer free car parking. At UCLan, members and guests attending IET events may park free of charge on university car parks on display of a special flyer on the car dashboard. Flyers are available at all events or by email in advance on request. For more details please contact Simon Platt, spplatt@uclan.ac.uk.

Routes to Registration Clinic

Date: Wednesday 11th May 2011
Time: 2.00pm to 8.00pm
Venue: Tickled Trout Hotel,
Preston New Road, Preston,
PR5 0UJ
Contact: Michelle Busson,
at 01438 767658
or to getregistered@theiet.org
with the heading
"Preston - 11 May "

As a follow-up to the presentations, or simply to support those individuals seeking to develop their careers, for example via CEng, IEng, or Eng Tech we are offering one-to-one advice. The expert from IET HQ will be available, along with local membership and mentoring advisors.

If you are interested in booking an appointment, please send an email to getregistered@theiet.org with the heading "Preston - 11 May " in the subject line.

You should provide details of the level of professional registration you wish to apply for, together with a contact telephone number; your membership number (if applicable); and an approximate time for your appointment.

We will do our best to match the requested appointment time.

For further information on the above events please contact Tony Gill (tonyandgeorgiagill@tiscali.co.uk) or 01200-425911.

Thirlmere Aqueduct – past and present, and the Water Supply Network in the NorthWest'

Date: Thursday 12th May 2011
Time: 10.30am for 11.00am
Speaker: John Butcher of United Utilities
Venue: Shap Wells Hotel, nr Shap
CA10 3QU
Contact: George Heaton
Garth Cottage, Yealand Road,
Yealand Conyers, Carnforth
LA5 9SG
01524 736554

Thirlmere Reservoir supplies water to Manchester and much of the North West of England via the Aqueduct built in about 1890. At the end of the 19th Century expanding industrial Manchester was desperate for improved water supplies. It was with great vision and engineering skill that the 96 mile-long aqueduct was planned and built. It is still the major source of water supplying Manchester.

John Butcher, United Utilities Regional Supplies and Aqueduct Manager, will tell us about the construction of the Aqueduct, show us old pictures and also talk about the recent major refurbishment. He will also explain how the other water sources in the North West link into the main water transmission network.

Shap Wells Hotel is another new venue for us. It is located in Cumbria, high in the Shap Fells near M6 Junction 39. Established many years ago as a Shooting Lodge it may not be known to many as it is at the end of a long access road off the A6 main road. It is well hidden, red squirrels are sometimes seen in the Hotel grounds. During the last War it was occupied by prisoners of war! That is many years ago now and we hope that the Hotel Manager will tell us something about its intriguing history to those that wish to stay for a while after lunch. Parking and disabled facilities are available.

A cup of tea/coffee will be available on arrival from 10.30 am and the talk will commence at 11.00 am. This will be followed by an optional 3-course lunch, costing £17.

All members, their partners and guests, are very welcome.

Please send all applications on the enclosed flyer before May 5th to George Heaton, Garth Cottage, Yealand Road, Yealand Conyers, Carnforth LA5 9SG.

Present Around the World Competition

Date: Thursday 26th May 2011
Time: 6.00pm for 6.30pm
Venue: C&T Building, Room 101,
University of Central Lancashire
Contact: Contact Simon Platt
01772 893341
spplatt@uclan.ac.uk

Students and Young Professionals entering the Present Around the World competition are required to give a presentation lasting ten minutes on an engineering subject of choice and should be prepared to answer questions for a further five minutes. Presenters do not have to be current members of the IET. Subjects covered could be those studied as part of a degree or a project you've been involved in at work. The judging is split 25% technical content, 75% presentation skills - enabling Younger Members at varying levels of study or career to participate. The prize for the winning presentation is £150, a year's free membership of the IET and the opportunity to compete in the Northern semi final in Liverpool.

CAR PARKING AT THE UNIVERSITY OF CENTRAL LANCASHIRE

The Lancashire and Cumbria Network organises events at venues which offer free car parking. At UCLan, members and guests attending IET events may park free of charge on university car parks on display of a special flyer on the car dashboard. Flyers are available at all events or by email in advance on request. For more details please contact Simon Platt, spplatt@uclan.ac.uk.

Guest Evening, The Cumbrian Floods

Date: Wednesday 15th June 2011
Time: 6.00pm for 6.30pm
Speaker: Glyn Vaughan, Area Flood and Coastal Risk Manager
Environment Agency
Venue: Crofters Hotel, Cabus,
Garstang
Contact: Mike Bell
at mbell@theiet.org
or Tel 07870 66719

Glyn will provide a brief summary of the Environment Agency's role as the lead authority on flood and coastal risk management.

He will give an overview of the Cumbria 2009 Floods including:

Details of the rainfall and river levels leading up to the flooding;

A summary of the flood warnings issued by the Environment Agency;

The damage caused by the flood waters;

The effect on local communities and the on-going recovery;

The actions the Environment Agency took before, during and after the flooding;

The importance of effective community engagement.

Throughout the presentation, reference will be made to the role of communities and flood action groups and how they make a significant and important contribution to managing flooding incidents and speeding up the recovery phase.

Glyn Vaughan (Incorporated Civil Engineer; MBA) is the Environment Agency's Area Flood and Coastal Risk Manager for Cumbria and Lancashire. During his 33 year career with the Environment Agency and its predecessor organisations, Glyn has specialised in land drainage and flood risk management. Designing, constructing, and managing land drainage and flood alleviation schemes across Cumbria and Lancashire, including the Lake District, forms a significant part of his role. He has also been heavily involved in the management of a number of flooding incidents, such as the Cumbria Floods in 2005 and 2009, as well as other large scale incidents such as Foot and Mouth.

The talk is open to all members and guests without charge. The cost of the meal, which is open to all and held after the talk, is £20.00 per person. The closing date for applications is 12th June 2011.

Please send your application to Michael Bell, 52 South Park, Lytham, Lancs FY8 4QQ Tel: 07870 666917 (mbell@theiet.org) using the flyer included with the newsletter.

Formation of the Solar System

Date: Tuesday 20th September 2011
Time: 6.00pm for 6.30pm
Speaker: Dr Robin Catchpole
Venue: Swallow Hotel,
Preston New Rd, Samlesbury,
Preston, PR5 0UL
Contact: Jim Hindle: 01282 771355,
jim.hindle@btinternet.com

Date: Wednesday 21st September 2011
Time: 7.00pm for 7.30pm
Speaker: Dr Robin Catchpole
Venue: Forum 28 ,Duke Street,
Barrow, LA14 1HH
Contact: Ralph Hobson
01229 583762
ralph@thehobsons.co.uk

These are dates for your diary. We start the 2011 -2012 session with another presentation by Dr Robin Catchpole.

Dr Robin Catchpole, recently retired as Senior Astronomer at the Royal Observatory Greenwich, currently works at the Institute of Astronomy, Cambridge, and has been an astronomer all his life. He has authored and co-authored over 100 research papers and used a number of telescopes around the world including the Hubble Space Telescope. His research interests include the composition of stars, exploding stars, the structure of our Galaxy and galaxies with black holes at their centres. He has given many lectures and radio and TV interviews.

Joint events

Many local network events are organised in conjunction with other organisations in our area. Each is identified by its initials in the events list, as follows:

BES: Blackburn Engineering Society
CMI: Chartered Management Institute
IMechE: Institution of Mechanical Engineers
IOP: Institute of Physics
K&DES: Kendal and District Engineering Society
PESC: Professional Engineers South Cumbria
UCLan: University of Central Lancashire

REPORTS

The Hubble Space Telescope

Dr Robin Catchpole

28th & 29th September 2010

Walking through the distorting hall of mirrors in a fairground, it is amazing to see the wonderful images the arrangement of mirrors in the Hubble Space Telescope (HST) can produce.

Funded in 1977 and ready to use in 1985, the launch was delayed until 1990 by the Challenger disaster. Now sitting an orbit 350 miles up, the Hubble is above the distorting effect of the Earth's atmosphere and can resolve objects better than ground based telescopes 17 times as big; 0.047 seconds of arc.

Dr Catchpole described the features of the optical system, the guidance mechanism; essentially reaction gyros; and the array of sensors at the focal point covering the whole range of the electromagnetic spectrum. By using different colours to represent the different wavelengths a beautiful composite image is produced vying with the most glorious orchid, and giving the public an incredible picture of the Universe's most distant objects.

In 1929 Edwin Hubble had used his observations of remote galaxies to estimate the age of the Universe and as Robin said at the start of his talk, light is the measure of the Universe since it's speed is constant and distance = speed x time.

More accurate figures from the space telescope of variable stars, novae and galaxies have enabled a fairly precise age of 13,700 million years and an equivalent size to be established.

Astronomers plot brightness/temperature graphs of stars and galaxies leading to theories about the rate of expansion of the Universe. Data from the HST indicates that the expansion rate has been variable and another commodity is required to explain these expansions. Apart from ordinary matter at 5% and 'Dark' matter at 23% we now appear to need 72% of 'Vacuum Energy' to maintain the balance due to the lack of mass/gravity in all the observable matter out there.

HST has about another ten years life and then may be brought down to Earth by a robot to ensure it crashes into the sea. It seems a shame that such a wonderful machine should come to so ignominious an end, but it is due to be replaced by the James Webb Telescope which promises to be able to see even further back in time and space.

EuroFighter Typhoon

12th October 2010 Whitehaven

Mark Bowman joined the ATC whilst at school and got his pilot's licence, flying the Bulldog trainer, before his car driving licence. After university he went to Cranwell where he flew the Jet Provost with the RAF. Six months later he awarded his 'Wings' at RAF Valley and was then one of two out of 50 to advance to the frontline. Later on he was 'doing the job' as he called it out of Chivenor in Devon and then flying Harriers off Ark Royal. Despite its nominal vertical take-off capabilities, the Harrier was very limited in what it could carry and had to be faced directly into wind to maximise the air flow into the engine intakes; a process added by a small weather vane in front of the pilot!

Mark then took the test pilot's course from which he was able to give feedback on aircraft performance, to support development. This led to the Harrier being fitted with a more powerful engine and having night capability. He returned to the front line for a while and then left the RAF to join BAE Systems at Dunsfold; where his ground experience was invaluable in the Typhoon development.

Describing the aircraft and the management structure it was not hard to see why these things take so long; not only due to problems with four different makers and the parts not quite fitting when brought together. The UK produces 37% of the aircraft including part of the fuselage. The aircraft is unstable to reduce drag and increase agility and is controlled by 4 fly-by-wire systems, but Mark claimed it is easier to fly than a Cessna 150!

There are 13 hard-points for various weapons and sensor packs, including some missiles with a 100 mile range and due to a special helmet the pilot can 'look and shoot' and the missile will find what he was looking at.

The cockpit of the Typhoon is very automated to reduce the pilot flying workload to allow him to concentrate on the mission. The 3 screens can display all aircraft parameters, the radar and IR pictures and threat warning and target analysis.

In addition to testing and developing Typhoon, Mark has also been involved with other BAE Systems projects, including a new Hawk trainer, the AJT and unmanned aircraft.

Other activities include driving F1 cars to give engineering feed back and being involved with the volcanic ash survey.

From the audience of 100 there were questions about, "was flying still fun?" and "how long will the manned aircraft be in use when drones appear to be taking over?"

Annual Northern Aerospace Forum 2010



Institution of
**MECHANICAL
ENGINEERS**



The theme of this year's event was: **"Where is the Region's future Aerospace business coming from and how much could there be?"**

As in past years, several keynote speakers set out the key issues at the forum. These were:

- Sir Kevin Smith - Chief Executive, GKN
- Michael Kurth - MD, Boeing UK
- Chris Boardman - MD Typhoon Mission Support and International Programmes, BAE Systems, Military Air Solutions

The scene was set by Sir Kevin's keynote presentation. He described recent developments in GKN and its Aerospace operation in particular. GKN is a diversified engineering company with an aerospace business. This has been the key to its success, giving it the ability to ride out different business cycles, as well as to make use of technological and commercial synergies.

The outlook for Aerospace is very positive. GKN has a balanced civil and military order book, with nearly all of its military revenue coming from the US. Its customer base is drawn from all of the main primes as customers. Its move into composites and an active acquisition strategy has driven sales. Looking to the future, GKN is a major partner with Northrop Grumman on the UCAS programme.

GKN is bullish about the civil market bullish prospects. Although US sales dominate its military operations, there are lots of questions about budget issues. Sir Kevin believes that they have reached a plateau in the use of composites in aircraft. The new driver is price. However, the main new focus for composites will be in propulsion.

Sir Kevin concluded with a look at China: He noted its aerospace ambitions, backed by a \$29 billion civil aerospace investment in the last 5 Year Plan. The huge Chinese domestic market will be a powerful basis for expansion. Currently the focus is building domestic capability not a sustained global market penetration. But there will be a long-term threat to the west's market share. GKN is positioned in China in many other sectors, especially automotive and is looking to partner in future Chinese airliners including the C119 participation

Some of these themes were picked up and reinforced by the subsequent speakers. Michael Kurth, underlined the importance of the UK as a supplier to the Boeing Company, with the Northwest as a key element, especially in its defence programmes. Quality was a key reason for this success and one of the reasons why Boeing would be looking to do more business in the region and the UK in general. This would increasingly

include services and support activity, driven in part by the UK's sophisticated approach to through life cycle requirements. Mr Kurth was also optimistic about the civil market. But competition is coming and not just from China. Innovation will continue to be vital for competitiveness. Like GKN, Boeing saw the need to partner with supply chain.

Chris Boardman had a narrower focus, but he too felt that there was a solid future in the UK military aerospace business. Historically, this has depended on clear UK strategic intent. BAE Systems's corporate IP derived from UK/European business which had supported export opportunities. A key feature of the UK's ability to win business was the depth of its supply chain, where the UK had more defence-related SMEs than next 4 EU states combined.

The US market was still clearly dominant, but the EU still had a significant level of defence spending. The SDSR outcome had been very mixed for air systems, and a degree of uncertainty was still attached to some of the survivors. This underlined the importance of a US orientation and how vital it was to be part of the F-35 programmes. However, he was optimistic that the emerging markets of India, Brazil and Japan would generate opportunities for sales and partnerships.

Generally, however, future prospects would be aided by a clear strategic intent that was emerging following the SDSR. This should support new national programmes, but there would also be several opportunities in the US and Europe.

A brief presentation on Supply Chain improvement in the North West was then given by David Bailey of the NWAA. The importance of continuous improvement on the part of the region's supply chain was underlined

As in the past, the second session took the form of a panel discussion facilitated by Graham Roe. The panel comprised the Speakers together with,

- Wg Cdr Dan Storr - CAS Air Staff Strategy Group
- Simon Witts - Ex-Director of Training Academy, FlyBe
- Simon Luxmoore - Chief Exec, RAeS

A lively discussion with the audience generated a number of issues:

- There was still a clear need to promote aerospace. The industry had to connect aspirations with jobs.
- Responding to Globalism was fundamental and smaller companies would have to work to find business but if they had world-class competencies and methods, returns will be available.
- Engineering training remained a paramount requirement.
- Future collaboration with Europe was important, but needed specific projects. Bilateralism may be more effective basis for development, with similar needs and requirements, but this may entail loss of initial production numbers.
- India was also an interesting prospect; indeed the biggest challenge was promoting collaboration with the emerging powers.
- Lost operational capability operationally can be recreated, but lost industrial and technologically not so easily achieved.

- Synthetic training was a growing market, but live training is still vital, especially the need to maintain engineering competence for combat.
- SMEs were important for innovation, but needed bigger companies rapidly to exploit opportunities. However, Government may not appreciate the nature of innovation in SMEs or of their needs in general.
- UAV development was an opportunity to generate a faster cycle of development and manufacture.
- There were massive opportunities for the young in aerospace; to replace an aging workforce, exiting new developments in both civil and military aerospace, increasingly global mobility and the challenges of the low carbon economy.

Finally, the Forum was asked to give some advice to the region. Be optimistic was the main response; the region's position on the F-35 based on Typhoon expertise gives a strong baseline. There was a need to increase levels of diversification to a degree. But generally, have confidence based on experience and heritage, but explore boundaries, and focus on capabilities that would demonstrate competence to customers.

The Sixth Annual Northern Aerospace Forum is being planned to be held in November 2011.

CONTACTS

Chairman

Jim Hindle
Tel: 01282 771355
Email: jim.hindle@btinternet.com

Senior Vice-Chairman

John Cowburn
Tel: 01254 704680
Email: jcowburn@theiet.org

Honorary Secretary

Mike Bell
Tel: 07870 666917
Email: mbell@theiet.org

Treasurer

Bevis Mulholland
Tel: 01257 262683
Email: bevis@bandrconsulting.com

Retired Members' Secretary

Doug Howe
Tel: 01772 743948
Email: dfhowe@theiet.org

Programme Secretary

Barry Lewthwaite
Tel: 01539 733767
Email: jblewthwaite@theiet.org

IET Connect

Dr. Peter E Roberts
Tel: 0771 8058299
Email: pe.roberts@theiet.org

Newsletter Editor

Mike Bell
Tel: 07870 666917
Email: mbell@theiet.org

South Cumbria Convenor

Ralph Hobson
Tel 01229 583762
Email: ralph@thehobsons.co.uk

Younger Professionals Contact

Rich Grant
Tel: 07769 728722
Email: rgrant@theiet.org

Kendal Convenor

Richard Harrison
Tel: 01524 733898
Email: rharriso@btinternet.com

Retired Members' Chairman

Brian Flynn
Tel: 01772 330278
Email: bflynn@theiet.org

West Cumbria Convenor

Iain Messenger
Tel: 01946 824756
Email: themessengers@btinternet.com

WEBSITE: www.theiet.org/lancscumbria



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**Local Network
Development Executive**

Deborah McKenzie

PO Box 251

Sale

M33 2ZY

Tel: 0161 973 3812

Email: dmckenzie@theiet.org

**Local Network
Coordinator**

Michelle Busson

Michael Faraday House

Six Hills Way

Stevenage

SG1 2AY

Tel: 01438 767658

Email: mbusson@theiet.org