

ISSTI

THE INSTITUTE FOR THE
STUDY OF SCIENCE
TECHNOLOGY AND INNOVATION
www.issti.ed.ac.uk

newsletter

no. 35 | March 2019



ISSTI Members at the Heart of New Doctoral Training Centre in AI and Biomedicine

More on Page 2

Guido Sanguinetti (School of Informatics) leads a team of partners: Meriem El Karoui (School of Biological Sciences), Cathie Sudlow, (Centre for Clinical Brain Sciences), Chris Ponting, (MRC Human Genetics Unit), Kathrin Cresswell (Usher Institute) and Michael Gutmann (Informatics) and Robin Williams (ISSTI).

This issue of ISSTI Newsletter takes stock of the impressive breadth and depth of scholarship achieved by our community during the past year.

Major New Investment Announced	2
Research Grant Success	3
Engineering Life	4
Shaping Colombia's Health Innovation Policy..	5
Community News	6
2018 Publications	7

WANT MORE NEWS?!

Make sure to follow
ISSTI and STIS

Twitter accounts at:
[@UoE_ISSTI](https://twitter.com/UoE_ISSTI) & [@UoE_STIS](https://twitter.com/UoE_STIS)

Major New Investments Announced



ISSTI Members at the Heart of New Doctoral Training Centre (DTC) on Artificial Intelligence and Biomedicine

This £6.5 Million initiative is jointly funded by the Engineering and Physical Science Research Council (EPSRC), the University of Edinburgh and industrial partners and plans to train 80 PhD students by 2026.

The UKRI CDT in Biomedical AI delivers an interdisciplinary training programme covering technical AI skills, biomedical foundations and individually tailored training on understanding the societal aspects of Biomedical AI. It builds on a collaboration between several centres of excellence within the University with a long history of collaboration: the School of Informatics, the School of Biological Sciences, the MRC Institute of Genetics and Molecular Medicine, the Usher Institute of Population Health Science and Informatics, and the School of Social and Political Sciences.

ISSTI members will offer research training in Responsible Research and Innovation and supervise doctoral researchers exploring how AI may be applied to biomedicine in an ethical and accountable manner. The interdisciplinary ISSTI team is drawn from School of Social and Political Science/STIS (Jane Calvert, Lucas Engelmann, Gill Haddow, Fadhila Mazanderani, James Mittra, James Stewart and Robin Williams), Edinburgh University Business School (Hajar Mozaffar), Edinburgh College of Art (Ewa Luger) and Edinburgh Law School (Burkhard Schafer).

Announcing this and a number of other AI Doctoral Training Centres, the Digital Secretary, Jeremy Wright, said: "The UK is not only the birthplace to the father of artificial intelligence, Alan Turing, but we are leading the way on work to ensure AI innovation has ethics at its core."

More information can be found on the CDT's webpage: <http://web.inf.ed.ac.uk/cdt/biomedical-ai>

Prof Lyall Involved in H2020 Programme with Trinity College Dublin on Interdisciplinary Research Toolkit

Trinity College Dublin has been awarded funding of €1.5 million to lead an international research project to build a toolkit to promote interdisciplinary research. The SHAPE-ID project, short for 'Shaping Interdisciplinary Practices in Europe', funded by the European Commission's Horizon 2020 programme, will provide guidance and practical recommendations on how best to bring the Arts, Humanities, Social Sciences and Science, Technology, Engineering and Mathematics (STEM) subjects together through interdisciplinary research as one important approach, of many, to address complex questions.

The project is led by Professor Jane Ohlmeyer and also includes Humanities and Social Sciences experts from ISINNOVA (Carlo Sessa) in Italy, ETH Zurich (Dr Christian Pohl), the University of Edinburgh (Professor Catherine Lyall), Institute of Literary Research in the Polish Academy of Sciences (Dr Maciej Maryl) and consultant in science and technology studies Dr Jack Spaapen. The project will also work with enterprise partners over its duration including Intel and Accenture. Members of the project consortium also have extensive experience working together through wider research networks such as the COST funded actions INTREPID (Interdisciplinarity in research programming and funding cycles) and ENRESSH (European Network for Research Evaluation in the Social Sciences and the Humanities).

This is the Newsletter of the Institute for the Study of Science, Technology and Innovation (www.issti.ed.ac.uk) This interdisciplinary network, founded in 2000 by Robin Williams, brings together colleagues from across the University studying science, technology and innovation and is hosted by the Science, Technology and Innovation Studies (STIS) Subject Group.

Science, Technology and Innovation Studies (STIS) Subject Group at the University of Edinburgh is internationally recognised as a leading centre of research, teaching and knowledge exchange in this important interdisciplinary field. With more than 40 staff, STIS enjoys outstanding ratings for its scholarly publications and impact, sustains research intensity with a high volume of external research income, and excels in teaching through a suite of undergraduate and postgraduate courses and programmes. For more information, see our website: www.stis.ed.ac.uk.

ESRC-AHRC UK-Japan SSH Connections Grant to Examine Social and Regulatory Dimensions in Biomedicine

Martyn Pickersgill, Sarah Chan, Emilie Cloatre, Misao Fujita, Junko Kitanaka and Kaori Muto were awarded an ESRC-AHRC UK-Japan SSH Connections Grant for the project entitled "Biomedicine and Beyond: The Social and Regulatory Dimensions of Therapeutics in Japan and the UK"

Japan and the UK are often regarded as being at the leading edge of therapeutic research in biomedicine, in terms of both basic science and innovation. More generally, both countries regard biomedical innovation as an important driver of national economies, and 'pro-innovation' regulatory frameworks are increasingly demanded. Regulations impact how therapeutics are developed and which are ultimately available for patients to access. Despite these various similarities, Japan and the UK are differently positioned with respect to local social contexts and norms, histories of medicine, national and supranational regulatory environments, and the global dynamics of biomedicine.



Martyn Pickersgill (left) with Sarah Chan (right) at #BBCedFest

This research will examine the intersection of therapeutics, regulation, and society. Through comparative research, we will explore how different social and regulatory contexts interact in the shaping of biomedicine and health. We will develop new insights into how both international law and transnational movements of scientists, clinicians, and ideas inform national-level therapeutic innovation. The project will also address conceptual questions relating to the nature of law and regulation, and of biomedicine. Our work will focus on drawing out both how the social and regulatory dimensions of therapeutics jointly shape development and implementation, and how the growing importance of therapeutics to public life is reworking the nature of social and regulatory processes themselves. We will explore these issues from different social science and humanities disciplinary perspectives, while emphasising science and technology studies (STS), socio-legal studies, and bioethics.

Launching the Analyst Launchpad

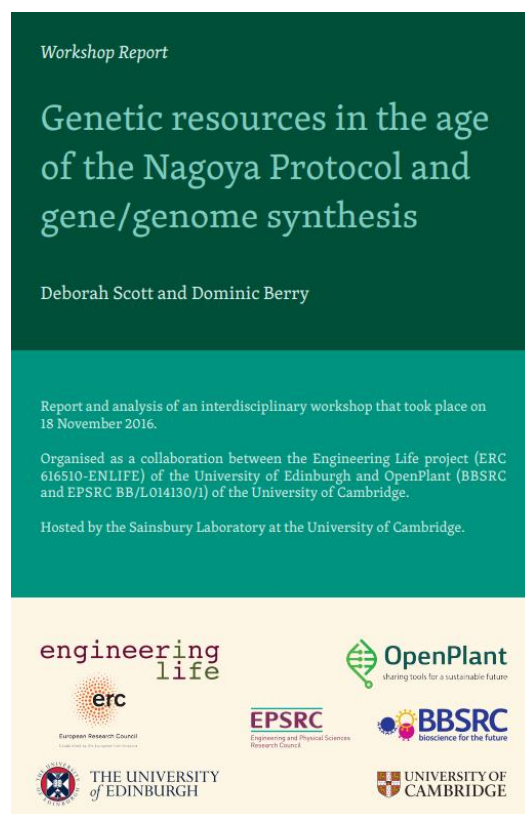
As part of the ESRC 2nd Pitch project led by Neil Pollock, Professor of Social Informatics and others, ISSTI members will be managing a series of workshops for UK technology businesses. The series, organised by the techUK industry association, is the initial activity of Analyst Launchpad, a joint venture of techUK and the Analyst Observatory, a University of Edinburgh Business School centre that is part of the 2nd Pitch project. The goal of the Launchpad is to equip UK technology firms to scale up and internationalise more powerfully through leveraging the insight and advocacy of industry analyst firms such as Gartner and Ovum. The workshops are led by Duncan Chapple, a former Ovum analyst whose PhD is supervised by Neil Pollock.

Gene and Genomic Workshop with the OpenPlant Centre

In November 2016, Deborah Scott and Dominic Berry (LSE) co-organized a workshop with the OpenPlant centre on “Gene and Genome Synthesis in the Age of the Nagoya Protocol”. It brought together synthetic biologists, social scientists, legal scholars, representatives of natural history museums, international biological collections, and bioinformatics institutes to discuss access & benefit-sharing (ABS) of genetic resources in light of advances in genetic sequencing and synthesis.

Their subsequently published report provides an overview of the workshop presentations alongside discussion and analysis of these in light of the December 2016 negotiations of the decision-making bodies of the Nagoya Protocol and Convention on Biological Diversity (CBD). A fact-finding report on this issue commissioned by the CBD cited Scott and Berry's report multiple times, and hard copies of the report were distributed at the recent November 2018 CBD negotiations.

The report is available online at the Engineering Life project website: <http://www.stis.ed.ac.uk/engineeringlife/events>



Mapping Approaches to Responsible Research and Innovation

Robert Smith, Deborah Scott, Zara Thokozani Kamwendo and Jane Calvert have recently completed a project to map existing approaches to Responsible Research and Innovation (RRI) within the life sciences and make recommendations for the design of future programmes. The project was commissioned by ERA CoBioTech, a multilateral funding programme supported by the European Commission that aims to advance new and emerging research in biotechnology.

The project has resulted in a new "Agenda for Responsible Research and Innovation in ERA CoBioTech", developed in close collaboration with ERA CoBioTech funders. It aims to take a multi-level approach across the project and programme level, focusing on four strands: agenda setting; supporting interdisciplinary research projects; building capacity across the funded programme; and developing responsible methods for evaluation and learning. The collaboration is on-going, and the Agenda is currently being piloted in a series of collaborations between the project team and staff at ERA CoBioTech's funding agencies and government ministries.

ISSTI Director Delivers Keynote at Korean Innovation Conference

Professor Robin Williams was the keynote speaker at the SMEs Inno-Eco System Conference 2018 at the Korean Institute for Science and Technology Information (KISTI) in Daejeon, Korea, on 4th December 2018. He spoke to an audience of policymakers, innovation intermediaries and innovators on the theme of: "Rebuilding innovation policy - going back to the roots".



Shaping Colombia's Health Innovation Policy

ISSTI Graduate, Dr Sara Valencia, Leads Major Policy Workshop

As a PhD student, Sara worked as a consultant for the Open Society Foundation, leading the research on: "Biomedical innovation, R&D and medicine access in Argentina, Brazil and Colombia". The resulting report was the first publication to communicate and analyse key cases of products driven by peoples' health needs and policies aimed to increase productive capabilities to ensure access to essential medicines in Argentina, Brazil, and Colombia. The cases included products at early stages of development as well as products already on the market. These cases provide a platform for discussion, collaboration, and learning about the challenges, proposals and collaborations that are presented in the context of these three countries.

As a result, Sara received additional funding to identify in Colombia the barriers associated with the development of new health technologies and its access; the policies and government programs related to health innovation and to coordinate a national workshop with actors of the innovation health system to discuss their perspectives, with a view to create a national health innovation policy for the country. The event was convened in alliance with the University CES on October 22nd 2018 in Medellín, Colombia. 34 people participated, including representatives of the government, public organisations, academia, entrepreneurs, regional innovation officials and think-tanks.

The workshop structure was designed with support from Dr Oliver Escobar, Lecturer in Public Policy at the University of Edinburgh and an expert on participatory policymaking. Rather than providing information to participants, the event aimed to listen and involve multiple perspectives about health innovation in Colombia, as each actor has a unique understanding of the topic. Participants agreed on the need for creating a health innovation policy to define an investment agenda and articulate multiple governmental dependencies, including specific programs and funding mechanisms. Based on the workshop's results the emerging policy should address five key points:

1. The articulation of the actors at a national and international level
2. Review of current regulations on health technology development
3. Increase and improve availability and access to financial resources
4. Increase research and development capacities in organizations
5. Improve access to local health technologies.



Sara Valencia (second from left) with colleagues



Workshop participants

Participants considered that the elaboration of a health innovation policy is in the remit of the Ministry of Health, COLCIENCIAS, the National Planning Department and the National Institute of Health. The empowerment of these institutions and a clear(er) definition of their responsibilities and boundaries are key to promoting local innovation to address health challenges. The research and workshop results are being shared with the government to mobilize such initiatives.

We are delighted to welcome several visitors.

Dr Gunnar Yttri

Gunnar is an associate professor and researcher at the Western Norway University of Applied Sciences. We cooperate with the Norwegian University of Science and Technology, and especially the Department of Interdisciplinary Studies of Culture.

During 2018 and 2019 Gunnar is in receipt of funding from the Norwegian Research Council to explore the relationship between local conditions and the development of renewable energy. His research is a part of the RELEASE-project, directed by Professor Erling Holden.

More info on the project is available from here: <https://www.hisf.no/nn/renewable-energy-projects-local-impacts-and-sustainability-release>.

Dr Shana Hirsch

Shana is currently a Research Scientist in the Human Centered Design and Engineering Department at the University of Washington, and a member of David Ribes' Data Ecologies Lab.

Her current project builds on "adaptive epistemologies" to examine how knowledge infrastructures are adapting to renewable energy transitions. For this, she is looking to Scotland as an exemplar of a nation that is investing heavily in innovation and research for emerging low-carbon technologies.

Over the next two years Shana will be following changes in the knowledge infrastructures in Scotland that have occurred as a result of the transition from petroleum to renewable energy innovation and the ongoing shifts in sociotechnical imaginaries.

Shana's research is funded by a National Science Foundation (NSF) Postdoctoral Fellowship.

Congratulations to our students who completed their PhDs in 2018.

Nikhil Agarwal: "Technology and Social Activism: An Empirical Study of use of Information and Communication Technology (ICT) by Indian Single Issue Groups"

Luis Soares: "The Market in Tanzania: Appropriation of mobile phones by the Maasai and Wasukuma pastoralists"

Abel Osvaldo Villa (Rodriguez): "Global Value Chains (GVC) and Social Learning: Francisco Produce/Peninsula Organics (SFP/PO)"

Sara Valencia-Cadavid: "A model to study the flow and use of knowledge in Outsourced Knowledge Intensive projects: A multi-case study of three vaccine clinical trials in Colombia, Brazil and Mexico."

Natalia Nino: "Growing Right: Unpacking the WHO Child Growth Standards Development and their Implementation in Columbia"

George Zoukas: "Climate Blogging in a post-truth era: Opportunities for action and interaction"



Scotland in Space participants at the Royal Observatory Edinburgh

Publishing *Scotland in Space*

Social Dimensions of Outer Space (SDOS) research network was successful in winning one of the three inaugural research grants from the Edinburgh Futures Institute for the "Scotland in Space" project. This initiative brought together science-fiction authors, researchers in Astrobiology, Astrophysics, Social Sciences and the Humanities, and staff from public bodies such as the National Museum of Scotland and the Royal Observatory of Edinburgh. In a series of dialogues, the participants examined Scotland's potential as a site of space-focused innovation, research and imagination. The resulting manuscript includes three short stories and accompanying essays exploring their scientific, social, political, literary, and cultural aspects. The resulting publication, published through project's partner, Scotland's premier science fiction magazine, *Shoreline of Infinity*, will be launched as part of the Space Enlightenment Festival in Spring-Summer 2019.

2018 Publications



In previous years we listed publications arising from the group as they came in, which resulted in a very incomplete record and a lot of work to avoid duplication. We have therefore decided to annually assemble all publications over the preceding year, which has revealed the vast breadth and huge number of outputs across the network:

Berry, D. and Palladino, P. (2018). Life, Time, and the Organism: Temporal Registers in the Construction of Life Forms. *Journal of the History of Biology*.

Berry, D. (2018). 'Plants are technologies', in Jon Agar and Jacob Ward (eds.) *Histories of Technology, the Environment, and Modern Britain*. London: UCL Press, pp. 161-185.

Bray, F. (2018) 'Science cultures', in Laura Grindstaff, Ming-Cheng Lo and John R. Hall (eds), *Routledge Handbook of Cultural Sociology*, 2nd ed., pp. 446-455.

Bray, F. (2018) 'Where did the animals go? Presence and absence of livestock in Chinese agricultural treatises', in Martina Siebert and Roel Sterckx (eds), *Animals Through Chinese History*, Cambridge University Press, pp. 118-138.

Campagnolo, G. M., Giannatou, E., Franklin, M., Stewart, J. K. and Williams, R. (2018) Revolution remixed? The emergence of Open Content Filmmaking as a viable component within the mainstream film industry, *Information, Communication and Society*, DOI: 10.1080/1369118X.2018.1465109

Currie, M., Paris, B. S., & Donovan, Joan M. (2018) What difference do data make? Data management and social change, *Online Information Review*, <https://doi.org/10.1108/OIR-02-2018-0052>

Currie, M. & Britt S. Paris (2018) Back-ups for the future: archival practices for data activism, *Archives and Manuscripts*, 46:2, 124-142, DOI: 10.1080/01576895.2018.1468273

Currie, M. (2018) 'Hacking administration: A report from Los Angeles.' in Hunsinger, J., & Schrock, A. (2018). *Making Our World: The Hacker and Maker Movements in Context*. Peter Lang Publishing, Incorporated.

Currie, M. (2018) A dual valuation of openness. *Proceedings of the 19th Annual International Conference on Digital Government Research*. Delft, The Netherlands, 30 May – 1 June.

Daneshvar Farzanegan, S. H., Anderson, S., Williams, R. & Mozaffar, H. (2018) How can social media lead to co-production (co-delivery) of new services for elderly population?: A qualitative study, *JMIR Human Factors*. 5:1.

Giannatou, E., Campagnolo, G. M., Franklin, M., Stewart, J. K. and Williams, R. (2018) Revolution postponed? Tracing the development and limitations of open content filmmaking, *Information, Communication and Society*, pp. 1-21 | DOI: 10.1080/1369118X.2018.1464590

Hyysalo, S., Pollock, N. and Williams, R. (2018) Method Matters in the Social Study of Technology: Investigating the Biographies of Artifacts and Practices, *Science and Technology Studies*

Lowe, J. W. E. (2018) Sequencing through thick and thin: historiographical and philosophical implications, *Studies in History and Philosophy of Biological and Biomedical Sciences*, 72, pp. 10-27.

Malcolm, R., Ecks, S. and Pickersgill, M. (2018) "It just opens up their world": autism, empathy, and the therapeutic effects of equine interactions, *Anthropology & Medicine*, 25:2, pp. 220-234.

Mozaffar, H., Williams, R., Cresswell, K., and Sheikh, A. (2018) Anglicization of Hospital Information Systems: Managing diversity alongside particularity, *International Journal of Medical Informatics*. 119, pp. 88-93



Pickersgill, M. (2018) 'The value of the imagined biological in policy and society: somaticizing and economizing British subject(ivities)', in: Gibbon, S., Prainsack, B., Hilgartner, S. and Lamoreaux, J. (eds.) *Handbook of Genomics, Health and Society*, London: Routledge, pp. 99-107

Pickersgill, M., Chan, S., Haddow, G., Laurie, G., Sridhar, D., Sturdy, S. and Cunningham-Burley, S. (2018) The Social Sciences, Humanities, and Health, *The Lancet*, 391, pp. 1462-1463.

Pollock, N., D'Adderio, L., Williams, R., and Leforestier, L. (2017) 'Conforming or transforming? How organizations respond to multiple rankings' *Accounting, Organizations and Society*

Pontefract, S. K., Hodson, J., Slee, A., Shah, S., Girling, A. J., Williams, R., Sheikh, A. & Coleman, J. J. (2018) Impact of a commercial order entry system on prescribing errors amenable to computerised decision support in the hospital setting: a prospective pre-post study', *BMJ Quality & Safety*. 27, pp. 725–736. doi:10.1136/bmjqs-2017-007135

Scott, D. and Berry, D. (2018) Genetic resources in the age of the Nagoya Protocol and gene/genome synthesis. Workshop report of a collaboration between Engineering Life and OpenPlant. DOI: 10.13140/RG.2.2.36025.47207.

Scott, D., Berry, D. and Calvert, J. (2018) 'Synthetic Biology', in Sahra Gibbon, Barbara Prainsack, Stephen Hilgartner and Janelle Lamoreaux (eds.) *Routledge Handbook of Genomics, Health and Society*. Abingdon: Routledge, pp. 300-307.

Shen, X. et al. (2018) Digital online music in China – a “laboratory” for business experiment, *Technological Forecasting & Social Change*.

Silvast, A., Williams, R., Hyysalo, S., Rommetveit, K. and Raab, C. (2018) Who 'Uses' Smart Grids? The Evolving Nature of User Representations in Layered Infrastructures, *Sustainability*, 10:10.

Smith, R.D.J and Samuel, G. (2018) *Who's talking about non-human Genome Editing? Mapping public discussion in the U.K.* London: Sciencewise.

Sun, H. (2018). *Digital Revolution Tamed: The Case of the Recording Industry*. Palgrave Macmillan.

Sun, H. (2019) Paradox of celestial jukebox: Resurgence of market control, *Creative Industries Journal*, DOI: 10.1080/17510694.2018.1554944

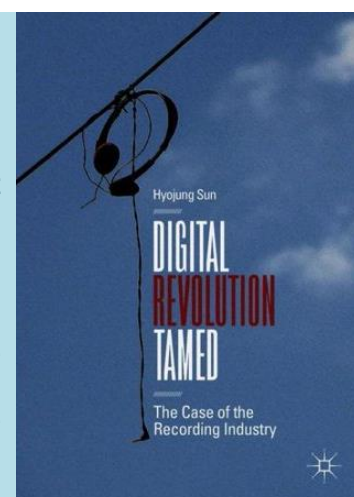
Szymanski, E. A. and Calvert, J (2018) Designing with living systems in the synthetic yeast project *Nature Communications* 9 (2950): doi: 10.1038/s41467-018-05332-z

Digital Revolution Tamed: The Case of the Recording Industry

Hyojung Sun's book (www.palgrave.com/us/book/9783319930213), based on her recent PhD thesis, explores why widespread predictions of the radical transformation in the recording industry did not materialise. Although the growing revenue generated from streaming signals the recovery of the digital music business, it is important to ask to what extent is the current development a response to digital innovation.

Sun found the answer in the detailed innovation process that has taken place since Napster. She reassessed the way digital music technologies were encultured in complex music valorisation processes and demonstrated how the industry has become reintermediated rather than disintermediated.

This book offers a new understanding of digital disruption in the recording industry. It captures the complexity of the innovation processes that brought about technological development, which arose as a result of interaction across the circuit of the recording business – production, distribution, valorisation, and consumption. By offering a more sophisticated account than the prevailing dichotomy, the book exposes deterministic myths surrounding the radical transformation of the industry.



2018 Publications



Szymanski, E. A. (2018). Remaking yeast: Metaphors as scientific tools in *S. cerevisiae* 2.0. *BioSocieties*. doi.org/10.1057/s41292-018-0134-z

Szymanski, E. A. (2018). Who are the users of synthetic DNA? Using metaphors to activate microorganisms at the center of synthetic biology. *Life Sciences, Society, and Policy*. 14:15. doi:10.1186/s40504-018-0080-3

Szymanski, E. A. (2018) What is the terroir of synthetic yeast? *Environmental Humanities* 10:1, pp. 40-62.

Vermeulen, N. (2018) The choreography of a new research field: Aggregation, circulation and oscillation. *Environment and Planning A*. 50:8, pp. 1764–1784

Vidmar, M. et al. (2018), Putting the Propellant in the Fuel Tank. *JBIS*, 71, pp.100-111

Yearley, S. et. al. (2017) One world or two? science-policy interactions in the climate field, *Critical Policy Studies* 2017 – on-line: <http://dx.doi.org/10.1080/19460171.2017.1374193>

Yearley, S. (2018) 'Economic valuation of the environment', in M Boström and D J Davidson (eds.) *Environment and Society: Concepts and Challenges*, London: Palgrave Macmillan pp. 143-165, <https://www.palgrave.com/gb/book/9783319764146>

Yearley, S., 'Communication strategies of environmental NGOs and advocacy groups', in M C Nisbet et al (eds.) *The Oxford Encyclopedia of Climate Change Communication*, New York: Oxford University Press, <http://climatescience.oxfordre.com/page/past-updates/>

Presenting *Energy at the End of the World: An Orkney Islands Saga*

From Laura Watt's book launch
On 28 February 2019, 18:30 - 20.00
at Blackwell's South Bridge Street

In her latest book, Laura Watts tells a story of making energy futures at the edge of the world.

The islands of Orkney, off the northern coast of Scotland, are closer to the Arctic Circle than to London. Surrounded by fierce seas and shrouded by clouds and mist, the islands seem to mark the edge of the known world. And yet they are a centre for energy technology innovation, from marine energy to hydrogen fuel networks, attracting the interest of venture capitalists and local communities.

Dr Laura Watts is a poet, writer, ethnographer of futures, and Interdisciplinary Senior Lecturer in Energy and Society in the School of Geosciences, University of Edinburgh. As a Science and Technology Studies scholar she explores the effect of "edge" landscapes on how the future is imagined and made. She is coauthor of *Ebban an' Flowan*, the world's first poetic primer for marine renewable energy, and in 2017 she won the International Cultural Innovation Prize with the Reconstrained Design Group and Community Energy Scotland for a community-built energy storage device designed from scrap parts.

The event was chaired by astronomer-turned-writer Dr Pippa Goldschmidt. She is currently the writer-in-residence at Science, Technology and Innovation Studies (STIS), University of Edinburgh.



Laura Watt and Pippa Goldschmidt at the launch