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New Committee Member



Above: Mrs Rizwana Shelley MSc, D.I.C, BSc, MInstP, CPhys, J.P.

Rizwana Shelley was born in Poona in India but came to England when she was 13. She graduated in Physics from Royal Holloway College in 1968 and received a MSc in Applied Optics from Imperial College in 1969. She was elected to the Institute of Physics in 1971.

She ran the Electron Probe Microanalysis facility (1971 – 1973) in the University of Cambridge Department of Metallurgy where she co-authored two papers. She then accompanied her husband to Tehran, Iran where she worked on a freelance basis for the British Council, preparing pupils for G.C.E. 'O' Levels in Physics and Chemistry and set up 'O' level practical examinations at Arya Mehr University of Science and Technology, Teheran.

Mrs Shelley was a science teacher at Walderslade High School for Boys (1986 – 2012), now Greenacre Academy. During much of this period, she was 2i/c of the Science Department and acting head for a while, before becoming Community Projects Officer in the school.

Outside school, she was appointed a Justice of the Peace on the Medway Bench in 1990 and has been joint chairman of the Kent Khawateen Association – an Asian Ladies Group since 2001. She also owns a Special Site of Scientific Interest area of woodland in Kent, where she may be found working on most Sundays, and is passionate about protecting wildlife and the environment. Her other passion is promoting scientific education, especially that relating to Physics.

Mrs Shelley is married with two grown up children.

Page 2: November 2013 EEESTA Seminar, New Online Lecture Registration Process for London Centre Lectures, Berkshire Centre 12 August 2013 at 7.30pm Living in the extremes: the quest of an astrobiologist **Page 3:** IOP agrees funding for GHANA Medical Physics Project **Page 4:** The State of Education --- what makes a good education ? also Materials Challenges for Fusion Power and 'Living in Space' Lt Col Duane Carey - Former Space Shuttle pilot. **Page 5:** WOOFYT visits St Johns Hemel Hempstead **Page 6:** WOOFYT also visited Tudor School Hemel Hempstead (6 June) **Page 7:** Regional Big Bangs in July 2013 at Crawley, London and Duxford. **Pages 8 and 9:** The Union Chapel Islington Welcomes WOOFYT 14 July 2013,

November EEESTA Seminar

Deep-Ocean Science, Technology & Conservation" 21st Century Opportunities and Imperatives

Wednesday, 13 November 2013, 17:30 – 21:30

Weston Auditorium, De Havilland Campus
University of Hertfordshire, Hatfield, AL10 9EU

FREE Entry: advance booking required

Helpline: 0845 474 3341 or online at
<http://www.eeesta.org.uk/seminars.php>

The speakers will describe the technology required to explore the great ocean depths, and will present exciting information about the scientific discoveries of minerals and unique ecosystems.

These resources may be needed by mankind, so conservation measures to ensure that the seafloor is protected against any environmental damage from this exploration will also be explored.

17:30: Arrival and registration. Refreshments and networking
18:45: Welcome
18:55: EEESTA award
19:00: Speakers' presentations
20:00: Summing up: Chairman followed by open forum: questions and answers
21:30: Ends

Chairman: Professor David S. Cronan BSc PhD DSc FGS FIMM Professor Emeritus, Marine Geochemistry Department of Earth Sciences and Engineering, Imperial College London.

Speakers:

Dr. Samantha Smith BSc (Hons) PhD, Vice-President Corporate Social Responsibility, Nautilus Minerals

Professor Paul Tyler BSc (Hons) PhD DSc Professorial Research Fellow, Ocean and Earth Science and Personal Chair, University of Southampton

Professor Cindy Lee Van Dover BSc PhD FAAS

Harvey W. Smith

Professor of Biological Oceanography and Chair, Division of Marine Science and Conservation, Nicholas School of the Environment, Duke University; Director of the Marine Laboratory.

The Branch supports this seminar. Please note the booking arrangements above.

New Online Lecture Registration Process for London Centre Lectures.

To improve the process of registering for Wednesday evening lectures, the branch is trialling a new online registration system. **Please note that this system is being trialled for LONDON centre lectures only at this time.**

Now, instead of sending an expression of interest to londonse@iop.org, each Wednesday evening lecture the events calendar (http://www.iop.org/activity/branches/south_east/lse/calendar/index.html) will be accompanied by a link that says: "Please Register Here".

Clicking on the link will launch a new page where you can either i) simply register your attendance or ii) register yourself plus accompanying persons.

To minimise the amount of information required we only ask the person registering to provide their e-mail address (for booking confirmation), name, IOP membership status and where they heard about the lecture. For all accompanying persons we just require the registrant to enter the additional names and IOP membership statuses.

Once submitted a confirmation email will be sent. The names of all persons registered using this system will be listed at reception upon arrival.

We hope this new system improves our both member's & non members experience when booking and attending evening lectures.

Please do try the system for yourself and send any feedback to: mark.telling@stfc.ac.uk

Berkshire Centre

12 August 2013 at 7.30pm

Living in the extremes: the quest of an astrobiologist

Michaela Musilova
(Bristol University - Glaciology research group)

Astrobiology is the study of life in the universe, both extraterrestrial and terrestrial. It addresses three fundamental questions: where do we come from? What is our future on Earth and beyond? Are we alone in the universe? None of these questions are by any means new. However, for the first time since they were posed, thousands of years ago by our ancestors, these questions may now be answered.

Venue: William Penney Theatre, AWE, Aldermaston, Reading, RG7 4PR
(The theatre is off the A340 Basingstoke to Newbury road)

IOP Agrees Funding.

Marta Caballero has developed an exciting project working with Ewa Karczewska and the e-learning collaboration below.

Funding was sought to develop and run a series of 7 -10 lectures at schools across the LSE area between Sept - Dec 2013 to educate students about how Medical Physics is saving lives in developing countries.

This project will be in conjunction with UCL's 'paRTner' initiative; to develop a training program for hospitals in Ghana who have recently acquired a number of linear accelerator radiotherapy machines, but currently lack the expertise to use them.

UCL's Medical Physics department, in collaboration with the Radiotherapy Departments of UCLH and the Royal Berkshire NHS Foundation Trust, is currently writing an e-learning curriculum for the Ghanians, which will be tested and delivered by recent medical physics graduates on the ground in Ghana. In parallel, the graduates have also developed cancer awareness resources for use in Ghanaian Schools. Resources targeting English school pupils have also been made, with emphasis on increasing recognition of Ghana's low cancer survival rates with the intention of encouraging the schools to support paRTner's work.

London and South East committee member, Marta Caballero, (a recent UCL alumni), will travel to Ghana with Ewa Karczewska this July. While in Ghana, Marta & Ewa will:

1. Tweet daily on the @IOPLSE and @Physicsnew feeds (with pictures)
2. Post on the LSE facebook page
3. Record a video blog of the work being performed in the area of radiotherapy in Ghana
4. Conduct video interviews with medical physicists and if possible politicians

Upon their return, and working with branch Chair, Mark Telling, Marta will:

- devise an interactive workshop and lesson plan, based on their experience.
- edit their video footage for the IOP's website, showcasing the lifesaving and educational potential of Physics in the developing world.

Finally, they will visit schools in the LSE area to:

- deliver their lesson plan to final year GCSE students with an interest in physics; promoting physics to young people in the UK
- promote the application of medical physics and the opportunities for travel and altruism made possible by a career in physics.
- emphasise the potential of physics as a gateway to solving global problems
- emphasise the potential of physics as a gateway to solving global problems



Above Marta Caballero

- target girls in particular, in order to inspire them to continue physics at A-level / HE.
- develop pen pal relationships with Ghanaian and UK students.

They will also be Wednesday evening lecture at 76 Portland Place in collaboration with the IOP Medical Physics group which will discuss the work currently being carried out in Ghana.

We believe this project will reach at least

- 600 UK school pupils in the LSE area.
- 170 + members of the general public / medical physics community at the proposed Wednesday evening lecture.
- 40,000 followers of the @IOPLSE and @Physicsnews Twitter feeds.

Marta Caballero will fund all internal travel in Ghana and food costs herself.

IOP has agreed funding for the project and the branch will provide some funds towards the travel costs to schools in the UK

To Join the Retired Members Section (REMS) Contact John Belling

E-mail john.a.belling.secrems@gmail.com

IOP Kent Meeting Tuesday 28 May 2013

The State of Education --- what makes a good education ?



Left to Right: Jane Milton, from the School of Engineering and Digital Arts, Dr Cyril Isenberg, Rt Hon Valerie Vaz MP, Henry Claridge from the Department of English.

This meeting consisted of a short talk plus lots of questions, answers and comments based on the experiences of schooldays and those of our offspring.

Materials Challenges for Fusion Power Professor Steve Roberts IOP 5 June 2013



Development of nuclear fusion as a power source is moving forward rapidly, with the ITER experimental reactor currently under construction. The first power generating reactor, "DEMO" is moving towards the design stage. Some of the major obstacles remaining to be overcome before fusion can be an economical power source lie with the materials for critical reactor components. In this talk Prof Roberts reviewed some problems and outlined some current research aimed at solving them.

'Living in Space'

Lt Col Duane Carey - Former Space Shuttle pilot

10 September 2013, 18.30 - 21.00

IOP 76 Portland Place London

Admission must be pre-booked but the event is free. Register at <http://london.iop.org> by clicking branch calendar and then the event followed by the registration link or at <https://www.iopconferences.org/iop/436/home>

During his space presentation Lt Col Duane Carey talks about his education and careers in the USAF as a fighter/combat pilot, test pilot, and NASA Space Shuttle pilot. He will talk about and show highlights from his space shuttle mission to the Hubble Space Telescope in 2002 and then the floor is open for Q & A.

Please register to attend through the registration link.

The first 170 pre booked people to arrive on the evening of the lecture will be seated in the Rutherford Theatre. Once the Rutherford Theatre is full attendees will be seated in an overflow theatre to view the lecture by video feed. **The event is open to all.**

This online newsletter has been
produced

by

The London & South East Branch IOP

The contents do not necessarily represent the views or policies of the Institute of Physics, except where explicitly stated.

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WOOFYT visits St Johns Hemel Hempstead



Jeremy Sampson's WOOFYT came to St John's Church Boxmoor on the 20 May. This followed a successful event last year. Once again Wendy Topping acting head of Watford Music School & Head of Dacorum Music School, (Hertfordshire Music Service) was present and was delighted to join in by taking the first group of students through musical exercises. Also present at the event as were the church organisers. Four different schools attended this year compared to last year.

The successful format was followed with musical games, KS2 Sound, air molecules non-return valves and WOOFYT playing.



All groups walked to the church and those who arrived early were given a tour of the churchyard and the different trees growing there.

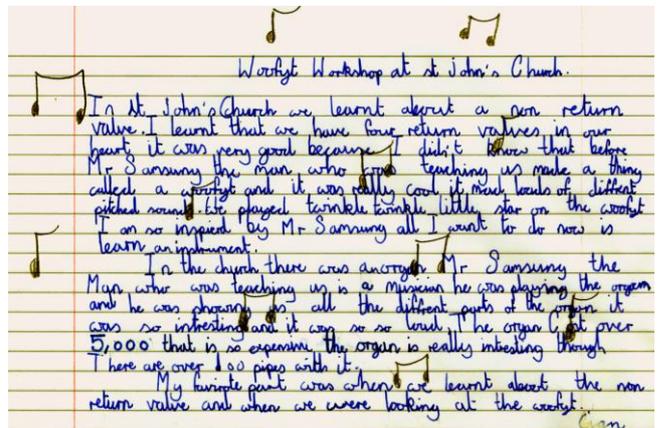
An advantage of using the church is that Jeremy Sampson is able to demonstrate the organ consul



and play the church organ for the pupils. IOP red bugs were in evidence at this event which was supported by the branch.



Some pupils from St Cuthbert Mayne School wrote about their experiences with the WOOFYT.



More pupil thoughts are on the next page.

W.O.O.F.Y.T. Workshop at St John's Church

It was such a wonderful experience at St John's Church, Mr Sampson had given up his time just to show us a magnificent W.O.O.F.Y.T. The W.O.O.F.Y.T. was an organ taken apart, it showed me how an organ works. Mr Sampson showed us how Echoes work, I was very interested, interested and amazed how air molecules make an echo. We were also taught about Non-return valves such as pumps, balls and humans. We were showed how fun beats are simple steps of music. After all of the phenomenal experiments I was filled with incredible information, I loved it, it was the best experience ever.

Elliot Doll

W.O.O.F.Y.T Music Workshop

The music workshop was enjoyable and inspiring and I wish to thank those who made it possible. St John's Church was the perfect place because the acoustics were amazing. In St John's Church we learnt how we can hear sounds when Mr Sampson clapped and asked us how we heard it. This is what he said but with more explanation - hands are together, hands are forced apart, hands hit each other, skin vibrates, air molecules sends the message by travelling to our ear drums. It makes an echo by hitting solid obstacles and it bounces back. Then he showed us a contraption that looks like the picture at the bottom of the page. A green bag fills up with air that came from pushing down a see-saw kind of thing and from pressing a button on a stereotyper of an organ pipe. When the bag is filled up and has been pushed down, it makes water go down from a cup and go through a passage to another cup.



Woofyt Workshop

Our music workshop took place at St John's Church. The music that was introduced to us was a phenomenal experience. Mr Sampson really inspired me, and when he combined music with science I thought it was seriously clever. When we started clapping I was really amazed at how the air particles made a sound also how they spread around the whole room. Right now I just want to study more on physics and play a piece of music on the organ. Especially I enjoyed the non-return valve because I thought it was really interesting and I was completely glad to Mr Sampson. The church was a perfect place to host the woofyt workshop. Plus we stood in a circle and did some clapping activities which was really fun. Suddenly Mr Sampson started playing the organ but nothing happened, just then he pulled this lever and a blast of music came out of the pipes. During the lesson Mr Sampson asked a couple of children including me, to play these wooden instruments called the woofyt. Suddenly when these children pressed on this green bag the woofyt made a noise so he played kninkle kninkle little star and Happy Birthday.

Joseph Playfoot



W.O.O.F.Y.T workshop at St John's church

Finally we stood in a circle and clapped then finished our heads as we did at the end of the day. It was really fun we had to do it as fast as we could to really beat the robot. After that we did something to test out our physics. All of us had to ring a pattern which was 1, 2, 1, 2, 3, 2, 1. At last we got the hang of it because it was a quite complicated. Next we talked about non return valves, how something can go but not come back. For example, balls or pumps or a gate on a bike or car. Mr Sampson really inspired me and when he combined music and with science I thought it was extremely clever. The church was a perfect place to host the workshop. The W.O.O.F.Y.T. was a scientific and musical thing. There was a pump which pumped air in a machine group bag. Also there a plate with holes in it place it on the bag to put pressure onto the bag. It was hot looking into a pipe then you push a lever to make a noise. It was such a wonderful experience. I've never been very interested in music but I do now.

Neve 5SH

WOOFYT also visited Tudor School Hemel Hempstead (6 June)

I enjoyed the whole morning. I never thought that i would like science as much as i did with you. Thank you so much. Allena
Thank you for visiting our school to tell us more about air molecules and how to make a make use out of them. I really enjoyed playing the WOOFYT. The warm ups were great fun. The school and i learnt a lot of new things from you. Hope you visit our school again sometime. Fatima
OMG that was amazing. I loved it. The WOOFYT was strange. Science is okay now. Kira
Thank you for the most fun i have ever had in science. The project was really fun and i learnt a lot of things. Owen
I really enjoyed playing the WOOFYT - it was great fun and i now know how sound travels through the air. Having that experience really made me think and listen to all the amazing things that sound can really do. Anisha
I really liked talking about sound waves and playing the WOOFYT. It was also nice being in the assembly and performing the WOOFYT in from of everyone. Amber

Regional Big Bangs covering our branch area. SE at Crawley, London at Westminster College, Eastern at Duxford

Once again the SE Region Big Bang was part of the Crawley Festival being held at the Hawth on 2 July. The Branch representatives were Bob Boutland and Alex McDowell who were part of the judging team for the National Science and Engineering Competition, (NSEC). Also present was Lee Crouch, (branch support officer), with a band of Volunteers at a physics stand.



Above: Volunteers at the Physics Stand in the Hawth.

Branch certificates were also presented to deserving physics. This year there were 2 physics prizes from the branch and also a SEPnet prize for communication of Physics and Engineering. Other prizes were provided by CGC, Thales, Crawley Borough Council, 4D, Doosan, Eurotherm, Gamesman, Ricardo, Southern Water, Land securities, Tesle, Nestle Academy, University of Brighton, Pyroban, West Sussex Council as well as the CREST prizes, Young Engineer for Britain prizes, and places at the National Big Bang for 2014.



Branch Prize winners: Hove Park St Richards

SEPnet Award for Communication of Physics and Engineering: Kent College, Canterbury, 'What Makes Theme Park Rides Fun?'

IOP Prize for Physics – Junior: St Richard's Catholic College, Bexhill-on-sea, 'Wishing on a Star'

IOP Prize for Physics – Intermediate: Hove Park School and Sixth Form, Brighton, 'Modelling a Martian Lander'

The full list of prize-winners for the SE Region big Bang is at

<http://www.crawleystemfest.co.uk/latest-news/congratulations-2>

The London Region Big Bang was held in Westminster College, Grays Inn Road and whilst there were fewer prizes there was plenty of activity. The branch junior prizes went to Energy transfers in chain reactions: Villiers High School and Does your choice of hair dye matter? Maria Fidelis Convent School Lower School and the Intermediate Prize to the RFID Crack Detector: St. Paul's Girls' School. There was no senior physics prize but there were plenty of good senior engineering projects. A full prize list is at http://www.thebigbangfair.co.uk/london/2013_prizewinners/



Energy transfers in chain reactions: Villiers High School pupils.

The East of England Region Big Bang was again held at Duxford. Prof Peter Kalmus and Bob Boutland represented the branch both being NSEC judges. Many prizes were available as well as the main Young Engineers, Crest and National Competition Places. The Branch Winner was from Leighton Middle School "The building and internal structure of a Theramin" The winners list and photographs are not available at the time of writing.

The Union Chapel Islington Welcomes WOOFYT: 14 July



To celebrate the refurbishment of the organ the WOOFYT was invited as part of a week of celebrations between 14th and 20th July 2013.

The WOOFYT with its presenter Jeremy Sampson was in the hall that had been used for Sunday School. In the picture below a balcony can just be seen, here were individual rooms for different age groups as part of Sunday School.



Jeremy varies his presentation depending on his audience, this being very much a family affair.



The Minister, the Rev Karen Stallard, also took part.



It was possible to pump the WOOFYT as well as take part in playing as jobs were shared and changed.



The branch newsfeed and calendar are at <http://london.iop.org>

One advantage of the event taking place in a church is that the church organ can be demonstrated and



compared to the one octave WOOFYT organ. Jeremy demonstrated the different stops and how he could play 4 notes at once and also the use of various pedals.



Time Out provided at least one precipitant.

People of all ages took part in playing the WOOFYT.



During the second WOOFYT session Simon Johnson, organist St Paul's Cathedral, arrived to rehearse his inaugural recital with the newly restored Henry Willis Organ his event was at 7pm.

One event of note during this Organ Week of Events is 'The Passion of Joan of Arc' a 1928 silent film by Carl Dyer, starring Renee Falconetti and with Irene Buckley's score for soprano and organ. The week ends on the 20th June with a Gala concert for Organ and strings. Events at the Union Chapel can be found at: - <http://store.unionchapel.org.uk/>

The branch would like to thank the staff of Union Chapel for their organisation of the WOOFYT event particularly Claire Singer, music director and the minister the Rev Karen Stallard for the use of church facilities.



IOP physics bugs were presented at the end of each WOOFYT session

