

ISSTI

THE INSTITUTE FOR THE
STUDY OF SCIENCE
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newsletter

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In this, the first ISSTI Newsletter of the new academic year, we are delighted to report on outputs from some of our ongoing projects encompassing such diverse areas as data infrastructures in life science research (TRANSGENE project), the decarbonisation of the chemicals, cement and other foundation industries (TransFIRE project) and a new project Investigating Influence Government.

We also include the regular line up of community news – welcoming new colleagues and with regret noting some departures – and celebrate new research grants recently secured.



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Research Awards



Evaluating Care Technology

Kathrin Cresswell (Usher Institute), Hajar Mozaffar and Robin Williams have embarked on a year-long award to undertake a formative evaluation of an assistive technology-enabled service that builds older people's confidence around their medicines, helps establish sustainable routines for managing them at home, and offers support when things aren't right.

The service will be delivered through a £1 million grant from Innovate UK's Designed for Ageing Challenge led by Connect Care and in partnership with Oxfordshire County Council. The service is seeking to design scalable and digitally-enabled medication management support pathways, delivering significant positive patient outcomes as well as health economics benefits to care providers across the system. For more information, see: <https://weconnectcare.notion.site/Our-Healthy-Ageing-Initiative-in-Oxfordshire-59c5a3e791a9484389c2412c9cf9fddf>.

The team at The University of Edinburgh will seek to capture the evolution of systems over time as they are "domesticated" in use across various settings and incorporated into service user and professional practices, care processes and workflows.

Investigating Targeted Biomedicine

Martyn Pickersgill (PI) and Susi Geiger (UC Dublin; Co-I), with Sone Erikaninen (U Aberdeen) and Ilaria Galasso (UCD), have been awarded £29,608 by the Arts and Humanities Research Council to launch a new, two-year Research Network on 'Targeting Therapies: Exploring the Cultural and Normative Dimensions of 'Targeted' Approaches to Biomedicine and Public Health'.



Prof Martyn Pickersgill

The Network will draw together approaches from bioethics, gender studies, history, law, medical humanities, political philosophy, and science studies (among others) to explore the cultural and normative dimensions of 'targeted' approaches and interventions in biomedicine and public health. Such approaches include, for instance: drugs aimed at very specific kinds of disease (e.g. certain cancers); psychological therapy services tailored to specific populations (e.g. ex-armed forces personnel); and, suggest appropriate interventions for different sections of the population in response to existing and emerging forms of illness (e.g. restrictions on the movements of groups regarded as highly vulnerable to COVID-19). Through comparative analysis, the team will explore how different cultural, historical, legal, scientific, and healthcare contexts interact in the shaping and deployment of 'targeted' biomedicine and public health.

Martin is also Co-I in a major collaborative project, receiving a 5 year £3,039,622 Innovations Award from The Wellcome Trust that will address 'Psychosis recovery orientation in Malawi by improving services and engagement (PROMISE)'

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.

Research Findings



Can data be investigated across domains? An exploratory workshop

We are pleased to share findings from the TRANSGENE project: [Medical Translation in the History of Modern Genomics](#) which recently concluded after five and a half years of funding from the European Research Council. Miguel Garcia-Sancho led a research team which investigated the emergence of data infrastructures around DNA sequences and other biomedical information.

Miguel commented: “A question at the back of our minds while conducting the research was whether the conclusions that we drew for genomic databases were applicable to other forms of big data. With this in mind, towards the end of the grant we organised an international workshop to address potential synergies and incommensurabilities in the study of data produced in different domains.”

The workshop, conducted online due to the ongoing Covid-19 pandemic, had three sessions. The first connected this investigation of the history of genomics with other projects that explore ethical and social aspects of clinical data and plant breeding databases. James Lowe, presenting on behalf of TRANSGENE, was joined by Catherine Heeney (University of Edinburgh) and Hugh Williamson (University of Exeter).



Dr Miguel Garcia-Sancho

Next, Kean Birch (University of York at Toronto), Liz McFall and Karen Gregory (both based in the University of Edinburgh) further expanded the scope of the workshop by discussing data produced by large technological companies, insurance firms and the platform economy. Finally, Robert Bud (Science Museum London) and Edward Nik-Khah (Roanoke College, Virginia) offered commentaries on the first two panels. Liliana Doganova (CSI Mines Paris Tech) and Miguel García-Sancho (TRANSGENE project PI) delivered provocations that were followed by an extended discussion among participants. The overall conclusion was that, in spite of significant differences in data contexts, there was scope for collaboration and further exchange between scholars analysing data across disciplines and domains.

Video recordings of the workshop presentations as well as written summaries of the discussions and biographies of participants are available online at: <https://transgene.sps.ed.ac.uk/workshop>

A special issue of the journal [“Historical Studies in the Natural Sciences”](#), edited by Miguel García-Sancho and James Lowe, has been published that addresses the combination of quantitative and qualitative methods in the investigation of the history of genomics. Despite being focused on historical studies of genomics, the special issue may potentially be useful for colleagues with an interest in mixed-methods approaches in the humanities and social sciences.

Open access versions are available here <https://transgene.sps.ed.ac.uk/publications>).

Investigating Influence Government

Building on a recently published [paper on ‘Influence Government’ in *Big Data & Society*](#), James Stewart and Ben Collier, from STIS, along with colleagues from Strathclyde and Cambridge Universities, have run the first in a series of workshops with a view to mapping emerging practices in the use of targeted ‘behaviour change’ strategic communications campaigns by law enforcement and security services in the UK. These use the algorithmic targeting infrastructures of major platforms like Google, Facebook, and Twitter to deliver finely-targeted messaging in the service of ‘nudging’ those at risk of committing various forms of crime. This is the initial stage of developing a much larger critical project exploring the spread of these methods and technologies throughout the UK public sector.

TransFIRE

STIS members Prof Steve Yearley and Dr Kyle Parker are happy to report that the funding for their work on the TransFIRE project, initially slated to run until the end of 2022, has been extended until the summer of 2024.

Led by colleagues at Cranfield University, TransFIRE (Transforming Foundation Industries Research and Innovation Hub) is a UK-wide research consortium, involving scholars and industry experts from 12 institutions, 49 companies, and 14 non-governmental organisations. The consortium's work focuses on the decarbonisation of six 'foundation industries' – chemicals, cement, ceramics, glass, metals, and paper – which produce nearly 75% of all materials in the UK, worth £52b to the nation's economy.

However, these energy-intensive industries also produce nearly 10% of the UK's annual CO2 emissions, a fact underscored by recent concerns over rising energy prices, and ongoing efforts to reach the UK's Net Zero 2050 targets.

Working with social science and business management colleagues at universities in Leeds and York, Steve and Kyle's work focuses on the environmental and socio-economic impact of industrial decarbonisation, exploring ways in which these transformative changes can benefit the communities in which industrial activity occurs. Thus, in addition to industrial partnerships, the project also involves working closely with activists and community groups, regional economic development agencies, and policy actors within local and national governments. Along these lines, Steve and Kyle have been working on several case studies centred around industrial sites in Scotland and northern England where there appears to be potential for community benefit. Of particular interest are industrial sites which produce significant amounts of heat, whose thermal energy can be repurposed for nearby homes and businesses.

For example, one case study deals with a manufacturer of fibre-based ceiling tiles in Gateshead, near the Angel of the North sculpture outside Newcastle. In this facility, the tiles are formed out of a wet mixture of newsprint, starch, fibreglass and other minerals, which are then pressed and dried by passing through a long series of gas-fired ovens. This process presents significant potential for heat and water recovery, reportedly generating nearly 16 000 litres of steam for every hour of operation. The site's proximity to several schools and commercial estates means that it could provide the community with a cheap source of heat, while simultaneously reducing the factory's overall carbon footprint. Another case centres on the Lochaber region of the Highlands, site of the UK's sole remaining aluminium smelter, and the nearby community of Fort William. During a field trip earlier this summer, Steve and Kyle toured both the smelter facility, and the adjacent hydroelectric power station. Situated on the side of Ben Nevis, and fed by an extensive system of dams, lochs, and concrete tunnels, the hydropower station provides the smelter with a decarbonised source of electricity that is used to electrochemically produce molten aluminium, which is then cast into large rectangular ingots for use in the manufacturing sector. The TransFIRE team is exploring ways to work with local stakeholders to see if the heat embodied in the molten metal can be captured and reused as energy for district heating networks or greenhouse horticultural projects or for other community purposes.



Kyle Parker & Steve Yearley during a site visit to Alvalde British Aluminium smelter in Fort William.



Laggan Dam on the River Spean in Lochaber, Scotland - part of the hydroelectric scheme that provides electricity to the Alvalde British Aluminium smelter in Fort William.

Welcome to new colleagues

Dr Reuben Message

Reuben Message has recently joined STIS to work with Jane Calvert as a Research Fellow on the project entitled Engineering Biology for Cell and Gene Therapy applications, alongside collaborators from the UK Centre for Mammalian Synthetic Biology.



Reuben has previously been based at the University of Oxford's School of Geography and the Environment where he worked on a Wellcome Trust funded collaborative project investigating the cultures of care and communication in UK animal research. Here he focused, amongst other things, on how human-animal relations influences the way ethics is put into practice within in the context of relatively stabilised regulatory norms and practices - as well as the challenges that some laboratory organisms, specifically zebrafish, can represent to this system given their species-specific characteristics and social histories.

Originally from South Africa, Reuben completed a PhD in Sociology at the London School of Economics. His thesis examined early aquaculture (or "fish culture") technologies and discourses through the lens of the social studies of reproduction, arguing in the process that these techniques constituted an early kind of 'artificial reproductive technology' constitutively connected to the socio-economic and legal environment in which they emerged.

Dr Jasper Brinkerink

Jasper just started as a lecturer at the Business School, where he will be teaching a range of subjects related to entrepreneurship and family business management. Before coming to Edinburgh, he worked in various research and teaching capacities at Maastricht University in the Netherlands, his home country. The past four years, he, however spent at the Free University of Bolzano, in the beautiful Italian Dolomites.



His topical research centers on innovation, entrepreneurship, and sustainability issues in the context of small, often family-owned and -managed businesses. Besides his topical work however, he has grown increasingly concerned with the state of scientific norms and practices in his own and related fields, and started actively researching the causes and consequences of researchers' biases and the warped incentive structures that seem to facilitate them.

One of the reasons he has come to Edinburgh is to leverage the strong sense of interdisciplinarity present throughout this university towards improving scientific practice in my own field. In that regard, he looks forward to meeting you all and learning about all the idiosyncratic interests joined in this network!

Dr Adolfo Mejía-Montero

Dr Mejía-Montero is a lecturer in Energy, Society and Sustainability at the School of Social and Political Sciences (Science, Technology and Innovation Studies). As a researcher who transitioned from physics to human geography, he frequently relies on an interdisciplinary approach and mixed methods to unearth the complexities of energy systems, technologies and transitions. Currently, his research mainly focuses on low-carbon transitions and renewable energy development in Latin America (especially within indigenous territories).



Other Community News

Jarita Holbrook (STIS IASH Fellow) became a Fellow of the Royal Astronomical Society in May 2022.

Hyojung Sun (2016 PhD) has taken up a position as Lecturer in the Business of Creative and Cultural Industries at the University of York, this September.

Nikhil Agarwal (2018 PhD) has published "The Startup Masterplan: How to Build a Successful Business from Scratch" by Business Express Press (BEP).

It is with great sadness that we record the demise of two esteemed colleagues...

Professor Alan Raybould (1963 – 2022)

Chair in Innovation in the Life Sciences

Alan joined the University in 2019 as Chair of Innovation in the Life Sciences, a joint appointment within the School of Social and Political Science and The Global Academy of Agriculture and Food Security, where he was Co-Director of the Innogen Institute.

Before joining the University of Edinburgh, Alan worked in the crop protection and agricultural biotechnology industry for 18 years. His research concentrated on improving product-development decisions for genetically modified (GM) crops.

More recently, he has worked on developing regulatory policy for crops produced by gene editing. Alan has worked with regulatory authorities in many countries to help to improve the quality of the science they use to support their decisions about whether to approve uses of GM crops.

**Professor Bruno Latour (1947 – 2022)**

It is with great sadness that we record the death of our friend and colleague Professor Bruno Latour.

Bruno Latour was Professor at Sciences Po Paris and has also been Professor at the Centre de Sociologie de l'Innovation at the Ecole Nationale Supérieure des Mines in Paris and visiting Professor at University of California (San Diego), at the London School of Economics and Harvard University.

Bruno's breath-taking challenge to existing frameworks has had an enormous impact on analysis in Science and Technology Studies. He was a frequent visitor to Edinburgh and was awarded an honorary degree here in 2016 in recognition of his contributions.