



Swansea University
Prifysgol Abertawe

Swansea University
Texas Research
Showcase

26th - 31st
October 2014

Sponsored by:



It gives me great pleasure to introduce Swansea University's Texas Research Showcase, a celebration of our research excellence timed to coincide with the centenary of the birth of one of Swansea's most famous sons, the poet and author Dylan Thomas.

Swansea University's globalisation strategy emphasises the importance of strategic partnerships with strong universities around the world, and I am delighted at the robust, dynamic, mutually beneficial and multi-dimensional relationships we have forged with some of the USA's and the world's best universities here in Texas.

This event blazes a trail through the State and showcases some of the progress we have made to date whilst marking the next stage in our partnership - the mainstreaming of research collaborations across multiple subject disciplines. This will, I hope, allow researchers to come together and benefit from shared resources and expertise, an enhanced research profile, improved research outcomes and greater access to research funds, such as those offered through the European Union's Horizon 2020 initiative - open to US institutions as full partners for the very first time.

Our partnership with Texas is not just about research, and indeed we have enjoyed great success in establishing staff and student exchanges, joint programmes and teaching collaborations with our Texas partners. We are hoping to build upon existing achievements in these areas, particularly in growing student mobility: Swansea has run overseas

exchange programmes for many years and we have seen how educationally beneficial it is to study in another country and how positively employers view this type of overseas experience.

Our relationships with Texas and universities in Texas are central to our mission: they are about building on and creating further, world-class research groups, about enhancing the learning experience and employability of our students from both sides of the Atlantic. They are about making a difference to our twenty-first century world.

On the following pages you can learn more about Swansea University, its areas of research expertise and our academic 'stars' who are participating in the Showcase. We welcome your attendance at, participation in and contribution to this event and hope it inspires you to get in touch to explore how you could become part of our partnership.

Professor Richard B. Davies
Vice-Chancellor



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THE SWANSEA-TEXAS PARTNERSHIP

The Swansea University Texas Research Showcase celebrates the University's research excellence and its long established relationship with Texas and some of its world-leading universities.

We hope that the event, in which we introduce established and emerging research stars, will foster debate, encourage collaboration, facilitate staff and student mobility, and inspire innovation and knowledge transfer.

Swansea University's relationship with Texas started in 2006 when it was invited to become a member of the Texas-UK collaborative, a State of Texas - UK government initiative to bring together major research-driven universities to foster collaborative research in biomedicine, nanotechnology and informatics. Since that time the University has established Texas as the site for a cluster of its global strategic partners and has sought further to develop its collaborative activity to encompass new activities, subject areas and institution partners. By now, our common interests range from research on the idea of St Francis of Assisi as a lone peacemaker in the Middle East, through shared interests in human rights research, to path-breaking activity in the development of safe technologies to extract energy and in the development of nano-engineered solutions to major medical conditions.

St Francis of Assisi - lone peacemaker in the Middle East

A new research project focusing on St Francis of Assisi and his role as a lone peacemaker in the Middle of East incorporates experts from both Texas A&M University and the University of Texas at Austin. Led by Swansea University's David Britton (D.J. Britton), an award-winning dramatist and director, the collaboration is funded by the Texas Fellowship established by Swansea University's College of Arts and Humanities.

Wales Observatory on the Rights of Children and Young People

This is an international policy and research centre focussed on the human rights of children and young people. It was instrumental in the passage and content of a recent law to embed the principles of the United Nations Convention on the Rights of the Child (UNCRC) in domestic law in Wales and is developing strong links with the University of Houston, amongst others in the US.

Energy Safety Research Institute

Swansea University's new Science and Innovation Campus (see page 11-12) will be home to the Energy Safety Research Institute (ESRI) which has strong links with a number of our Texas partner universities.

The £38 million investment, which will build on the University's research expertise in petroleum and chemical processing, is a constituent member of the Global Energy Safety Institute founded in Houston in 2011, a sister Institute of the Energy and Environmental Systems Institute at Rice University, Houston and

an associate of the National Corrosion Research Centre at Texas A&M University.

ESRI is led by Professor Andrew Barron from Rice University who has joined the team as part of the Welsh Government's Ser Cymru ("Wales Stars") programme which aims to attract world-class scientific talent to Welsh universities.

Undergraduate student exchange

Enhancing opportunities for student mobility is at the heart of the University's Texas partnership, and in particular, reciprocal student exchanges which enrich both the student experience and employment prospects.

One of the University's longest-established student exchange programmes with Texas is between Swansea's College of Engineering and its namesake at Texas A&M University.

This unique exchange programme allows students from Medical, Biomedical, Chemical and Environmental Engineering to study for a semester at the partner university, in place of a semester at their home institution.

Teaching collaboration

A shared interest in the education of educators has benefitted students at the University of Houston and helped in the development of a new programme at Swansea University's College of Medicine.

The collaboration has seen a number of academics from Swansea University's College of Medicine teaching on the University of Houston's Executive Education Doctorate in Professional Leadership, whilst experts from the University of Houston have helped in the development of Swansea University's new Professional Doctorate in Medical Education which launched in 2014.

Joint PhD programme

In 2012 Swansea University and Houston Methodist Research Institute (HMRI) launched a new collaborative PhD programme.

The scheme, led by Swansea University's College of Engineering, sees students from Swansea's Colleges of Engineering, Medicine, and Science spend years two and three of their PhD degree in Houston, as paid employees of HMRI.

Similar schemes for joint PhDs are under early discussion with University of Texas at Austin and the University of Houston.

The relationship between Swansea University and HMRI extends further than the joint PhD, with many faculty members from in the Department of Nanomedicine at HMRI involved in research collaborations with academics from Swansea's Colleges of Engineering and Medicine.

CONTACT

If you are interested in discussing with us proposals for research collaboration at individual, research group or institutional level please make initial contact with Professor Mike Sullivan, Vice-President for Strategic Partnerships:

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www.swansea.ac.uk/texas

THE SWANSEA UNIVERSITY TEXAS RESEARCH SHOWCASE

SHOWCASE LAUNCH: HOUSTON 26TH OCTOBER

Official Opening: Dr Renu Khator, President of University of Houston and Chancellor of the University of Houston system

Welcome to the Swansea University Texas Research Showcase: Professor Richard Davies, Vice-Chancellor, Swansea University

Dylan Thomas lecture: Prof. John Goodby with Prof. Kurt Heinzelman

MEDICINE AND HEALTH SHOWCASE: HOUSTON 27TH OCTOBER

Interdisciplinary Experimental Medicine: A Common, Complex Disease, Asthma: Prof. Julian Hopkin

Alzheimer's Disease: Beyond Memory: Prof. Andrea Tales

Single Cell Analysis of Dose-Response of Therapeutics: Prof. Paul Rees

From Nano-Health to Population-Health: Prof. Steve Conlan

UNIVERSITY OF HOUSTON SHOWCASE: HOUSTON 28TH OCTOBER

THEME	Law & Society	<p>The Human Rights of Children and Young People: 'But this is what really happened!' Making and Implementing the World's First Domestic Law on the Rights of Children: A conversation between key actors: Rt. Hon. Rhodri Morgan, Jane Williams and Helen Mary Jones. Moderated by Sir Rod Evans</p> <p>Latest Research in Innovative Ageing and Gerontology: Prof. Vanessa Burholt</p>
	Liberal Arts	<p>Cultural Property Protection and Military Necessity at a Crossroads? The 'Monuments Men' and the Allied Bombing of Pompeii in 1943: Dr Nigel Pollard</p> <p>Dylan Thomas in the American Century: Prof. Daniel Williams</p>
Science	<p>Sleep on it: The Benefits of Sleep for Memory: Prof. Mark Blagrove</p> <p>What can Trendy Transducers, Vivid Visualisations and Fundamental Physics tell us about Wild Animals and People? Prof. Rory Wilson</p>	
Engineering	<p>'Up to Speed': The 1000mph World Land Speed Record - Swansea University and the Bloodhound Project: Dr Ben Evans</p> <p>Future Buildings: Delivering Clean Renewable Energy from the Built Environment: Prof. David Worsley</p>	
Poster Sessions	<p>Featuring Early Career Researchers from the Colleges of Arts and Humanities, Human and Health Sciences, Engineering, and Science</p>	



TEXAS A&M UNIVERSITY SHOWCASE: COLLEGE STATION 30TH OCTOBER

Federalism, Decentralisation and the Implications of the Scottish Referendum: Rt. Hon. Rhodri Morgan
'Up to Speed': The 1000mph World Land Speed Record - Swansea University and the Bloodhound Project: Dr Ben Evans
One Jump Ahead: The Application of Hawkes Processes in Finance: Dr Maggie Chen
St Francis and the Sultan: A Starting Point for Middle-East Reconciliation? A Multidisciplinary Research Project: D.J. Britton
Chelsea Dreaming: An excerpt from D.J. Britton's radio play performed by students from Texas A&M University under the direction of D.J. Britton
Cultural Property Protection and Military Necessity at a Crossroads? The 'Monuments Men' and the Allied Bombing of Pompeii in 1943: Dr Nigel Pollard

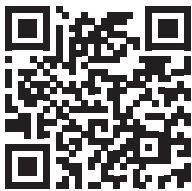
UNIVERSITY OF TEXAS AT AUSTIN SHOWCASE: AUSTIN 31ST OCTOBER

THEME	Politics and Law	The Human Rights of Children and Young People 'But this is what really happened!' Making and Implementing the World's First Domestic Law on the Rights of Children: A conversation between key actors: Rt. Hon. Rhodri Morgan, Jane Williams, and Helen Mary Jones. Moderated by Sir Rod Evans
		Federalism, Decentralisation and the Implications of the Scottish Referendum: Rt. Hon. Rhodri Morgan
		Law and the Constitution: Prof. Philip Bobbitt with Prof. Sanford Levinson
	Liberal Arts	St Francis and the Sultan: A Starting Point for Middle-East Reconciliation? A Multidisciplinary Research Project: David Britton
		Black Skin, Blue Books: Frederick Douglass, Wales and Transatlantic Abolitionism: Prof. Daniel Williams
		Cultural Property Protection and Military Necessity at a Crossroads? The 'Monuments Men' and the Allied Bombing of Pompeii in 1943: Dr Nigel Pollard
	Science and Engineering	Sea-level rise from Glaciers and Ice Sheets: Prof. Tavi Murray
		Where has all the Antimatter gone? Swansea University and the ALPHA Experiment at CERN: Prof. Niels Madsen

SHOWCASE FINALE: AUSTIN 31ST OCTOBER

Dylan Thomas lecture: Dylan Thomas and John Berryman: Prof. Kurt Heinzelman
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FOR PROGRAMME TIMES AND VENUES PLEASE SEE:
www.swansea.ac.uk/Texas-showcase  **SUinTexas**





DYLAN THOMAS

One of the most extraordinary and original writers of the twentieth century, Dylan Thomas was born in Swansea on 27th October 1914.

His poetry and short stories command global popularity, yet constantly surprise and challenge in their daring experimentalism. His poetry and fiction emerge from the intense experiences of growing up in the cultural borderlands between rural and industrial societies, between Welsh and English-speaking Wales, between the conventions of a middle class upbringing and the imaginative and linguistic transcendence of those inherited modes of being and belonging.

Swansea had been famous as that 'intelligent town' where culture, science and industry thrived in an internationally focused environment. By the time Dylan Thomas was born, Swansea was

no longer a major hub of world trade, but remained a culturally vibrant city with a strong connection to its industrial and rural hinterlands and an international outlook. One hundred years on, Swansea retains that character, as does its first University, itself established just a few years after Dylan Thomas' birth.

The Swansea University Texas Research Showcase is just one of a series of events being held worldwide to mark the centenary of Dylan Thomas' birth. The Showcase will feature Swansea University's internationally acclaimed Dylan Thomas expert, Professor John Goodby, who will launch the Showcase at the University of Houston, and Professor Kurt Heinzelman, award-winning poet, Professor of English at the University of Texas at Austin and Honorary Professor at Swansea University, who will provide the Showcase finale in Austin.

International Dylan Thomas Prize

Sponsored by Swansea University, the annual International Dylan Thomas Prize is one of the most prestigious awards for young writers, aimed at encouraging raw creative talent worldwide. Launched in 2006, the £30,000 Prize is awarded to the best published or produced literary work in the English language, written by an author aged 39 or under.

The shortlist for the 2014 prize includes *A Girl is a Half-Formed Thing* by Eimar McBride, Glasgow-based Jamaican poet Kei Miller, and 2013 Man Booker Prize winner Eleanor Catton.

The winner, due to be announced in November, will be chosen by a panel of judges that includes UT's Professor Kurt Heinzelman and will have the opportunity to spend a 'sabbatical' at UT's English Department.

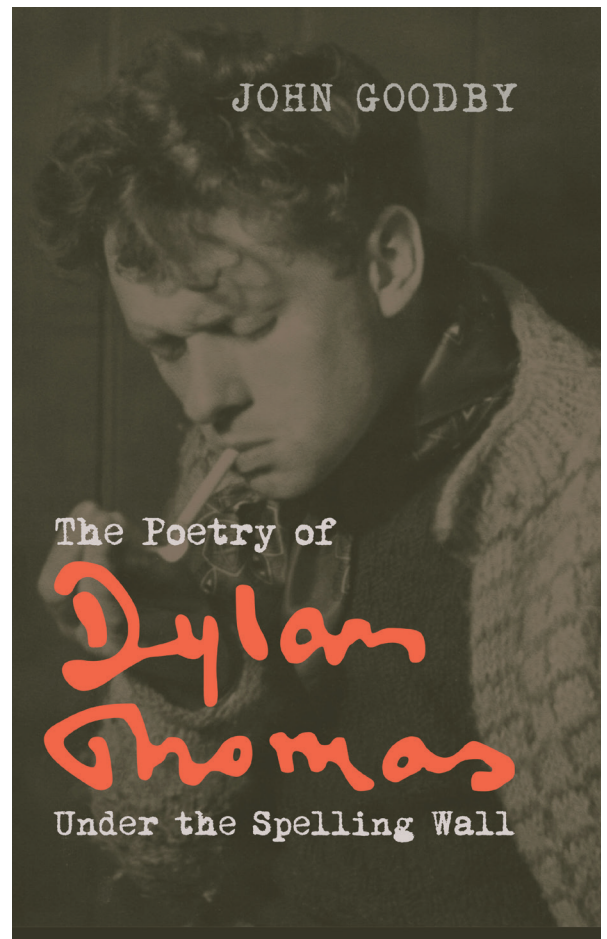
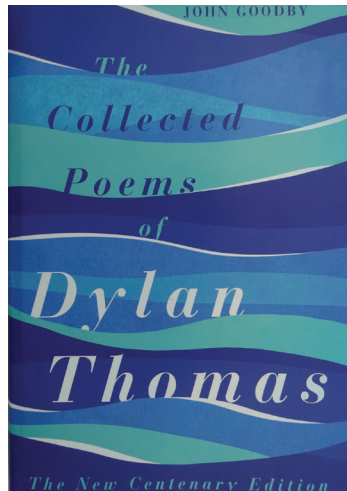
"Dylan Thomas was the Swansea-born poet whose spell-binding words and performances conquered London and North America and identified him as one of the most influential writers of the mid twentieth century. The Prize established in his name has captured the imagination of writers internationally and in recent years thirty short-listed writers from all continents have come to Wales to speak to students and writing classes. The Prize has been won by writers from Wales and Northern Ireland, a Vietnamese Australian and three Americans. Swansea University sponsors the Prize and is proud to be hosting a competition that invites entries from young writers from around the world."



The Collected Poems

Director of Swansea University's Dylan Thomas Research Project, John Goodby is author of numerous volumes on the works of Swansea's most famous son.

His most recent works on Dylan Thomas are *The Poetry of Dylan Thomas: Under the Spelling Wall* (2013) and a new centenary annotated edition of the *Collected Poems*, due to be published in October 2014. These read Thomas in terms of his 'revolution of the word', and treatment of the body, surrealism, war and pastoral, and seek not only to restore him to his original contexts, but also to relate him to contemporary concerns.



THE DYLAN THOMAS CENTENARY

- Lectures and talks on Dylan Thomas at leading UK literature festivals, including at Hay, Portmeiron, Ledbury, Cheltenham, Dartington, Buxton, Stratford-upon-Avon, Sheffield, Sherbourne and Fitzrovia
- 'Dylan Unchained', the Dylan Thomas centenary conference, hosted by Swansea University, and Dylan Thomas Symposium at Cambridge University
- New centenary edition of the *Collected Poems* edited by Swansea University's Professor John Goodby published in UK/World and US editions by Orion plc and New Directions Press
- Exhibition of Dylan Thomas' notebooks and manuscripts at the Dylan Thomas Centre, Swansea - the first time his famous four notebooks, held by the library at the State University of New York at Buffalo, have returned to the UK since 1941
- Swansea University Texas Research Showcase featuring Dylan Thomas sessions by Professor John Goodby, Professor Daniel Williams, D.J. Britton and Professor Kurt Heinzelman
- Under Milk Wood: an opera, composed by John Metcalfe and premiered at Swansea University's Taliesin Theatre
- First live performance, with a star cast, of the radio play *Chelsea Dreaming*, an offbeat look at the life and legend of Dylan Thomas by Swansea University's D. J. Britton
- Dylan Thomas Festival at Swansea's Dylan Thomas Centre, an annual event run by Swansea City Council
- The BBC's 'Laugharne Live Festival' which included special transmissions for Radio 3, 4 and 6, and for US and German radio, a new version of *Under Milk Wood* with a star all-Welsh cast, and a first showing of *A Poet in New York*, the Tom Hollander / Andrew Davies film
- *Deaths and Entrances*, an exhibition of portraits, photographs and paintings by Dan Ilywelyn Hall based on Dylan Thomas' short stories at the Conningsby Gallery, London



THE COLLEGE OF ARTS AND HUMANITIES

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The College of Arts and Humanities is home to the Departments of History and Classics, English Language and English Literature, Politics and Cultural Studies, Languages, Translation and Communication, and Academi Hywel Teifi, a centre of excellence for research and teaching the Welsh language and its literature.

The College's research activities are co-ordinated by the Research Institute for Arts and Humanities (RIAH) which brings together academics, postgraduates and visiting national and international scholars to create a rich and vibrant research environment geared towards international excellence and impact.

RIAH comprises two 'flagship' research centres, the Callaghan Centre for the Study of Conflict, Power and Empire, and the Richard Burton Centre for the Study of Wales, together with a number of research groups and externally funded research projects.

The Callaghan Centre for the Study of Conflict, Power and Empire

The Callaghan Centre comprises a large number of scholars and postgraduate students with research expertise in the areas of conflict, power and empire. It produces world-class research, manages major Research Council funded projects, and promotes collaboration between scholars, policy-makers and cultural providers.

The Richard Burton Centre for the Study of Wales

Taking its name from the renowned stage actor and film star, born Richard Walter Jenkins in Pontrhydyfen close to Swansea in 1925, the Richard Burton Centre for the Study of Wales brings together expertise and resources in all matters Welsh.

In 2005 Richard Burton's personal papers were deposited at Swansea University and form a central part of the new Richard Burton Archive which was formally opened in April 2010.

2012 saw the publication - to huge international acclaim - of *The Richard Burton Diaries* edited by Professor Chris Williams, at the time Director of RIAH. This unveiled, for the first time in their entirety in one volume, the surviving diaries of Richard Burton written between 1939 and 1983.

Research Groups

- Centre for Contemporary German Culture
- Centre for the Comparative Study of the Americas
- Centre for Research into the English Literature and Language of Wales
- Centre for Digital Humanities
- Centre for Digital Politics
- Centre for Research into Gender in Culture and Society
- KYKNOS - the Swansea and Lampeter Centre for Research on the Narrative Literatures of the Ancient World
- Language Research Centre
- Centre for Medieval and Early Modern Research
- Research Group for Health, History and Culture
- Research Group for Political Analysis and Governance
- Research Group for International Relations, Security and War
- Research Group for Conflict, Reconstruction and Memory

TEXAS FELLOWSHIP

The College of Arts and Humanities has established an academic fellowship to fund staff mobility between Swansea and partner universities in Texas to facilitate research collaborations between staff with complimentary research interests.

The Texas Fellowship allows a Swansea academic to spend a semester in Texas and their Texas counterpart to spend the following semester in Swansea. The first beneficiary will be D.J. Britton, an award-winning dramatist and director from the English Department's Creative Writing Programme who is undertaking a collaborative project on St Francis of Assisi with Professor Janet McCann at Texas A&M University.

SHOWCASE SPEAKERS

D.J. Britton

Director of Studies in Creative Writing at Swansea University, D.J. Britton is an award-winning dramatist, director and dramaturge. His recent stage plays include the much acclaimed *The Wizard, the Goat and the Man Who Won the War*, drawn from the life of British Prime Minister David Lloyd George which received three nominations at the Wales Theatre Awards.



David moved to Wales from Australia, where he headed the Australian Broadcasting Corporation's radio drama department. His work now features regularly on the BBC: Most recently his dramatisation of *The White Guard*, adapted from Mikhail Bulgakov's novel, gave a new perspective on the current troubles in Ukraine.

His Australian stage credits include *Cargo* (Swan Gold Award, Play of the Year) and his co-adaptation of Elizabeth Jolley's *The Newspaper of Claremont Street*, whilst his epic theatre work *Plainsong* was a major hit at the Millennium Perth International Festival of the Arts, winning the Equity Award for Production of the Year.

Professor John Goodby

A world authority on Dylan Thomas and an expert on modern Irish poetry, John Goodby is a critic, poet, and translator of poetry, and Director of Swansea University's Dylan Thomas Research Project. He has advised the BBC, AHRC, British Academy and many other bodies marking the centenary of Thomas's birth this year, and has contributed to numerous radio and television broadcasts, films and documentaries.



His most recent books on Dylan Thomas are *The Poetry of Dylan Thomas: Under the Spelling Wall* (2013) and a new centenary annotated edition of the *Collected Poems*, due to be published in October 2014. These read Thomas in terms of his 'revolution of the word', and treatment of the body, surrealism, war and pastoral, and seek not only to restore him to his original contexts, but also to relate him to contemporary concerns.

Goodby views the 'Rimbaud of Cwmdonkin Drive' as a hybrid, trickster figure, whose fusion of modernism and mainstream styles throws into relief the faultlines in post-Waste Land British poetry. Forcing us to rethink the dominant accounts of modern poetry, this is a Thomas who challenges the way we understand poetry, and continues to shape the relationship between art, popular culture and mass media in the early twenty-first century.

Professor Kurt Heinzelman

Kurt Heinzelman is a poet, translator, scholar, teacher and editor who has written extensively on British Romanticism, poetry and poetics, and cultural economics. His latest books of poetry are *Intimacies & Other Devices* (2013) and *The Names They Found There* (2011) and in 2011 his *Demarcations*, a translation of Jean Follain's 1953 volume of poetry *Territoires*, was also published.



He is Editor-at-Large for the Bat City Review as well as Editor-in-Chief of Texas Studies in Literature and Language, and former Executive Curator at the Harry Ransom Center, home to one of the world's largest collections of Dylan Thomas' manuscripts, notebooks and other papers.

A Fulbright Fellow at Edinburgh University (Scotland) and of the Rockefeller Center in Bellagio, Italy, he has also taught at L'Institut du monde Anglophone, Sorbonne Nouvelle (Université de Paris III). He is on the Board of Directors of the Cunda Workshop for Translators of Turkish in Istanbul and an Honorary Professor at Swansea University.

Dr Nigel Pollard

Dr Nigel Pollard is, by training, a historian, and archaeologist of the Roman world, and his past research and fieldwork have focused on Roman Syria, Egypt and Italy. His particular current research interests include cultural property protection in conflict zones.



At present Dr. Pollard is primarily working on a study of protection, damage and reception of archaeological sites and monuments in the Second World War, including the work of the Allied Monuments, Fine Arts and Archives Sub-Commission (the 'Monuments Men'), and, as a board member of the UK National Committee of the Blue Shield, engages with governments, NGOs and military personnel to promote the protection of cultural sites in conflicts and natural disasters.

Before joining Swansea University in 2002, Dr Pollard taught at Oxford University, Bowdoin College (Maine, USA) and the University of Michigan, and has been Professor-in-Charge of Duke University's Intercollegiate Center for Classical Studies in Rome and 2013 Benedict Distinguished Visiting Professor of Classics at Carleton College (Minnesota, USA).

Professor Daniel Williams

Professor Daniel G. Williams was educated at the University of East Anglia, Harvard University and Cambridge University. He is Director of Swansea University's Richard Burton Centre for the Study of Wales and was a Leverhulme Trust funded Visiting Professor at Harvard University in 2012.



Professor Williams' research interests include Welsh literature in Welsh and English, American Literature, African-American Literature, Celticism, Multilingualism, Transatlantic Literature, Comparative Literature, Nationalism, Ethnicity, New Left, Critical Theory and Intellectual History.

He is the author of *Ethnicity and Cultural Authority: From Arnold to Du Bois* (2006) and *Black Skin, Blue Books: African Americans and Wales* (2012). He has edited numerous books and publications including a collection of Raymond Williams' writings, *Who Speaks for Wales? Nation, Culture, Identity*, and a special edition of Comparative American Studies on The Celtic Nations and the African-Americans (2010).

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THE COLLEGE OF ENGINEERING

The College of Engineering brings together international expertise in aerospace, chemical, civil, petroleum, computational, electronic and electrical, environmental, materials, mechanical, medical and product design engineering, as well as nanotechnology.

The College strives to engineer a difference and for its research to have a real impact, and the most recent research assessment exercise ranked Civil Engineering 2nd in the UK for research quality and Materials Engineering 8th.

The College's research is organised into three strategic technology centres:

Zienkiewicz Centre for Computational Engineering (ZC2E)

Over the last 30 years Swansea University has been in the vanguard of international research in computational engineering: it pioneered the development of numerical techniques such as the finite element method and associated computational procedures that have enabled the solution of many complex engineering problems.

Swansea's Engineers have been at the forefront of developments that have revolutionised industrial engineering analysis practice and have made significant contributions to groundbreaking projects such as the design of the THRUST Supersonic Car, which currently holds the world land-speed record, and the Airbus A380, the largest civilian aircraft to date.

The Centre has a significant links with industry and is a preferred academic partner for BAE Systems in the areas of both computational electromagnetics and computational engineering.

Materials Research Centre (MRC)

Swansea is one of the UK's leading centres for materials teaching and research and has a research grant portfolio in excess of £40 million.

It has strong links with organisations such as Rolls Royce, Tata Steel, The European Space Agency, and Airbus and has been selected as one of just five UK universities to host a new EPSRC-funded Industrial Doctorate Centre in Manufacturing Engineering.

Its links with Rolls Royce include membership of the Rolls-Royce University Technology Centre in Materials, a global initiative which supports a wide ranging research portfolio, and the EPSRC Strategic Partnership in Structural Materials for Gas Turbines.

The MRC is also home to the £20 million SPECIFIC (Sustainable Product Engineering Centre for Innovation in Functional Coatings) project, a multidisciplinary collaboration which includes Tata Steel, BASF, Akzo Nobel, Pilkington and Vale Inco. The project is developing coated steel and glass products for roofs and walls that will generate, store and release renewable energy - essentially transforming buildings into power stations.

Systems and Process Engineering Centre

The Systems and Process Engineering Centre houses research groups whose work involves developing an understanding of complex systems, from biological cells and chemical plants to energy systems and printing technology.

Key research activity includes nanomedicine and bio-nanotechnology, nanomaterials and nanosensors, rheometry, theoretical modelling, polymers at interfaces and in thin films, nano-optics and scanning near-field optical microscopy, wide band-gap semi-conductors, photonics, and wireless technologies and networks, advanced technologies in water treatment including desalination and membrane technologies.

Research centres and groups

- Centre for Complex Fluid Processing
- Centre for Nanohealth (CNH)
- Centre for Water Advanced Technologies and Environmental Research (CWATER)
- Electronic Systems Design Centre (ESDC)
- Institute of Structural Materials (ISM)
- Multidisciplinary Nanotechnology Centre (MNC)
- Research Centre in Applied Sports, Technology, Exercise and Medicine (A-STEM)
- Swansea Materials Research & Testing Ltd (SMaRT)
- Sustainable Product Engineering Centre for Innovative Functional Industrial Coatings (SPECIFIC)
- Wales Institute of Mathematics and Computational Sciences (WIMCS)
- Welsh Centre for Printing and Coating (WCPC)
- Materials Advanced Characterization (MACH Centre)

SHOWCASE SPEAKERS

Professor Andrew Barron

Professor Andrew Barron is Ser Cymru Chair at Swansea University's College of Engineering where his research involves the application of nanotechnology to fundamental problems in energy research.



Educated at Imperial College (London), Professor Barron has held posts at the University Texas at Austin and Harvard and he continues to hold the Charles W. Duncan, Jr. - Welch Chair of Chemistry and Professor of Materials Science at Rice University.

Professor Barron is the author of over 380 publications, 20 patents, five books, and is the recipient of numerous awards including the Humboldt Senior Scientist Research Award, the Corday Morgan Medal, the Meldola Medal, and the first Welch Foundation Norman Hackerman Award. He is a Fellow of the Royal Society of Chemistry, and in 2009 was appointed as the Prince of Wales Visiting Innovator. In 2011 he won both the Houston Technology Center's Lifetime Achievement Award in Nanotechnology and the World Technology Award for Materials.

At Swansea, Professor Barron is facilitating the creation and growth of the Energy Safety Research Institute (ESRI), a £38 million investment on the new Science and Innovation Campus which will concentrate elements of the University's energy research with a unique focus on safety. This will be based on long-term strengths in petroleum and chemical processing - particularly in terms of computational science (rock fracture modelling and 'fracking') and corrosion.

Dr Ben Evans

Dr Ben Evans is a lecturer in Aerospace Engineering and his research interests range from computational shape optimisation and high speed aerodynamic modelling to molecular gas dynamics simulation. He also has interests in engineering public engagement and engineering education, and is currently Director of the Engineering Education Scheme in Wales (EESW).



Dr Evans sits on the design team for the BLOODHOUND SSC Land Speed Record project which aims to take the World Land Speed Record to 1000 mph. Using Computer Fluid Dynamics, Dr Evans developed computational models of the aerodynamic flows that BLOODHOUND will experience to help shape the vehicle design and surface geometry.

Dr Evans' research has been funded by organisations including Fujitsu and the Royal Academy of Engineering and he has

received numerous awards including the Mike Crisfield Prize in Computational Mechanics and the TATA Steel Award for Outstanding Impact in Commerce and Industry.

Professor Paul Rees

Professor Paul Rees has research interests in flow cytometry, systems biology, the simulation of blood clotting, and colloidal quantum dots.



He has undertaken collaborative research with national and international partners, including the Houston Methodist Research Institute, Baylor School of Medicine, MIT, Harvard, Texas A&M and Cancer Research UK, and he is author of over 150 journal papers.

Professor Rees is a member of Swansea University's £22 million Centre for Nanohealth, a Senior Affiliate of the Methodist Hospital Research Academy and a visiting Professor at the Broad Institute of MIT and Harvard, Cambridge, MA.

Professor David Worsley

Professor David Worsley is Head of the Materials Research Centre within Swansea University's College of Engineering, Director of the £7 million Steel Training Research and innovation Partnership, and Research Director of the £20 million SPECIFIC (Sustainable Product Engineering Centre for Innovative Functional Industrial Coatings) project.



SPECIFIC is an academic and industrial consortium led by Swansea University with Tata Steel as the main industrial partner and supported by the EPSRC, Technology Strategy Board, the Welsh Government, Pilkington Glass and BASF. It aims to develop functional coated steel and glass products for roofs and walls that generate, store and release renewable energy - transforming buildings into power stations.

Professor Worsley's research interests range from coatings used for corrosion protection to renewable energy generation and he has authored/co-authored over 100 publications on coated product development. He holds two patents, is named inventor on two patents shared with an industry partner and has a fifth patent under consideration.

Professor Worsley has close links with industry and has worked with companies including Johnson Matthey, Astra Zeneca, Tata, BASF, Akzo Nobel, Dyesol and Vale INCO. Has a current grant portfolio of over £22 million from EPSRC, the Welsh Government and industry partners.



BLOODHOUND SSC

BLOODHOUND SSC is a project which aims to take the world land speed record to 1000mph. Internationally renowned Engineers from Swansea University form part of the vehicle design team and have used Computer Fluid Dynamics to model its aerodynamic characteristics and help shape the design and surface geometry.

Geographers from the University's College of Science have also been involved in the project, developing computer programmes and using remote sensing images to help identify an appropriate test site. This has seen the Hakskeen Pan in South Africa's Northern Cape region selected, with the first test runs of BLOODHOUND SSC due in early 2015.

www.swansea.ac.uk/bloodhoundssc

SCIENCE AND INNOVATION CAMPUS

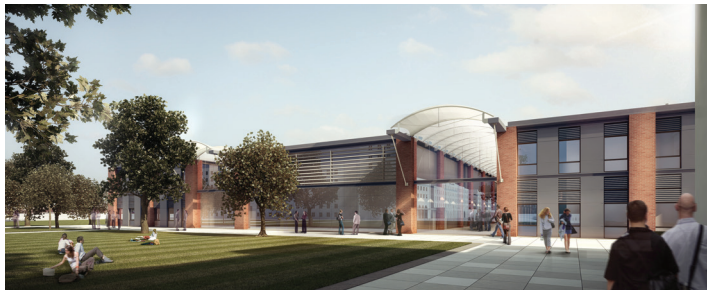
“AN EXEMPLAR TO BE REPLICATED THROUGHOUT EUROPE”

Director General of Regeneration of the European Commission

In the last ten years Swansea University has experienced unprecedented growth which has seen it outgrow the original Singleton Park campus on which it was established in 1920. An ambitious Campus Development Programme is now underway to develop a new 65 acre Science and Innovation campus (known as the 'Bay Campus') which will support Swansea University's aim to be a research intensive UK top-30 UK University by 2017.

It is an exciting project for a number of reasons. First, driven by the Vice-Chancellor's vision, the new campus has been developed in the face of current economic orthodoxy: this is a \$750 million investment made possible by private sector investment and buy-in from Welsh and UK governments and the European Commission to kick-start the Welsh economy out of recession. Second, it co-locates business and academe on one state-of-the-art site which will allow industrial partners, including Rolls Royce, Tata Steel and British Aerospace, to work side by side with academics. Finally, it is in itself a major economic development project - it is one of the largest knowledge economy projects in the UK and one of the top five in Europe.

Swansea University was founded on links with business and industry and they remain a core part of its mission almost one hundred years on. These links are at the heart of the Science and Innovation Campus development which will co-locate academic and industry research, fostering increased collaboration, providing access to cutting-edge research and state-of-the-art equipment, and speeding up the process of innovation to allow improved commercialisation.



The Institute of Structural Materials

Sponsored by partners including Rolls-Royce, Airbus, TWI and Timet, the Institute of Structural Materials (ISM) will co-locate academic research and commercial activities.

It is home to the Rolls-Royce University Technology Centre in Materials, part of Rolls-Royce's global network of University Technology Centres which focuses on developing long-term relationships with world-class universities to provide access to cutting edge academic research and experts.

It will also house substantial mechanical test laboratories which will be managed by Swansea Materials Research & Testing Ltd (SMaRT), a newly incorporated commercial company which is an exemplar of the academia-industry knowledge transfer model at the heart of the Bay development.

KEY GROWTH AREAS:

- Energy
- Advanced engineering
- Life sciences
- Digital economy
- Low carbon

SPECIFIC

SPECIFIC (Sustainable Product Engineering Centre for Innovative Functional Industrial Coatings) is an academic and industrial consortium which aims to develop functional coated steel and glass products for roofs and walls that generate, store and release renewable energy - transforming buildings into power stations.

The £20 million (\$33 million) project is led by Swansea University with Tata Steel as the main industrial partner and is supported by the EPSRC, Technology Strategy Board, the Welsh Government, Pilkington Glass and BASF.

THE DEVELOPMENT

Phase One of the development sees the construction of the Great Hall, Bay Library and School of Management together with the Institute of Structural Materials, Engineering Central (home to the Innovation Hub), Engineering East (home to the Engineering Manufacturing Centre) and the Energy Safety Research Institute (ESRI). Many of these buildings will be 'topped out' over summer and autumn 2014 in readiness for opening in 2015.

Phase Two of the development will see further construction. We are actively seeking to finance the further development of the Energy Safety Research Institute to include law and policy support to the activities of ESRI and a new petrochemical engineering Centre of Excellence. These developments are anticipated to be achieved in collaboration with our Texan academic partners and global industrial partners.

Energy Safety Research Institute

The Energy Safety Research Institute (ESRI) brings together the College of Engineering's expertise in energy and will focus on the safety issues surrounding the development and expansion of existing energy processes, as well as the safe deployment and integration of new 'green' energy technologies.

Supported by industry sponsors BP and Tata Steel, it is a constituent member of the Global Energy Safety Institute (founded in Houston in 2011), a sister Institute of the Energy and Environmental Systems Institute at Rice University, Houston, and an associate of the National Corrosion Research Centre at Texas A&M University (supported by BP in North America).

ESRI will enable the University to significantly increase both the quality and scale of its research into energy and safety, building on existing and long-established strengths in petroleum and chemical processing, particularly in computational science (rock fracture modelling and fracking) and corrosion.

This work will be supplemented by more recent research successes in marine energy, nuclear, tidal, advanced water treatment ('fracking' post-treatment and separation), materials, crisis management and more novel areas such as photovoltaic (PV) and nanotechnology.

AT A GLANCE:

\$750 million investment

65 acre site

1 million sq ft of space under construction

Opens 2015

Economic impact of more than **£3 billion**





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THE COLLEGE OF SCIENCE

The College of Science brings together expertise in Biosciences, Geography, Physics, Computer Science and Mathematics.

It brings science to life through globally excellent and impactful research, passionate hands-on teaching and two-way engagement with the business community to share a vision in which science plays a significant role in the understanding and shaping of our world today.

The College produces agenda-setting research of the highest calibre through the following research centres and institutes:

Centre for Migration Policy Research (CMPR)

The CMPR aims to encourage the exchange of ideas about asylum and migration and ensure that policy making is underpinned by empirical evidence about the nature and causes of migration, the impacts on different countries and communities and the effects - both intended and unintended - of policy responses.

Centre for Sustainable Aquatic Research (CSAR)

CSAR conducts research and technological development and provides training and advice to commercial farmers and aquaculture service providers, funding agencies, and governmental institutions in the UK and internationally. Equipped with state-of-the-art facilities, it is designed for applied research on a range of aquatic organisms, from temperate to tropical and marine to freshwater environments. Thematic areas of specialty include food and fuel security, low carbon technologies, climate change research and blue biotechnology.

Glaciology

Swansea University's Glaciology Group has an international reputation for its research on the past and future contribution from glaciers and ice sheets to sea-level rise, the processes driving the present rapid and dramatic changes observed in glaciers, and the instabilities inherent in glacial systems, and understanding the record of paleo-ice mass instabilities and the processes that drove these changes.

Centre for Urban Theory

The Centre focuses on the advanced theorisation of cities and is concerned in particular with developing new conceptual

approaches to aid in the understanding of our increasingly complex urban societies and their increasingly global constitution.

Future Interaction Technology Lab (FIT Lab)

FIT Lab's mission is to explore and apply advanced computer science to make interaction technologies dependable, enjoyable and effective. Interaction technologies include mobile devices, the web, web 2.0, implants, home TVs, microwave cookers, ticket machines, navigational aids and medical devices; FIT Lab works in collaboration with companies like Microsoft Research, Nokia, and the NHS, focusing on 'grand challenges'.

Research Institute of Visual Computing (RIVIC)

A collaborative amalgamation of research programmes between Swansea, Cardiff, Aberystwyth and Bangor universities, RIVIC carries out research in augmented reality, computer vision, data visualization, geometry processing, imaging, rendering, video processing and virtual environments.

Antimatter

The Atomic, Molecular and Quantum Physics Group conducts research in positron and antihydrogen physics, cold atoms, quantum control, ultra-fast phenomena and nano-scale science. Five staff are members of ALPHA, an international experimental team based at CERN which has recently succeeded in trapping antihydrogen atoms in a magnetic minimum neutral atom trap. Some have been held for periods in excess of ten minutes which has allowed the first ever observation of a quantum transition of an antimatter atom to be performed.

Particle Physics

The Particle Theory Group has several interests in fundamental particle physics, from the theory of the strong interaction and physics beyond the Standard Model, to scattering amplitudes, black holes, holography, quantum fields in curved space and string theory. They are also active in high-performance computing (HPC) and are part of the UKQCD collaboration exploiting the STFC-funded DiRAC Facility.

SHOWCASE SPEAKERS

Professor Niels Madsen

Professor Niels Madsen is an experimental physicist who specialises in work on fundamental physics with antimatter. His research interests include antihydrogen, atomic physics, laser cooling, plasma physics, fundamental physics, spectroscopy and non-neutral plasmas.



He played a significant role in the ATHENA team that first formed low energy antihydrogen in 2002 and is co-founder and group leader of the ALPHA collaboration that was the first group to trap antihydrogen and observe the first quantum transitions in it. Professor Madsen has a research group at CERN which plays a leading role in the ALPHA experiment in both physics and hardware and software design, and led the effort to implement key techniques which resulted in the first antihydrogen trapping.

He was awarded a Royal Society Senior Leverhulme Fellowship in 2010 and in 2011 received the James Dawson award for Excellence in Plasma Physics Research.

Current field projects span the Arctic, Antarctic and most of the world's glaciated regions, with Greenland the location for several of the group's major projects.

In 2007 Professor Murray was awarded the Polar Medal by the Queen for outstanding service to polar research, one of only seven women to receive this accolade.

Professor Rory Wilson

Professor Rory Wilson is Head of the Department of Biosciences within Swansea University's College of Science.



His research reflects his interest in how free-living animals modulate the energetic costs they have for activities (including incidences, extents and intensities of activities) according to their environment and particularly how animals manage their time and energy to forage most effectively. Most of his research focuses on seabirds, especially penguins, but he is also involved in work with marine mammals, turtles, terrestrial and arboreal mammals and terrestrial birds.

His research has been funded by organisations including National Geographic, the Royal Society for the Protection of Cruelty to Animals, Wildlife Computers and the Oiled Wildlife Care Network, and he works with research collaborations in South Africa, Argentina, Costa Rica, Australia and Europe.

In 2006 Professor Wilson was awarded a Rolex Award for Enterprise to develop and test an electronic tag to track the movement of marine and land animals. Now rolled out commercially, the 'Daily Diary' has revolutionised animal tracking and was used extensively by National Geographic in the production of their 'Great Migrations' series on which Professor Wilson acted as Chief Scientific Advisor.

Professor Tavi Murray

Professor Tavi Murray is professor of glaciology, head of Swansea's Glaciology Group, and a deputy Pro-Vice-Chancellor at Swansea University.



A world authority in glaciology, Professor Murray is at the forefront of research that informs the debate on one of the most pressing issues of our time: climate change. She is particularly interested in glacier flow and instability and, together with colleagues in the Glaciology Group, she studies the extent to which glaciers are contributing to rises in global sea level, both now and looking into the future.

GREAT MIGRATIONS

Professor Rory Wilson from the Department of Biosciences was the lead consulting scientist for National Geographic's ground breaking series, Great Migrations.

The most ambitious project in National Geographic's 122 year history, Great Migrations involving filming the migrations of animals around the globe and drew heavily on Professor Wilson's expertise in animal tracking. He developed the 'Daily Diary', a tag which can be used on marine and land animals and records everything from the animal's minute movements through space and time to the temperature of its environment and light levels.



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THE COLLEGE OF MEDICINE

Swansea University's College of Medicine was established in 2004 and has enjoyed rapid growth which has seen it excel in research, learning and teaching, and business interaction.

In just ten years the College has become home to four UK Research Council Centres, has created 22 new companies and has attracted over £100 million in funding to build three new purpose built research, innovation and incubation facilities.

The College's research and innovation arm is the Institute of Life Science (ILS), a collaboration between Swansea University, the Welsh Government, Abertawe Bro Morgannwg University Health Board, and business and industry partners. ILS is Wales' premier purpose-built medical research facility and its vision is to advance medical science through interdisciplinary research and innovation to improve the health, wealth and well-being of the people of Wales and beyond. Research within the College is carried out in close collaboration with the local NHS through a strategic partnership with the local ABMU Health Board.

The College's research is grouped into four research themes:

Biomarkers and genes

Genetics at Swansea has a long and distinguished history going back more than fifty years. Its researchers made pioneering research contributions in genetic toxicology and DNA repair mechanisms, in population and evolutionary genetics, and in the genetics of microbes and cell organelles. Current research in this theme employs a wide range of approaches from laboratory, mass spectrometry, and epidemiological studies to applied problems in the identification and use of biomarkers. The main areas of application are neurological disorders (e.g. epilepsy), diabetes, and cancer. There is also a strong focus on nanotoxicology, the study of the health implications of nanomaterials.

Devices

Following on from advances in biomedical engineering made at Swansea, the Devices theme encompasses implantation, computational and biological devices, as well as methodological developments in mass spectrometry. This theme actively links its expertise in biomedical research to industry with the aim of improving human health and the development of knowledge economies globally. Current research is based on laboratory, MRI and clinical trial studies with applications in stem cell studies, regenerative medicine, cardiology, haemostasis and blood clot identification.

Microbes and immunity

This theme encompasses work on inflammation, immunity, microbiology, and infection and focuses on a range of diseases and infections that affect humans and animals. Recent funding from the UK MRC has seen the establishment of the Microbial Genomics Centre, dedicated to the use of next generation sequencing to understand human microbial infection by, e.g. *Campylobacter*.

Areas of interest in immunity include the mechanisms of host-pathogen interactions and the role of innate immunity in disease, whilst allergy and asthma research ranges from translational work on the genetic and immune aspects of asthma through to applied research on improved asthma management.

This theme also encompasses research in children and women's health, reproductive immunobiology (focusing on the mechanisms of infection and immunity in the female genital tract) and microbiology where researchers are working on the fundamental and applied science of viruses, bacteria and lower eukaryotes.

Patient and population health and informatics (PPHI)

PPHI is a multidisciplinary research centre of international standing which builds on the pioneering work carried out at Swansea in the 1990s on linking health data sets and defining rigorous standards for medical records.

The Centre conducts eHealth and Informatics Research, Health Services Research and Population Health Studies with the goal of making a difference to people's lives by substantially improving their health and the delivery of health services.

This centre is home to CIPHER - the Centre for Improvement in Population Health through E-records Research, one of the four co-ordinating centres of the £9.3 million Farr Institute of Health Informatics Research.

In 2015 the Farr Institute will relocate to the University's new Data Science building together with the £8 million Administrative Data Research Centre Wales. Funded by the Medical Research Council, Economic and Social Research Council and the Welsh Government, this development will enable researchers to work together to unleash the potential of large scale data to conduct powerful new research.

SHOWCASE SPEAKERS

Professor Steve Conlan

Steve Conlan is Professor of Molecular and Cell Biology and head of Reproductive Biology and Gynaecological Oncology research at Swansea University's College of Medicine. His research focuses on the application of molecular, cellular and nano biology approaches to understanding gynaecological pathologies and he holds an honorary consultant position in the Abertawe Bro Morgannwg NHS Board.

Professor Conlan is also Director of Swansea University's £22 million Centre for NanoHealth where his interests centre around the characterisation of cellular interactions at the nanoscale. He works closely with the life science and healthcare industrial sector, and has active collaborations with SMEs and multinational companies.

He is a Full Member of The Houston Methodist Research Institute and Distinguished Professor at Xi'an Jiaotong University, Suzhou Academy, China.



Professor Julian Hopkin

Professor Julian Hopkin is Professor of Experimental Medicine and founding Head of Swansea University's College of Medicine, which has seen Clinical and Life Sciences become one of Swansea University's key strengths and priorities.



Professor Hopkin has a distinguished reputation for research in respiratory medicine and allergy and is now best known as an international authority on the genetics of asthma. A Fellow of both the Academy of Medical Sciences and the Royal College of Physicians, Professor Hopkin was appointed as a Swansea University Non-executive Director of the Abertawe Bro Morgannwg University NHS Trust in 2008. He is also the Chair of Trustees of the St David's Medical Foundation, a charity which supports groundbreaking work in Medical Research and Education. Professor Hopkin has won extensive international acclaim and holds visiting Professor at positions at universities in Japan and Italy.

In 2001 he was awarded the Daiwa-Adrian Prize for his work on the genetics of asthma and in 2010 was awarded a CBE for services to medicine in the Queen's New Year's Honours.



FACILITIES

As well as the four research themes, there are cross-cutting facilities within the College that augment the research carried out by staff and clients in the College of Medicine:

These include the EPSRC National Mass Spectrometry Centre (NMSC), the Joint Clinical Research Facility (JCRF) for undertaking advanced patient imaging (MRI/CT) as well as co-ordinating clinical trials (including 1st in man studies), the Health Informatics Research Unit (HIRU), now part of the Data Sciences facility, the biomedical research unit focussing on haemorheology and the Centre for NanoHealth, a £22 million R&D facility dedicated to the advancement of healthcare through the application of nanotechnology.





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THE COLLEGE OF HUMAN AND HEALTH SCIENCES

The College of Human and Health Sciences draws together the disciplines of health, nursing, midwifery, social care, social policy and psychology. Its mission is to conduct high quality, cutting-edge research to deliver real-life benefits for the healthcare, social care, voluntary and private sectors and to enable improvements for patients, users, practitioners, managers and policy makers.

The College's research is organised into a number of research centres and groups:

Centre for Innovative Ageing (CIA)

As Wales' leading centre for ageing studies, the CIA is underpinned by a strong philosophy of translating research into practice, and an unashamedly positive view of ageing and older people. The centre is also committed to fostering collaboration between business and academia, with the intention of multiplying the benefits of public and private investment in knowledge.

Children and Young People's Health and Well-Being (CCYPHW)

CCYPHW is dedicated to enhancing the lives of children and young people from birth to early adulthood through rigorous multi- and interdisciplinary research. The unique amalgamation of disciplines within the centre makes it an ideal resource for expert insight into wide-ranging child health and well-being issues.

Swansea Centre for Health Economics (SCHE)

With over 60 years of experience, SCHE delivers research and consultancy services to organisations across the breadth of the healthcare sector. It carries out groundbreaking research in health economics and boasts unique access to the SAIL dataset, a world-renowned databank of anonymised data about the population of Wales.

Health Humanities

Leading the way through the application of the humanities to health research, this group applies the concepts and methods of philosophy, history, literature, ethics, the visual arts and law to the analysis of health and healthcare provision.

Nursing and Practice Development

Committed to transferring research from 'the bench to bedside', research in this area addresses the issues of professional working and contributions to patient care which cut across traditional boundaries.

Medicines Management

Focuses on exploring the administration and monitoring of medicines, the identification of adverse drug reactions, and undertaking student preparation to reduce harm and ensure high standards of patient safety.

Social and Health Care Research

Focuses on ensuring that the systems underpinning a range of social and health areas (such as service policy and organisation, social outcome measures, mental health services, and social care workforce) are evaluated and enhanced.

Psychology

Research within the field of Psychology focuses on the themes of Cognitive Neuroscience and Clinical and Health Psychology through three research groups - Brain and Behaviour, Cognition and Perception, and Clinical and Health Behaviour. Two further fields of research are also being developed in Learning and Behaviour and Evolutionary Behavioural Science.

SHOWCASE SPEAKERS

Professor Mark Blagrove

Head of the Department of Psychology, Professor Mark Blagrove was educated at Cambridge and Brunel universities.



Before his PhD he worked for three years at the Bethlem Royal Hospital (the original "bedlam"), and afterwards worked at the Loughborough University Sleep Laboratory before joining Swansea University in 1991.

His research focuses on the relationship between sleep and cognition, including the effects of sleep loss, memory consolidation, functions of sleep, causes and possible functions of dreaming, nightmares and lucid dreams. Professor Blagrove is Director of the Swansea University Sleep Laboratory which investigates sleep, dreaming, and what happens when people are deprived of sleep.

Professor Burholt's leadership of Swansea's Centre for Innovative Ageing (CIA) has seen it undergo rapid expansion to become one of the most prestigious gerontology research centres in the UK. Professor Burholt holds a public appointment as the research member on the National Partnership Forum for Older People in Wales, and is a Fellow of the Academy of Social Sciences.

Professor Andrea Tales

Educated at Bristol and Oxford universities, Professor Andrea Tales worked in both Clinical Sciences and Psychology at Bristol University until joining Swansea in 2012.



Andrea's particular interest is the characterisation of mild and subjective cognitive impairment. Her research has shown that, in addition to changes in memory, a wide range of vision and attention-related brain functions can also be significantly abnormal in the very early stages of Alzheimer's disease. Such findings highlight a wider scope for interventional strategies and early disease markers.

Professor Vanessa Burholt

Professor Vanessa Burholt is Professor of Gerontology in the College of Human and Health Sciences at Swansea University. Her research focuses on older people's attachment to people and places and in the past five years she had led or worked on research projects worth approximately £8 million.



She has published over 40 papers and book chapters on rurality, loneliness, support networks, intergenerational relationships, ethnicity and migration, and her research is conducted within local, national and international contexts.

THE NEED FOR NEW ANTIBIOTICS

The worldwide increase in infections, caused by bacteria resistant to conventional antibiotics, is headline news. Against a number of deadly diseases, we now have very few remaining functional antibiotics.

Research underway in the College of Human and Health Sciences is showing promise in working towards developing new antimicrobial compounds which could help address this problem. The Swansea Maggot Research Group, founded in 2001, focuses on the medicinal maggot, the molecules involved in larval therapy, and their interactions with chronic wounds.

The College's research team have undertaken numerous investigations and published their findings primarily on the antimicrobial activity of larval secretions and wound healing molecules associated with this insect. They have recently been awarded funding from the Welsh Government to explore developing a new antibiotic from larval secretions. Researchers are also investigating the presence of antimicrobial and haemostatic factors in other invertebrates.





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COLLEGE OF LAW

Established in 1993, Swansea University's College of Law is a highly successful modern law school dedicated to top-class teaching and research. Its expertise ranges across the board, from commercial law to legal philosophy and (since the integration of the Department of Criminology) crime, penology and the empirical social sciences.

The College operates through a number of research centres:

The Institute of International Shipping and Trade Law

The Institute, headed by three distinguished professors of shipping and commercial law, promotes research into issues of key importance in international shipping and trade law, both individually and collectively. It places strong emphasis on co-operation with academic institutions and professional, commercial, shipping and insurance organisations, and on maintaining links with national and international policy-making organisations.

The Centre for Criminal Justice and Criminology

The Centre for Criminal Justice and Criminology conducts and disseminates research into crime, criminal justice and criminology. Its approach is both interdisciplinary and intercollegiate and particular research interests include rehabilitation, crime prevention, youth justice, anti-social behaviour, sex work and sex offenders, children's rights, and corporate regulation.

The Hywel Dda Institute

The Hywel Dda Institute leads, coordinates and publicises research within the School under the broad heading of 'Legal Wales'. With a commitment to interdisciplinary and cross-institutional research, its areas of study include constitutional law and devolution, legislation of the National Assembly of Wales within devolved areas, bilingualism and language rights, legal history, and the application of international, European and UK domestic law in Wales.

The Centre for Global Legal Priorities

The focus of research at the Centre for Global Legal Priorities is the changing nature of international law. Two substantive areas for development have been identified for the Centre: The first, entitled "Global Challenges - Global Law", builds on Professor Joel Trachtman's research in public international and international economic law, whilst the second builds on Professor Philip Bobbitt's work on foreign relations, national security, and associated political theory.

THE HUMAN RIGHTS OF CHILDREN AND YOUNG PEOPLE

Swansea is home to the International Observatory on the Rights of Children and Young People which, alongside undertaking academic research, translates it into advice to government and public bodies. It was instrumental in the passage and content of a recent law to embed the principles of the United Nations Convention on the Rights of the Child (UNCRC) in domestic law in Wales and is developing strong links with the University of Houston, the University of Texas at Austin, Emory, and other US universities.



SHOWCASE SPEAKERS

Professor Philip Bobbitt

Professor Philip Bobbitt's research interests include international security and the history of strategy, the history and theory of international law, and constitutional law.



Educated at Oxford, Yale and Princeton, Professor Bobbitt has served as Associate Counsel to the President of the United States, the Counselor on International Law at the State Department, Legal Counsel to the Senate Iran-Contra Committee, and Director for Intelligence, Senior Director for Critical Infrastructure and Senior Director for Strategic Planning at the National Security Council.

Professor Bobbitt is a Fellow of the American Academy of Arts and Sciences, Fellow of the Club of Madrid, Life Member of the American Law Institute and a member of the Council on Foreign Relations, the Pacific Council on International Policy and the International Institute for Strategic Studies.

In addition to his role at Swansea University, Professor Bobbitt is also the Herbert Wechsler Professor of Federal Jurisprudence and Director of the Centre for National Security at the Columbia University School of Law and a Senior Fellow at the Robert S. Strauss Centre for International Security and Law at the University of Texas.

Sir Roderick Evans

Sir Roderick Evans is a former British judge of the High Court of England and Wales. He studied at UCL before becoming a lecturer in commercial law at the University of Wales.



He was called to the Bar in 1970 and was appointed a Queen's Counsel in 1989. In 1992 he became a circuit judge, serving as resident judge for the Merthyr Tydfil Crown Court from 1994 to 1998 and as resident judge for Swansea Crown Court from 1998 to 1999. In 1999 he was appointed a Senior Circuit Judge and Honorary Recorder of Cardiff. Sir Roderick was appointed a High Court Judge of the Queen's Bench Division in 2001 and between 2004 and 2007 he was Presiding Judge for Wales. He retired from the High Court in April 2013.

Sir Roderick is Pro-Chancellor of Swansea University, and a lay-member of the Council, its governing body. He is also a member of the Swansea University Court which plays an important and influential role in seeing that the University is well-managed, properly governed and responsive to public and local interests and concerns.

Helen Mary Jones

Helen Mary Jones is a politician who was a member of the National Assembly for Wales from 1999 to 2011. She is a member of Plaid Cymru - The Party of Wales and her political interests include environmental issues, social justice, equal opportunities, children's rights and employment.



Her political roles included Shadow Minister for Education and Lifelong Learning, Shadow Minister for the Environment, Planning and Countryside, and Chair of the National Assembly for Wales Children and Young Persons' Committee, and she was a member of the Education and Lifelong Learning Committee and the Equality of Opportunity Committee, amongst others.

Prior to becoming a politician Helen Mary Jones taught in the special education field and has held various positions in youth, community and social work as well with the Equal Opportunities Commission. In November 2011 she was appointed Chief Executive of Youth Cymru, a voluntary organisation supporting youth work in Wales. She remains active in politics, and was elected National Chair of Plaid Cymru in September 2011.

The Rt. Hon. Rhodri Morgan

The Right Honourable Rhodri Morgan was born in Cardiff in September 1939, was educated in state schools in the Cardiff area and is a graduate of both Oxford and Harvard Universities.



He was elected to Parliament in 1987 and served as the Opposition Front Bench Spokesman on Energy from 1988 to 1992 and Welsh Affairs from 1992 to 1997. He was Chairman of the House of Commons Select Committee on Public Administration between 1997 and 1999. In 1999, he was elected as the Assembly Member for Cardiff West and became a member of the first-ever Cabinet of the new devolved system of Government in Wales as the Assembly Secretary for Economic Development and European Affairs.

Rhodri Morgan was elected First Minister of Wales in February 2000 and served in that post until his retirement from that office in December 2009. He retired from all political office at the May 2011 elections.

He is Chancellor of Swansea University, an honorary role which sees him raising the profile of the institution and acting as an ambassador for the University and its staff and students. He is also a member of the Swansea University Council, its governing body, and is Lay Trustee of the Students' Union.

Jane Williams

Jane Williams is Associate Professor in the College of Law where her research interests include the implementation of human rights obligations, especially relating to the rights of children and young people, and law and multi-level governance.



She is Co-Director of the Wales Observatory on Human Rights of Children and Young People, a collaborative project with international, national and local partners. The Observatory acts as a forum for research, advocacy and expertise on the human rights of children and young people, working for the realisation of human rights through public policy, practice, advocacy and law reform.

Jane has authored a number of books and numerous book chapters and journal papers on both Children's Rights and Law in Wales, and is a member of Wales' United Nations Convention on the Rights of the Child (UNCRC) Monitoring Group.

She played a key role in the development of the world's first domestic law on the rights of children which was introduced in Wales in 2011. This brought into Welsh law the requirements of international law on the rights of the child and requires Welsh Ministers to have due regard to those requirements when exercising their functions.

SCHOOL OF MANAGEMENT

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Established in 2013, the mission of the School of Management is to drive forward the global economy by delivering world-leading research and educational programmes. Its research is organised into five research centres:

The Centre for Lean, Education Application & Research (CLEAR)

CLEAR is dedicated to "making an impact" through providing research and services that are of practical application for businesses in the manufacturing, service and health sectors. The Centre offers access to world-renowned expertise in all aspects of lean systems and service improvement and offers businesses a range of services from collaborating with research programmes to executive management white papers.

International Centre for Entrepreneurship

The International Centre for Entrepreneurship carries out research with small-to-medium size enterprises (SMEs), including cross-functional relationships inside the SME, entrepreneurship in large organisations (including intrapreneurship), and, together with the National Centre for Entrepreneurship in Education, studies of how entrepreneurs learn as well as work.

Centre for Digital and Social Media

The work of the Centre for Digital and Social Media is focused primarily upon the emergence, adoption, and impact of various

forms of digital innovation at organisational and individual levels, in a range of contexts. Research is primarily applied in nature and reflect member's interests at societal, organizational, and individual (citizen/consumer) levels.

Centre for Empirical Finance

The Centre for Empirical Finance boasts expertise in empirical finance, quantitative financial analysis, empirical macroeconomics, time series econometrics and statistics. The complementary skills of the Centre's members provide a means to undertake exciting and innovative research with the common objective of advancing the understanding, development and application of tools and techniques relevant to the analysis of financial and macroeconomic data and phenomena. Current research projects include the application of Hawkes Processes to provide a novel insight into the pricing of assets and insurance premia, the modelling and forecasting of volatility in ultra-high frequency data, exploration of spillover effects between financial markets, analysis of UK housing market dynamics and market microstructure.

Centre for Consumer Confidence Research

The Centre for Consumer Confidence Research focuses on the impact of consumer confidence on buying-decision making, price fairness perceptions, attitudes, beliefs, and purchase intentions, as well as framing effects in negotiations. In essence, the Centre's research aims to advance our understanding of confidence - the necessary condition for market exchanges.

SHOWCASE SPEAKERS

Dr Maggie Jing Chen

Senior Lecturer in Finance in the School of Management, Dr Maggie Jing Chen has research interests in liquidity provision, information dynamics and their relation to policy changes in financial markets.

To date, her research agenda has focused on modelling the effect of various liquidity measures on trading decisions in different segments of financial markets (e.g. Collateralized Debt Swaps (CDSs) and Bonds). Her work has been carried out in both developed countries and emerging economies and has focused on the strategic finance and risk management interface in financial institutions. Recently, she has



been concentrating on applying Hawkes Processes in forecasting financial bubbles, jumps and catastrophic risks.

Dr Chen has an international research reputation and has an extensive publication record. Her study on the link between CDSs and the current Eurozone sovereign debt crisis has been cited in the House of the Lord and the Organization for Economic Cooperation and Development (OECD) and her research was recently reported in the Financial Times.

She collaborates with scholars in the UK and overseas and is currently based at Columbia University, New York, where she is carrying out research on liquidity and high frequency trading with Professor Philip Protter.



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