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Liverpool LASER talks: a community ‘studio-laboratory’?

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Abstract (84 words)

Liverpool LASER talks encourage artists, researchers and the publics to question the work carried out by artists and scientists in transdisciplinary art-science spaces by recognising shared aims, examining processes and constructing a shared language. In this paper, the authors reflect upon their first year as LASER hosts and propose that Liverpool LASER events - supported by an accessible network of leading artists and scientists - act as community ‘studio-laboratories’; spaces where speakers and the publics engage in two-way conversations, present and gain confidence in their ideas, gather feedback on new concepts and outputs, and facilitate knowledge transfer.

Key Words

LASER talks, art-science, public engagement, studio-laboratory, community engagement

Word Count

3491 words (including title, author information, body of the article, author information/biographies, abstract, key words, captions, acknowledgements, and references and notes).

Text

Brett Wilson and Barbara Hawkins’ *Project Dialogue* [1] recognised that there is a genuine appetite amongst emerging and established generations of researchers and artists – in and out of Higher Education – to appreciate the critical thinking, creativity and imagination of art-science interactions. As convenors of the *Art in Science* postgraduate degree program at Liverpool School of Art and Design, we encourage transdisciplinary interactions across art and science by interrogating *how* artists and scientists collaborate and carry out work in both studio-laboratory spaces and the public domain. In order to understand the activities occurring in these spaces the program examines the particular values of the ‘studio’ and ‘laboratory’ by considering how the core principles of these spaces might differ or complement each other [2]. However, there is often hesitancy when critically interpreting such activities as this action requires diverse theoretical and visual vocabularies that are often inaccessible outside of a specific location, knowledge domain or activity [3].

The program’s ultimate ambition is to break down language barriers to allow researchers, artists and the publics opportunities to access members of other communities, where knowledge and meaning are actively constructed, and enhance the community’s overall understanding [4]. Taking this conversation into public spaces across Liverpool would not only provide opportunities for public engagement by those working in art-science crossover spaces but would also embolden the publics to become active participants in the art-science conversation locally. To achieve this and to observe how such interactions might contribute value to society, a number of knowledge exchanges in Liverpool were organised to expose the publics to art-science methodologies, ideas and experiences.

LASER (Leonardo Art Science Evening Rendezvous) talks form an international program developed by Leonardo, the International Society for the Arts, Sciences and Technology that bring artists and scientists together for informal presentations and conversations in more than 30 cities worldwide (https://www.leonardo.info/laser-hosts). Between 2014 and 2018, London LASER talks were the only LASER events operating in the UK. Since being awarded LASER host status in 2018 we have hosted seven LASER talks in Liverpool, and two other UK institutions have since been named as LASER hosts; Cambridge in 2020 and Dartington in 2018. We note, however, that Liverpool LASER remains the only LASER events operating beyond the southern regions of the UK. Here, we describe three Liverpool

LASER talks that sought to increase the visibility of art-science interactions locally, with the audio-visual recording and online publication of these talks extending our local LASER community to the global LASER network.

‘Faces and Identity’

The inaugural Liverpool LASER took place at Liverpool School of Art and Design and examined how a number of disciplinary-diverse artists and researchers explore facial identity through a number of presentations prior to a panel discussion. Professor Caroline Wilkinson (Director of Face Lab Liverpool) discussed how our cognitive bias influences facial depictions of people from the past from skeletal remains [5], and the three additional speakers had previously collaborated with the multi-disciplinary Face Lab on various art-science projects.

Fig. 1, Gina Czarnecki and Professor John Hunt speaking at *The Art and Science of Facial Identity* LASER talks at Liverpool School of Art and Design. Photo: Mark Roughley

Gina Czarnecki (artist) and Professor John Hunt (clinical scientist) described their project *Heirloom* (2017), which submerged models of the faces of the artist’s two children (that were 3D scanned by Face Lab) in a bath of their cellular material to serve as a base for growth of new skin cells (fig1). Their talk alluded to the possibility of eternal youth whereby these living ‘portraits’ could be used for skin regrowth during the lifetime of Czarnecki’s daughters

[6]. They also reported that *Heirloom* would not have been permitted in an institutional laboratory, and by moving their experiments to the artist studio and public gallery they were able to experiment in different ways and debate ethical issues faced in the public realm.

> *“For us to be able to take a living experiment […] into the public space and make it safe in that public space but still have it alive [is exciting]. It's another thing to take it out to where the public can poke at it and mess about with it [in an exhibition setting] and it still be safe and it still be alive”.* Czarnecki and Hunt [7]

Professor Partha Vaiude (plastic surgeon and Director of Surgical-Art UK) introduced his innovative multi-modal plastic surgery courses for trainee surgeons which take place in creative and non-clinical environments, and include a facial reconstruction course contributed to by Face Lab, [8]. Partha specifically talked about his *Surgical-Art Face* training model; a silicone mask used for learning local flap surgical techniques, which can be performed on the mask (figure 2). Produced in Surgical-Art’s creative studio, the mask is made using materials available from craft and DIY stores, and is embedded with anisotropic fabrics simulating the movement of skin during surgery. The impact of the *Surgical-Art Face* and *Heirloom* on the future of plastic surgery were highlighted and potential clinical uses of *Heirloom* for face transplantation were deliberated, with the audience being active drivers of the conversation.

Fig. 2, (Left) The ‘Surgical-Art Face’ training model Photo: Surgical-Art. (Right) ‘Exploring The Human Face’ studio-laboratory at the John Lennon Art and Design Building, Liverpool John Moores University for LightNight Liverpool, May 2018. Photo: Mark Roughley

Public debates on these topics are infrequent. To extend the conversations instigated by the *Faces and Identity* LASER, Face Lab and Surgical-Art participated in Liverpool's premier city-wide public engagement event 'LightNight' – a free evening festival where both cultural and research institutions host events to engage the publics with their programming or research (https://lightnightliverpool.co.uk/). Working together they installed a pop-up laboratory at Liverpool School of Art and Design for the publics to explore the 'transformation' of faces through creative, hands-on activities. This studio-laboratory (fig 2) presented further opportunities for the publics to gain a better understanding of how plastic surgeons alter and reconstruct living faces, and how facial anthropologists sculpt facial features and reconstruct faces from human skulls. It has also led Face Lab and Surgical-Art researchers' to collaborate in developing the Surgical-Art Face training model.

'The Perception Machine'

In July 2018, the *Art in Science* program presented a week-long installation titled *The Perception Machine* at Tate Exchange, Liverpool (figure 3). Scientific experts were called on to offer engaging interdisciplinary interpretations of selected artworks from Tate's *Constellations* galleries. The publics were invited into this conversational space to listen, ask questions and think about the role of art in science, and science in art.

The accompanying LASER event of the same name asked artists and researchers that contribute to the *Art in Science* curriculum to describe their art-science collaborative projects, ahead of expanded discussion about the possibilities that arise from such collaborations. The speakers included Dr Kathryn Smith (Forensic Artist); Professor Andy Newsam (Astronomer); Dr Lee Haines (Insect Vector Biologist) and Professor Mike Stubbs (Director of the Foundation for Art and Creative Technology). This unique configuration of disciplinary-diverse people also helped to answer questions generated by the publics in *The Perception Machine*.

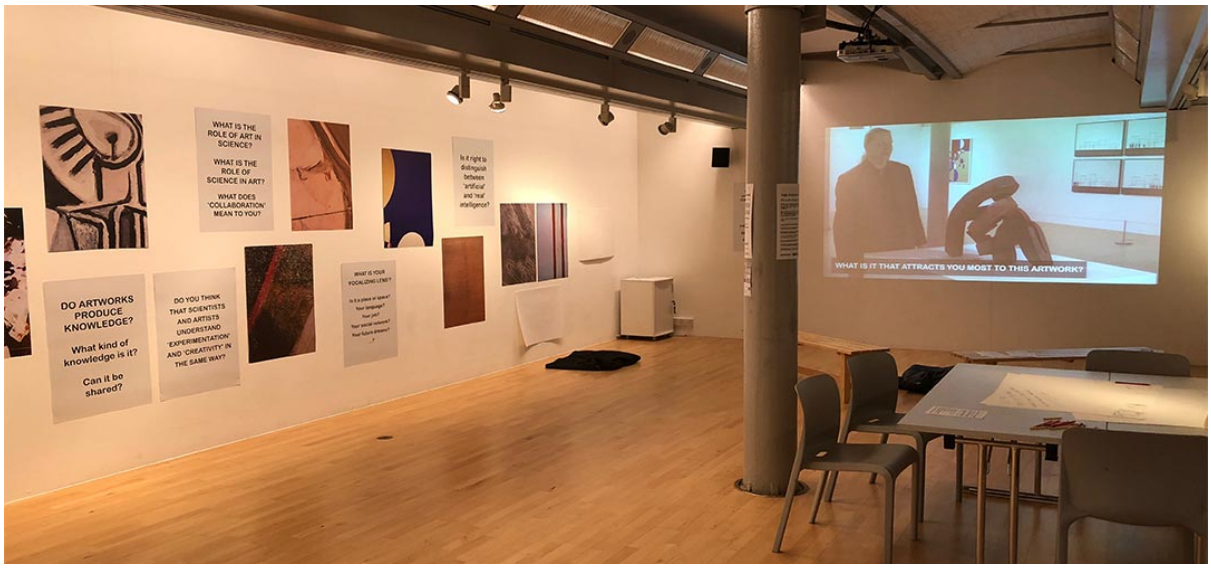

Fig. 3, *The Perception Machine* at Tate Liverpool. Photo: Mark Roughley

What emerged from these talks was that the concept of 'process' acts as a basis for new knowledge to be conceived in both the studio and the laboratory [9]. In society, especially in higher education, there is a lack of focus on ‘process’ – that level of experimentation where we aren’t afraid to fail, but instead document the failures and reflect upon the processes in order to move forward. As a method, ‘process’ can be understood differently by artists and scientists. For example, the ‘creative process’ might involve inventing problems in order to experiment with a number of materials, while the ‘scientific process’ might adopt a series of actions to achieve a particular aim [10]. While each discipline is able to utilise a number of different techniques, technologies and approaches to explore and advance ideas, the actions are driven by curiosity in order to reveal truths about our known universe.

‘Broken Symmetries’

The *Broken Symmetries* LASER brought together the winners and runners-up of the European Organization for Nuclear Research (CERN) *Collide International* award, whose projects challenge our notions of reality and explore the complexities of science through artistic lenses and personal experiences in the largest laboratory in the world. The talks supported the opening of a new international exhibition of the same name at the Foundation

for Art and Creative Technology (FACT) in Liverpool that brought a close to a three-year partnership between CERN and FACT.

The LASER talks were arranged as three sequential panel discussions. Panel one comprised artists Yu-Chen Wang, Yunchul Kim and Lea Porsager, and was chaired by Mónica Bello (Head of Arts at CERN); panel two was chaired by Dr Mark Wright (FACT/Liverpool John Moores University) and included artists James Bridle and Juan Cortés, and scientists Professor Tara Shears (University of Liverpool) and Dr Helga Timko (CERN); and panel three was made up of artists *hrm199* (Haroon Mirza in collaboration with Jack Jelfs), and Seth Ayyaz and Diann Bauer, and was chaired by José-Carlos Mariátegui (exhibition curator).

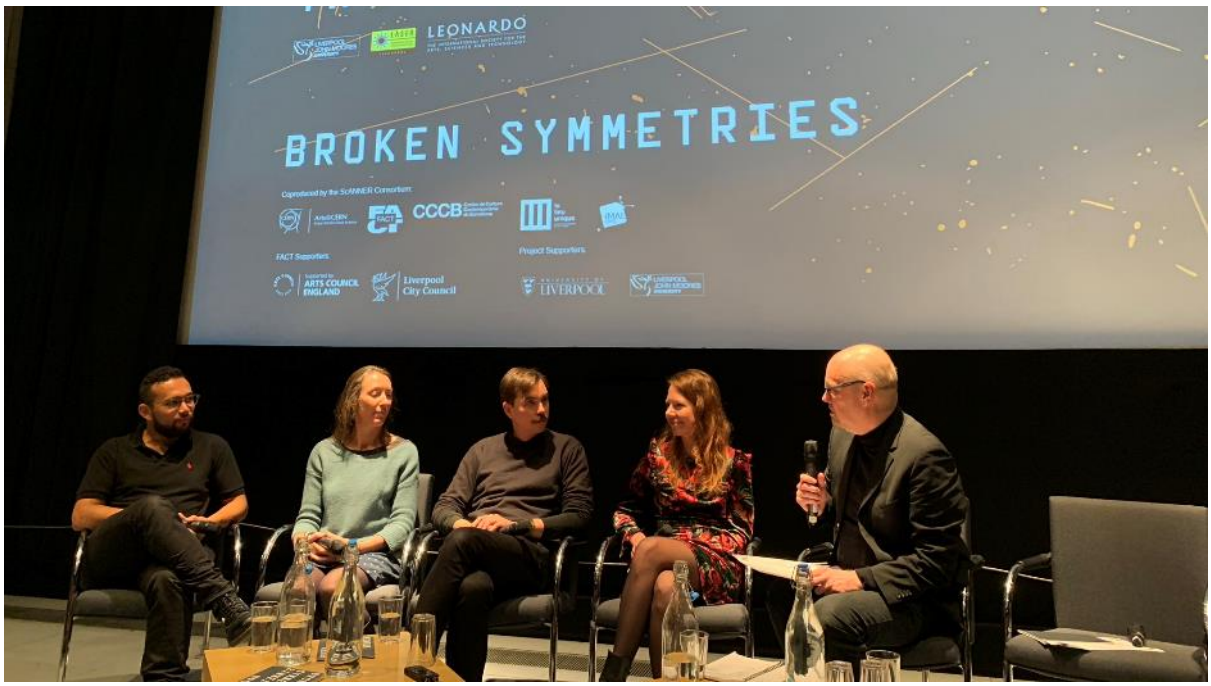

Fig. 4, *Broken Symmetries* LASER talks at FACT, Liverpool. Photo: Mark Roughley

To begin, the panellists discussed how large science spaces like CERN often appear inaccessible. Mónica Bello noted that the Arts at CERN project debunks this idea and it allows artists to collaborate with researchers at CERN, with the aim of normalising access to knowledge and things that exist outside of everyday experience [11]. The publics often judge the benefits of art-science collaborations through tangible outputs [12], which in this circumstance might be the artworks exhibited in *Broken Symmetries*. However, when talking

about her artistic process and her residency at CERN, Porsager stated that the most beneficial stage was working through “different layers of figuring things out” in order to create artistic responses [13]. Wang also noted that while CERN has highly specialized spaces and amazing technologies, there was an openness for artistic reaction without pressure for research outputs [14].

While each of the speakers discussed a range of topics central to their works, including time and scale (Ayyaz and Bauer), nature-driven data (Bridle), dark matter (Cortés), language as a human technology (hrm199), matter and muons (Kim), neutrons and spirituality (Porsager), and the histories of scientific research (Wang), it emerged that abstract notions are difficult to reach with normal language. The regular language of these spaces can be overwhelming where they are both complex and precise, but in art-science settings, there exist opportunities to construct new experiences and communal languages to increase understanding and facilitate change [15]. Wang also suggested that understanding could be “attained by interrogating ‘things’ through immersive experiences, satiric languages and realms” [16]. Taking notice of this, it might be that we hold future Liverpool LASER talks not in exhibition spaces but in ambitious immersive experiences in unexpected locations, to aid public understanding of complex art-science research, similar to *Einstein’s Garden* in Wales, UK [17].

Summary

> *“What scientists and artists have in common [is that they are] both are fuelled by curiosity and imagination, which drives them to venture into the unknown; a blank canvas, music not yet choreographed, an observation and hypothesis not yet tested […] All seek to explain, inspire, provoke thought, [and] communicate a deeper understanding to diverse audiences and create impact”* [18].

Liverpool LASER adopts a different subject of inquiry for each event and brings together groups of like-minded individuals to engage in dynamic conversation, and we encourage readers of this paper to watch the recorded talks here https://www.ljmu.ac.uk/microsites/liverpool-laser. The number of attendees varies per event with an average audience comprising approximately 35 individuals, including a number of

people who regularly attend every Liverpool LASER talk. The invited speakers report satisfaction from partaking in the events with some having contributed to other LASER talks internationally, including Robertina Šebjanič who spoke at our second LASER event at FACT titled *Oceans 4.0*. There have also been occasions where speakers have discussed possibilities for activating future collaborations with each other, based upon interactions at LASER talks.

We recognise that art-science interactions can take place in both ‘laboratories’ and ‘studios’ [19], however, we chose to hold our talks in established cultural venues across Liverpool that are familiar and accessible public spaces, including the Walker Art Gallery (figure 4). Beck and Bishop [20] note that artists have naturally expanded their engagement activities beyond galleries and museums and into universities, tech labs and research facilities, but there are fewer examples of scientists moving into art spaces. This could mean that the public’s ability to engage with scientists is limited; more so than with artists, often leading to biased assumptions about scientists based on popular culture representations.

Fig. 5, *Leonardo’s Laboratory* LASER talks in the learning annex, adjacent to the gallery housing the *Leonardo da Vinci: A Life in Drawing* exhibition, at the Walker Art Gallery, Liverpool. Photo: Mark Roughley

For Liverpool LASER talks, our chosen venues became learning spaces and sites for interconnection – a core value of a hybrid studio-laboratory – where attendees could engage beyond traditional public lectures with complex scientific research, new technologies and challenging art-science concepts. For example, our *Leonardo’s Laboratory* LASER talk at the Walker Art Gallery, Liverpool (figure 5), included a pop-up Fab Lab (a digital 3D fabrication laboratory). Prior to the LASER talk proper, the publics enjoyed the *Leonardo da Vinci: A Life in Drawing* exhibition in the adjacent gallery, then worked with technologists and a medical artist to explore what Leonardo might have made if he had access to a 21st century Fab Lab. They were asked to construct one of Leonardo’s unfinished works – the *Gran Cavallo* statue that was never built, using his preparatory drawings, virtual reality sculpting, 3D digital haptic interfaces, and 3D printing (figure 6).

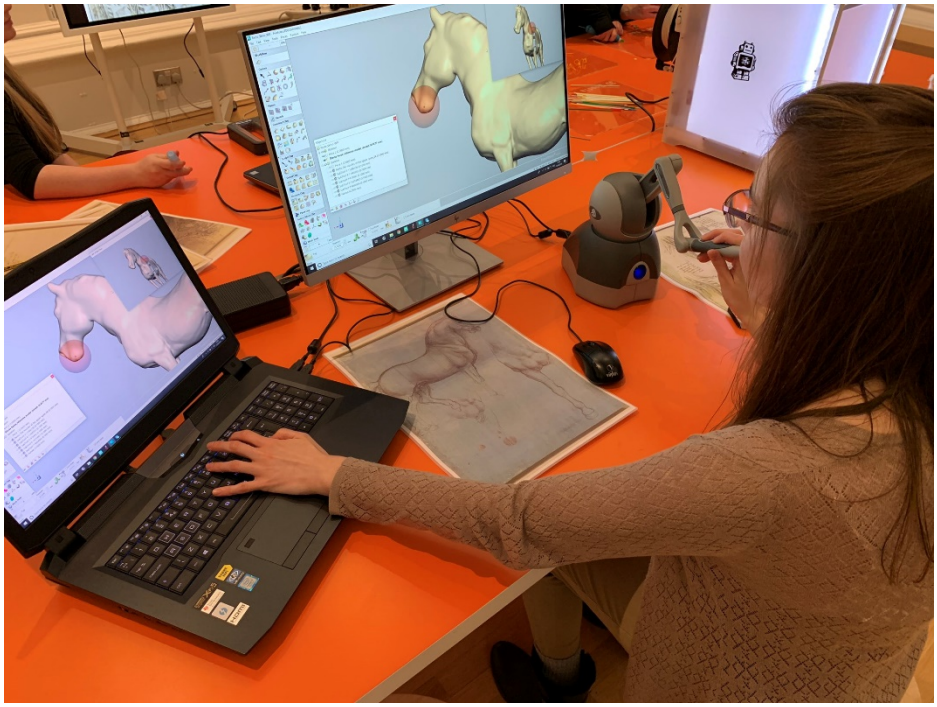

Fig. 6, *A Leonardo’s Laboratory* participant haptically 3D sculpting *Leonardo’s ‘Gran Cavallo’ Horse* prior to 3D printing, Walker Art Gallery, Liverpool. Photo: Mark Roughley

People tend to seek out others that are similar to themselves and the audience of our LASER talks were likely comprised of people who have some interest in or love everything related to art and/or science. Cormick [21] states that one of the most common mistakes in public engagement is thinking you have reached the wider community when you have solely been

talking to the ‘fans’. It would be short-sighted to assume that there are no experts in audience at the talks – artist and scientists are also members of the public – and by engaging the audience in active dialogue, the talks move from passive interactions to active ones, where no opinion is underestimated [22]. Hunt [23] also recognized a hybrid interest between the exploration of an idea that is potentially beneficial to a community but also the consideration of something that can be used and owned by the community. Can the global LASER network act as catalyst for change and help ideas to reach those who might be the recipients of such ‘things’ and for those recipients to have to confidence to develop and advance the ‘things’?

As academics working in Higher Education and as researchers that conduct publicly-funded research, we are aware that we often work in inaccessible silos, and that there needs to be critical analysis and discussion of research outputs in an open discourse amongst peers and the publics who are the recipients of the research. LASER talks are not simply a one-way discourse. They are opportunities for speakers and the publics to engage in a two-way dialogue, present and gain confidence in their ideas, gather feedback on new concepts and facilitate knowledge transfer [24]. Globally, the LASER network successfully extend access to art-science communities locally and internationally. We now face the challenge of reaching out to those who do not attend the talks.

Liverpool LASER is establishing itself as a community studio-laboratory where we facilitate conversations and openly debate the impact of art-science collaborations on our daily lives. Here, we do not simply label things art or science but remove the preconceptions of both. Smith [25] notes however that the “categories of art and science still act as a kind of signposting, as they are useful in stimulating discussions about art and science topics” but the LASER talks promote expanded thinking through an understanding of curiosity, process and experimentation. These themes will continue to be the driving principle of future Liverpool LASER talks.

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Biographical information

Mark Roughley trained as a medical illustrator and is a lecturer in 3D Digital Art and program leader for the MA Art in Science program at Liverpool School of Art and Design. Mark has been a Liverpool LASER host since January 2018.

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