

Northumbria University, Newcastle.  
Art and Design: History, Practice and Theory. UoA 32.



# MATERIAL SIGHT

## RE-PRESENTING THE SPACES OF FUNDAMENTAL SCIENCE







Type of output:  
Collection of  
Creative and  
Critical Work  
2014-2020  
DOUBLE WEIGHTED

*by*  
Fiona Crisp

Left: *Safe Haven* from  
*Material Sight* 2018. Giclée Print  
on Cotton Rag from colour  
transparency. 112 x 112 x 5cm.

# CONTENTS

SUMMARY	4
INTRODUCTION	5-7
TIMELINE	8
RESEARCH CHALLENGE	10-11
CONTEXT	12-13
METHODS & PROCESSES	14-20
DISSEMINATION	21-25
REFERENCES	26
ACKNOWLEDGEMENTS	27

# SUMMARY

From subterranean laboratories to cosmological super-computers, fundamental science is premised on a paradoxical relationship between material presence and perceptual remoteness making it one of the most 'difficult' areas of science for lay-publics to cognitively and imaginatively assimilate. *Material Sight: Re-presenting the Spaces of Fundamental Science* was an extended body of practice-based research generated at three world-leading research facilities that actively used this paradox to explore ideas of material encounter. The research culminated in two large-scale exhibition installations that placed audiences in a bodily relationship to the radically remote spaces and laboratories of experimental science, asking whether the photographic/film/sound object can itself be a site of material encounter.

Within the field of art/science collaborations, the research challenges the model of art as 'illustrator', instead framing arts practice as an active contributor to emergent technologies that include the socio-political and the cultural. In this respect *Material Sight* is framed by New Materialist thinking (Haraway, Barad) defining knowledge-making practices as "social-material enactments that contribute to, and are part of, the phenomena we describe"(Barad 2007:26).

Over an extended period 2014-2020, the project sought to foster research relationships and innovate methodologies that:

- Develop new forms of practice-based exchange within the laboratory environment.
- Present the photographic/film/sound object as embodied, material encounter.
- Trial performative methods of public engagement that evoke intimacy of connection.

The R&D for *Material Sight* was supported by a Leverhulme Trust Research Fellowship 2016-18 [£49K Crisp P.I.].

The project culminated in two, large-scale exhibition installations in Sunderland and London, each accompanied by programmes of live events and experimental workshops supported by ACE and the STFC. *Material Sight's* research findings have been further shared via a symposium and book, *The Live Creature and Ethereal Things* [hardcopy & e-publication] as well as through the project website, two peer-reviewed journal articles, conference presentations and a documentary film.

# INTRODUCTION

*Material Sight: Re-presenting the Spaces of Fundamental Science* forms a collection of creative and critical work 2014-2020 comprising:



**A programme of practice-based research** carried out at three world-leading facilities for fundamental science: Laboratori Nazionali del Gran Sasso; [1] Boulby Underground Laboratory; [2] The Institute of Computational Cosmology, Durham University. [3] Funded by a Leverhulme Research Fellowship 2016-18. [£49K Crisp P.I.]



***KOSMICA: Ethereal Things* - Two live performance events and workshop weekends** in Sunderland and London . Supported by the Science & Technology Facilities Council 'Spark Awards' for innovative public engagement [£15K Crisp Co.I.]



***The Live Creature and Ethereal Things* - an experimental symposium** at the Institute of Physics, London bringing together artists, physicists, curators and writers. Financially supported by the IoP.



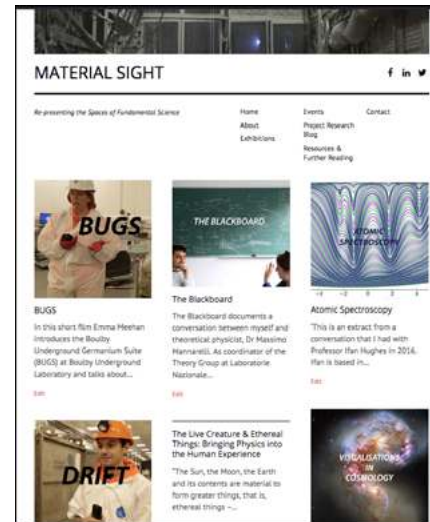
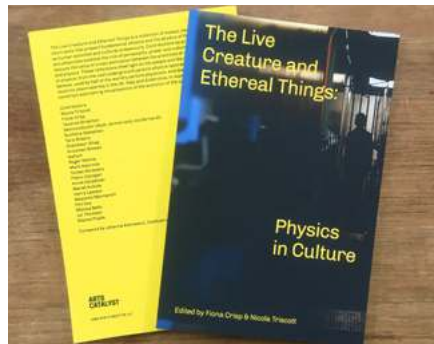
**Two large-scale architectural exhibition installations**  
supported by Arts Council England [£15K Crisp P.I].



Above: *Material Sight* Northern  
Gallery for Contemporary Art,  
Sunderland.  
24 March – 13 May 2018.

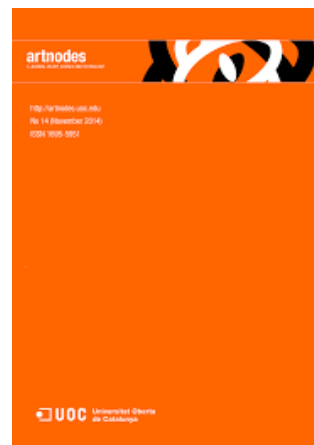
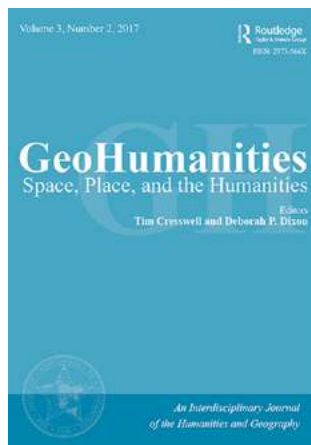


Above: *Material Sight* Arts  
Catalyst Centre for Art, Science  
and Technology, London.  
7 June – 14 July 2018



*The Live Creature and Ethereal Things: Physics in Culture*  
**Hard-copy book** (2018) and [free-to-download e-publication](#) (2020).  
 Co-edited plus introduction and two chapters.

A project website [www.materialsight.wordpress.com](http://www.materialsight.wordpress.com)  
 archiving the exhibitions and research process.



Two peer-reviewed **International Journal Articles**, [GeoHumanities](#)  
 (American Association of Geographers) 2015  
 & [Artnodes Journal of Art, Science and Technology](#) 2020.



A **documentary film** communicating the exhibitions and research  
 themes to a broad audience (see page 19).

# TIMELINE

2014 - 2016	2016	2017	2018	2019	2020
<p>Exploratory fieldwork undertaken at Boulby Underground Laboratory (STFC), Institute of Computational Cosmology, Centre for Advanced Instrumentation, Precision Optics Laboratories (Durham University) and CERN CH.</p> <p>APRIL 2015 Conference Presentation. AAG Chicago.</p> <p>SEPTEMBER 2015 <i>Negative Capability: Imaging and Imagining Fundamental Science through Productive Doubt</i> GeoHumanities Journal Article published (UK/USA).</p>	<p>MARCH Leverhulme Research Fellowship awarded.</p> <p>OCTOBER Project Website launched.</p> <p>OCT 2016-MARCH 2018 Fellowship research &amp; fieldwork undertaken at Laboratori Nazionale del Gran Sasso (I); Boulby Underground Laboratory (UK), Institute of Computational Cosmology, Centre for Advanced Instrumentation, Precision Optics Laboratories (Durham University UK).</p> <p>NOVEMBER Arts Council England Grant Awarded.</p>	<p>JULY Science &amp; Technology Facilities Council Spark Award.</p> <p>OCTOBER <i>The Live Creature and Ethereal Things: How Art is Transforming Science</i> Symposium Institute of Physics, London.</p>	<p>MARCH-MAY <i>Material Sight</i> Exhibition NGCA, Sunderland.</p> <p>APRIL KOSMICA: Sunderland Edition -Performance weekend and workshops.</p> <p>JUNE <i>The Live Creature and Ethereal Things</i> Book launch.</p> <p>KOSMICA: London Edition - Performance weekend and workshops.</p> <p>JUNE-JULY <i>Material Sight</i> Exhibition, Arts Catalyst, London.</p>	<p>MARCH Visual Artist of the Year Award. 'The Journal Culture Awards'</p> <p>JUNE Trebuchet Journal Article published.</p> <p>OCTOBER Conference Presentation - '<i>Material Sight:Re-presenting the Spaces of Fundamental Science</i>' at 'Science and Photography' St Andrew's University.</p>	<p>JANUARY <i>Material Sight: A Sensorium for Fundamental Physics</i>, Artnodes Journal Article published (ES).</p> <p>FEBRUARY eBook publication.</p> <p>Documentary Film Launch.</p> <p>OCTOBER Symposium, British School at Rome (I).</p>



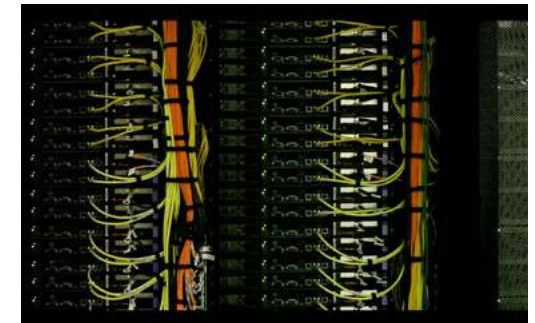
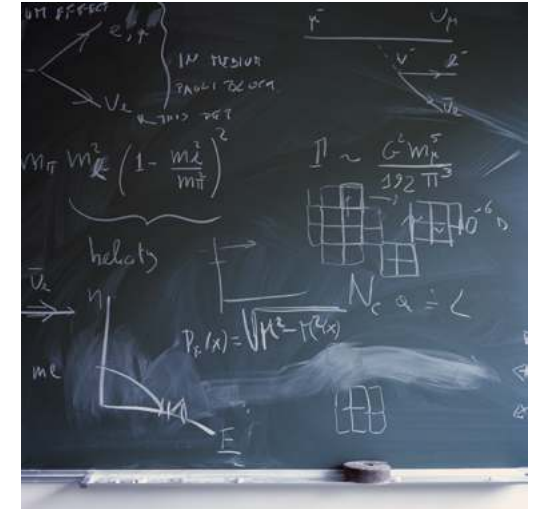
Below: *Material Sight*  
Installation detail.  
Northern Gallery for  
Contemporary Art, Sunderland.  
24 March – 13 May 2018.



# RESEARCH CHALLENGE

Many areas of fundamental science, including cosmology, particle physics and astrophysics, operate at scales and levels of complexity that lie beyond the imaginative and cognitive grasp of non-scientists. Today, with advances in science and technology, and with the accelerating impact of human activity on the planet, we live in new scales of size and speed that we cannot easily comprehend. If so much knowledge comes through scientific instruments, how can we make sense of it within our own experience? As the astronomer Roger Malina notes: “Our intuition, our languages, our metaphors and our arts are all built on the wrong data for understanding the universe” (Malina 2018).

Historically, the dislocation of lay-publics from the extreme abstraction of fundamental science has been understood as an issue to be addressed via public outreach initiatives; within this paradigm, the science itself is understood as essentially ‘complete’ and the task of communicators is to make the science more publicly accessible. Recent shifts in critical theory, particularly within the realm of New Materialism, break down this rigid dichotomy of nature and culture; within this new paradigm, all fields are relational and contingent - but how do we negotiate this new landscape?



Above top: *Blackboard* from *Material Sight* 2018. Giclée Print on Cotton Rag from colour transparency. 112 x 112cm.

Above: *COSMA* from *Material Sight: Screen Two* 2018. HD video, duration 45:00.

As an artist and academic, Crisp has approached these questions with **Research Aims** to:

- Actively challenge the model of art as ‘illustrator’ in art/science collaborations and instead frame visual practice as an active contributor to emergent technologies that are constituted from a hybrid mix of the technological, the sociopolitical and the cultural.
- Explore whether the material environment can be a conduit to cognitive understanding and, more specifically, to ask if art practices can ‘embody’ the spaces of experimental science and present them back to scientists and nonscientists alike, not as illustrations of the technical sublime but as sites of material encounter.
- Develop new forms of practice-based exchange within the laboratory environment.
- Stimulate inter-disciplinary exchange with regard to the visualization of radically remote science – particularly with scientists working between observed, enhanced and constructed imagery.

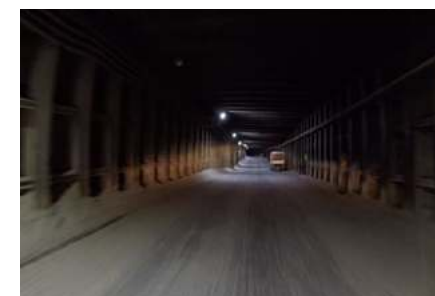
Consequently, the project pursued **Research Objectives** to:

- Create exhibitions that seek to create a ‘sensorium’ for fundamental science, through the use of non-documentary photography, film and sound, to place public audiences in a bodily relation to the extreme environments and physical laboratories where science is performed.
- Bring fundamental science back within our world as experience - what the philosopher Edmund Husserl (1936) called, the ‘Life-World’ – through trialling performative methods of public engagement that evoke intimacy of connection.
- Build a network of physicists, cosmologists, artists, curators and writers to examine the twin themes of ‘Culture in Physics’ and ‘The Culture of Physics’ with particular reference to issues of gender and diversity.
- Create a legacy of networks, methodologies and public advocacy for ongoing research.

# CONTEXT

*Material Sight: Re-presenting the Spaces of Fundamental Science* was led by Professor Fiona Crisp and hosted by Arts Catalyst, London, an organisation with an established international reputation for supporting artists, scientists and technologists to establish innovative working relationships in order to explore the complex cultural and socio-political questions within science and technology (see, for example, Dr Ele Carpenter's [Nuclear Culture project](#)).

Crisp's Leverhulme Fellowship, awarded 2016, funded two years of practice-based research at the three research institutions with whom Crisp had been fostering research relationships. Two of the sites are subterranean: **The Laboratori Nazionale del Gran Sasso** is the world's largest underground research centre for particle physics and is housed within a mountain in central Italy whilst **Boulby Underground Laboratory** occupies the UK's deepest working mine at over a kilometre beneath the Earth's surface; in both these contexts the research was driven by a paradoxical relationship between the deeply physical, material presence of the geological environment on the one hand and the cognitive extremes of the invisible, sub-atomic world on the other. The third site comprised the combined Physics facilities at Durham University, UK, including **The Centre for Advanced Instrumentation** as well as **The Institute of Computational Cosmology** where the super computer, COSMA, was used to create *The Millenium Simulation*, a digital doppelgänger of the universe. Here the project was designed to stimulate inter-disciplinary exchange with scientists working between observed, enhanced and constructed imagery as well as to establish new methods for producing visual knowledge in laboratory/workshop settings.



Above, top row: Sited inside a mountain in Italy, **Laboratori Nazionali del Gran Sasso** is the world's largest underground laboratory for particle physics. Middle row: **Boulby Underground Laboratory** is sited in the UK's deepest working mine that stretches over 15km out underneath the North Sea. Bottom Row: **The Institute of Computational Cosmology**, Durham University builds data visualisations of parts of the universe we will never experience directly.



*Material Sight* sought to establish a territory for cross-disciplinary research between art and fundamental science which, when compared to the longer history of the arts with bio-medical science (supported through funders such as The Wellcome Institute), is relatively under-researched. Critically, the project resisted the categorisation of art/science or ‘SciArt’ in an attempt to move beyond the binary structures that persist as a legacy of C.P. Snow’s Two Cultures model (Snow 1959). Instead, the research is rooted in the philosophical pragmatism of John Dewey’s ‘art as experience’ (Dewey 1934), plotting through to the critical context of New Materialism (Haraway, Barad, Stengers) that defines knowledge-making practices as “social-material enactments that contribute to, and are part of, the phenomena we describe” (Barad 2007:26). In this respect, the research seeks to place artist, scientist and publics inside of, and indivisible from, the knowledge-making process itself.

The visual and aural knowledge produced through the research is described as non-documentary in an attempt to establish that it is not *what* is being looked at and experienced but *how* that looking takes place. Particularly important is the exploration of the photograph/film/sound’s ability to embody phenomenological encounter and to explore whether this embodiment resides in the work itself or in the viewer’s act of encounter.

Institutionally, *Material Sight* is contextualised through the research organisation [The Cultural Negotiation of Science](http://www.cnos.ac.uk) (CNoS) for which Crisp is a founder and lead member.



Above top:  
Arts Catalyst

<https://www.artscatalyst.org>

Above: The Cultural Negotiation of  
Science <http://www.cnos.ac.uk>

# METHODS AND PROCESSES

**Strategic planning for the project methodologies** took place 2014-16 with individuals/organisations across physics, maths and cosmology to:

- Encourage engagement beyond the conventional ‘information-giving’ model of public outreach.
- Gain permissions to access and film/record in dangerous, sensitive or experimental environments.
- Communicate the research’s ‘non-documentary’ approach and develop aspiration for the production of bilateral knowledge.

Iterative practice-based research methodologies that proposed **the creation of new knowledge through the act of looking/recording** in physically extreme or laboratory environments were developed. Here, the research sought to interrogate the capabilities of the image/film/audio to re-enact the conceptual and physical spaces of radically remote science and how this information might subsequently become **manifest as a ‘sensorium’ for audiences to encounter.**



Above left: Boroxino ‘clean room’ for building detector core.

Above right: Campo Imperatore, Gran Sasso Mountain Range.

Below left: Interviewing Dr Andrea Molinario, XENON 1T, LNGS.

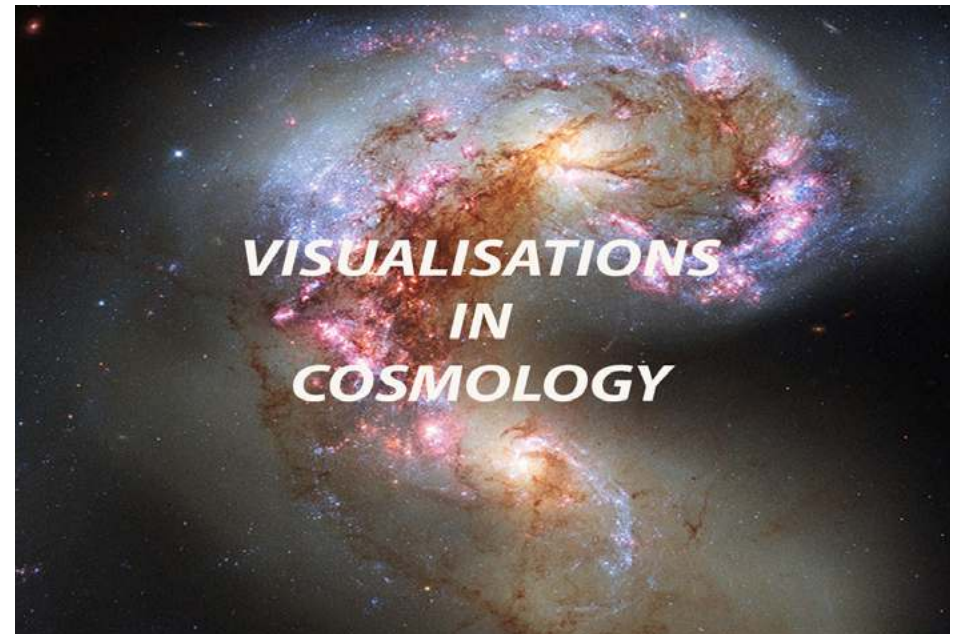
Below right: Filming with Dr Nicola d’Ambroisio, OPERA, LNGS.

**A programme of performative (as opposed to informational) exchange** was developed with theoreticians and experimentalists at each site through filmed interviews and ‘in-conversations’, **allowing both artists and scientists to examine their respective fields of practice through the prism of the other**: for instance, Crisp’s long-standing interest in the limits and capabilities of photography, as articulated in her research paper: *Negative Capability: Imaging and Imagining Fundamental Science through Productive Doubt* (Crisp, 2015), was used to engage scientists at the Institute of Computational Cosmology (ICC) in conversations about their own experience of working between observed, enhanced and constructed imagery. Key was the question of how such models and simulations are *culturally* received - as Professor Richard Bower remarked during a recorded discussion with his colleague, Professor Mark Swinbank and Crisp at the ICC, ‘I’m trying to make a universe, and then be part of that universe, even though it doesn’t exist’ - a fascinating insight that, by Bower’s own admission could never be articulated within his own professional milieu.

“I’m trying to make  
a universe, and then be  
part of that universe,  
even though it  
doesn’t exist”

Professor Richard Bower. ICC.

Right: *Visualisations in Cosmology*  
a conversation between Crisp and  
Professors Richard Bower and  
Mark Swinbank, ICC Durham  
University, UK  
<https://materialsight.wordpress.com/2017/03/13/visualisations-in-cosmology/>





A symposium, *The Live Creature and Ethereal Things: How Art is Transforming Science* was convened by Crisp/Arts Catalyst at the Institute of Physics in London to bring together a diverse network of international artists, physicists, writers and curators. Focussing on the related but distinct themes of ‘Physics in Culture’ and ‘The Culture of Physics’ the symposium sought to **move beyond the transactional ‘exchange of services’ that has often characterised the interface of art and science and instead to share creative, intellectual, cultural and socio-political practice, regardless of the sphere of its genesis.**

The subsequent publication, *The Live Creature and Ethereal Things: Physics in Culture*, used these findings as a springboard to examine aspects of fundamental physics that are culturally and politically constructed. Co-edited by Crisp and Arts Catalyst’s then Director, Dr. Nicola Triscott, the book challenged scientists to write in the first person - a transgressive act in itself.

**This methodology of ‘wrong-footing’ is used throughout the project to excavate qualitative, rather than comparative, responses from both research fields;** see, for example [The Blackboard](#): a filmed conversation where Dr Massimo Mannarelli, a theoretical physicist at Laboratori Nazionali del Gran Sasso, and Crisp start by discussing his blackboard as a conceptual object and go on to talk about exploring ‘impossible’ spaces through both mathematics and photography .



Top row from left:  
 Monica Bello, Director Arts at CERN;  
 Ruth Jarman, Semiconductor;  
 Dr Suchitra Sebastian, Cavendish  
 Laboratory, Cambridge University.

Bottom row from left:  
 Nahum Mantra, KOSMICA Institute,  
 Dr Marek Kukula, Public Astronomer,  
 The Royal Observatory, Greenwich;  
 Professor Tara Shears, University of  
 Liverpool.



Above: *The Blackboard* with  
 Dr Massimo Mannarelli, LNGS, Italy.  
<https://materialsight.wordpress.com/2017/09/18/the-blackboard/>



Material Sight's visual and aural research was presented to the public via two solo exhibitions at The Northern Gallery of Contemporary Art [NGCA] in Sunderland and Arts Catalyst in London. Here, the project's research questions regarding material encounter were pursued through the presentation of a series of large-scale photographic objects and plasma screens built into an architectural scaffolding structure with sound from the four high-definition films edited into a single, visceral soundscape. Within the project, **the concept of physical embodiment was central to countering the imperceptibility of fundamental physics that, being performed at micro and macro levels, often creates what Crisp has referred to as a kind of 'radical remoteness' to the body.** Within the installation, artworks, technical apparatus and a series of seven bespoke steel benches were presented as **undifferentiated, equally-charged material objects, all experienced within a physically-charged soundscape in Crisp's bid to produce a 'sensorium' for fundamental science** – a concept, along with the idea of 'phenomenological dissonance' that she develops in her journal article *Material Sight: A Sensorium for Fundamental Physics* (Crisp 2020).



Above and below, right:  
*Material Sight* at Arts Catalyst Centre  
for Art, Science and Technology,  
London.  
7 June – 14 July 2018

Below: *Material Sight*  
Installation detail.  
Northern Gallery for  
Contemporary Art, Sunderland.  
24 March – 13 May 2018.





Above: *OPERA Archive* from  
*Material Sight* 2018.  
Giclée Print on Cotton Rag from colour  
transparency. 112 x 112 x 5cm.



Above: *Material Sight* Documentary  
Film introducing the exhibitions and  
research themes to a broad audience.  
Access at: <https://vimeo.com/387419749>



*The Live Creature and Ethereal Things* was a season of discussions, talks, workshops, films, live experiments and performance/readings based around the Material Sight exhibitions, conceived of and led by Crisp in partnership with Arts Catalyst and the Institute of Physics, London (IoP). KOSMICA Ethereal Things formed part of the season gathering physicists, artists, educationists and publics together for two, weekend-long events, one in London and one in Sunderland.

**Through live events, performances and workshops for children and adults, participants worked towards a re-imagining of the non-expert's encounter with fundamental physics and the physics of the universe** including the physicist and rap artist Consensus performing from his album ConCERNed and the artist Annie Carpenter's demonstration of DIY cosmology using household items.



#### KOSMICA: ETHEREAL THINGS (LONDON EDITION)

6.30pm - 10.00pm, Fri 15 June 2018  
IKLECTIK  
'Old Paradise Yard'  
20 Carlisle Lane ( Royal Street corner )  
next to Archbishop's Park  
London  
SE1 7LG

book

#### FURTHER INFORMATION

<https://www.artscatalyst.org/kosmica-ethereal-things-london-edition>  
<https://www.artscatalyst.org/kosmica-ethereal-things-cosmic-evening-music-film-performance-and-talks>



Top right: Artist, Annie Carpenter models the physics of black holes using household objects.

Middle right: Rap Artist, Consensus performs songs from his debut album, ConCERNed.

Bottom right: Nahum 'Voyage: An Encounter with a Neutrino'. A hypnosis performance.



# DISSEMINATION

The *Material Sight* **exhibitions** ran at The Northern Gallery of Contemporary Art [NGCA] 24 March – 13 May 2018. [audience figures: 3,080 [actual] with 28 educational sessions for 302 participants] and 7 June – 14 July 2018 at Arts Catalyst, London [audience figures: 82,000 [estimate] with 22 educational events for 175 participants]. Evaluative feedback (funded through the STFC Spark Award) was used to record visitors' responses to the substantive themes of the research showing clear evidence that the exhibitions had helped audiences connect with Fundamental Science through experience and that this change would impact their interest and engagement with these areas of science in the future.

*KOSMICA: Ethereal Things* (live performance events and workshop weekends) took place in Sunderland 14/15 April 2018 and London 15/16 June 2018. As with the exhibitions, the scope and ambition of these events was greatly enhanced by the Spark Award for innovative public engagement that also allowed for evaluation of the outcomes.

The STFC were particularly interested in Sunderland as an area that is both economically deprived and traditionally under-represented in science outreach. Equally, the ethnically diverse area of Kings Cross in London where Arts Catalyst is located is classed as economically poor, despite being within the 'Knowledge Quarter'.

The **Experimental Symposium**, *The Live Creature* and *Ethereal Things: How Art is Transforming Science*, supported and hosted by the Institute of Physics [IOP], developed an ongoing **network** of artists, physicists, curators and writers interested in the advancement of non-instrumentalised, cultural approaches to cross-disciplinary research.

Below: *Material Sight* exhibition opening at the Northern Gallery of Contemporary Art, the National Glass Centre, Sunderland, UK.

Photo credit: Kathryn Brame.

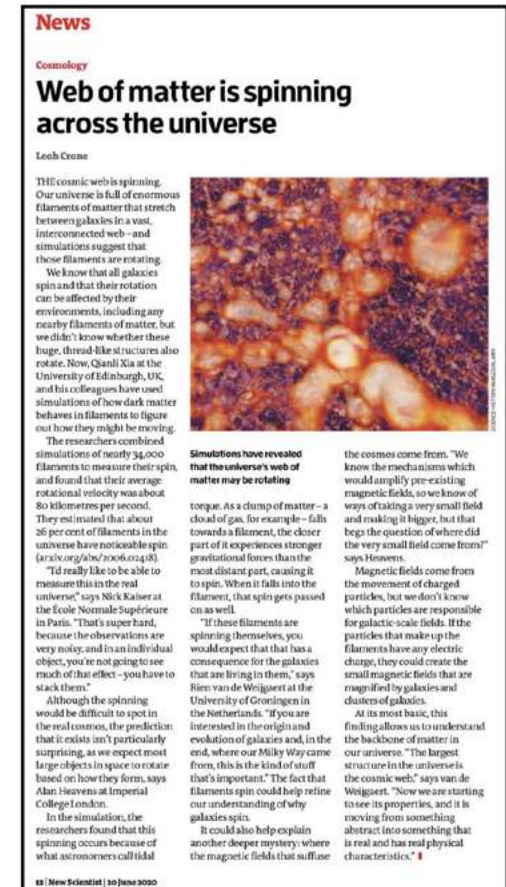


The book *The Live Creature and Ethereal Things: Physics in Culture* was published in hard copy June 2018 and on 11th February 2020 (Women in Science Day) the book was launched as a **free-to-download e-publication** by Arts Catalyst and distributed to Schools and undergraduate Physics programmes.

Published at the beginning and the end of the research period, the **two Journal Articles** have developed and disseminated the conceptual and critical thematics of Material Sight to an international audience. *Negative Capability: Imaging and Imagining Fundamental Science through Productive Doubt* was developed out of a paper given at The American Association of Geographers Conference in Chicago 2015 and *Material Sight: A Sensorium for Fundamental Physics* was published in *Artnodes Journal of Art, Science and Technology* 2020 edited by Director of Arts at CERN, Monica Bello. Research findings continue to be shared at **conferences, symposia and invited talks** including St Andrews Oct 2019 and British School at Rome Oct 2020.

The project [website](#) was built at the beginning of the Leverhulme Fellowship to narrate the research process and now forms an archived resource of relevance and access to a broad range of users across arts and science. Similarly, the **documentary film** sits on several art and science platforms, aiming to bring the research to a broad audience. Within the 18-minute film, Crisp introduces footage from the two, very different, iterations of the exhibitions whilst speaking about the main themes of the project as a whole.

A notable example of the project's impact on the science community is the performative research developed with Dr Mark Neyrinck (a then research fellow at the ICC, Durham) using origami-folding in experimental workshops to visualize the evolution of the cosmic web. This research has now made significant contribution to scientists' understanding of the cosmic web's filaments as rotating published in the [New Scientist](#) June 2020.



Above: New Scientist June 2020

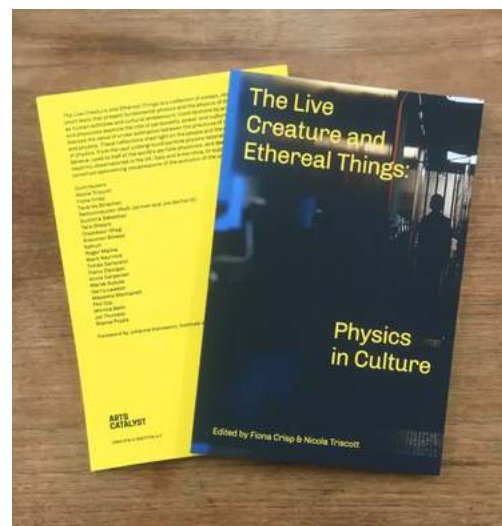
Top right: Folding the Local Universe; Origami workshop with physicist Dr Mark Neyrinck.

Bottom right: The ICC share their latest Simulations in experimental workshops.

# The Live Creature and Ethereal Things: Physics in Culture

is a collection of texts,  
images and conversations  
that present fundamental  
physics and the physics  
of the universe as human  
activities and cultural  
endeavours.

*Contributions by physicists, artists and curators examine the role of personality, power and culture in physics and discuss the value of cross-pollination between the practices of contemporary art and physics. These reflections shed light on the people and material practices of physics: from the vast underground particle physics laboratory at CERN, Geneva, used by half of the world's particle physicists, and deep underground neutrino observatories in the UK, Italy and Antarctica, to super-computers that construct astonishing visualisations of the evolution of the universe.*



Edited by Fiona Crisp and  
Nicola Triscott.  
Published by Arts Catalyst, May 2018.  
Designed by Rita Pereira.  
Dimensions 15.2 x 0.6 x 22.9 cm.  
Full colour, 92 pages, softback,  
English. Price: £11.99  
Hard copy available to purchase  
via Amazon. Digital copy available  
via free download

*Supported by:*  
*The Leverhulme Trust,*  
*Arts Council England*  
*and The Science & Technology*  
*Facilities Council.*



Reviews and articles for *Material Sight* have appeared in hard copy and online, including [Art Monthly](#) and [Corridor 8](#).

Crisp was awarded **Visual Artist of the Year 2019** from The Journal Culture Awards for the exhibition *Material Sight* at the Northern Gallery for Contemporary Art, Sunderland.

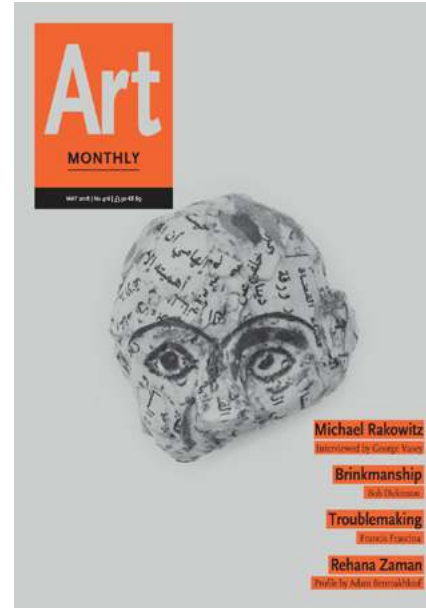
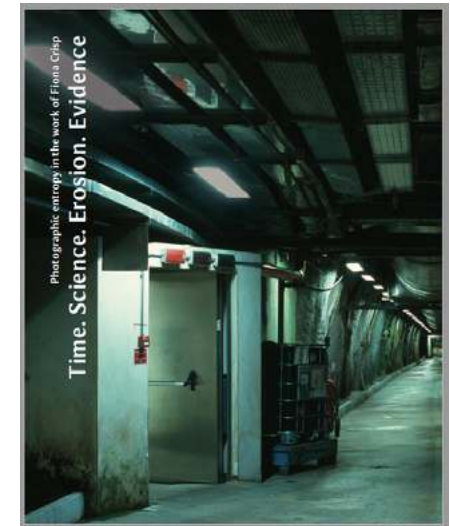
Collectively, the outputs and outcomes from *Material Sight* form the foundation of a new AHRC bid proposal, *FUNDAMENTAL: The Cultural Negotiation of Radically Remote Science* [P.I. Crisp] with partners CERN (CH), The British School at Rome (I) and FACT, Liverpool (UK).

*'Material Sight' makes it impossible to start a review anywhere else than with the soundtrack, which is intense, uncompromising and invasive, to the extent that it almost assumes physical form as you move around the gallery - a physical form lodged in your brain.*

Catherine Spencer, Art Monthly.



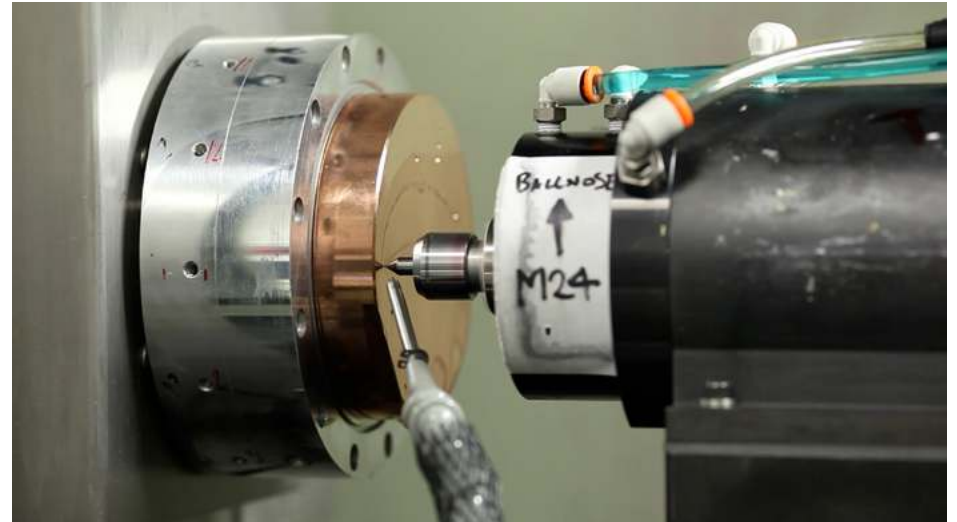
Above left & right: *Time.Science. Erosion. Evidence*: Fiona Crisp  
 Trebuchet Magazine. June 2019  
 Below left: *Fiona Crisp: Material Sight*  
 Spencer, C. Art Monthly May 2018.  
 Below right: *Fiona Crisp: Material Sight*  
 Pritchard, D. Corridor 8 April 2018







Above: *Boulby* from *Material Sight* 2018.  
HD Single Channel Video



Above: *Precision Optics Lab* from  
*Material Sight* 2018.  
HD Single Channel Video

# REFERENCES

Material Sight Project Website: <https://materialsight.wordpress.com>

Arts Catalyst: <https://artscatalyst.org>

The Cultural Negotiation of Science: <https://cnos.ac.uk>

Material Sight Documentary film <https://vimeo.com/387419749>

Barad, K. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham and London: Duke University Press

Crisp, F. 2015. *Negative Capability: Imaging and Imagining Fundamental Science Through Productive Doubt*.

*GeoHumanities* (American Association of Geographers),  
Volume 1 (1):188-197

Crisp, Fiona. 2020. *Material Sight: A Sensorium for Fundamental Physics*. *Artnodes*, N°25: 1-11. UOC.

Dewey, J., 2005 [1934] *Art as Experience*. Penguin, New York

Haraway, D. 2016 *Staying with the Trouble: Making Kin in the Chthulucene*. Durham and London: Duke University Press

Malina, R. 2018 in Crisp, F. and Triscott, N. eds. (2018) *The Live Creature and Ethereal Things: Physics in Culture*. London: Arts Catalyst: 47-49

Snow, C. P. 2001 [1959]. *The Two Cultures*. London: Cambridge University Press.

# ACKNOWLEDGEMENTS

## ***Material Sight* was made possible through the financial support of:**

The Leverhulme Trust  
Arts Council England  
The Science and Technology Facilities Council  
Northumbria University

## **Institutional Support was given by:**

Laboratori Nazionale del Gran Sasso  
Boulby Underground Laboratory  
The Institute of Computational Cosmology, Durham University  
The Centre for Advanced Instrumentation, Durham University  
The Northern Gallery of Contemporary Art, Sunderland  
Arts Catalyst Centre for Art, Science and Technology, London  
The Institute of Physics, London

## **The research and its outputs were made possible by:**

Professor Charles Adam: Durham University / Dr Nicola d'Ambrosio: Laboratori Nazionale del Gran Sasso / Dr Roberta Antolini: Laboratori Nazionale del Gran Sasso / Cat Auburn: Artist / Alex Ayre: Tyneside Cinema / Noria Bah: Arts Catalyst / Professor Carlton Baugh: Durham University / Mónica Bello: Arts at CERN / Ansuman Biswas: Artist / Professor Richard Bower: The Institute of Computational Cosmology, Durham University / Kathryn Brame: The Northern Gallery of Contemporary Art, Sunderland / Annie Carpenter: Artist / Dr Flviu Cipcigan / Poppy Cockuburn: Arts Catalyst / Phil Coy: Artist / Michael Davidson: The Northern Gallery of Contemporary Art, Sunderland / Diane Edwards: Arts Catalyst / Dr Pete Edwards: Durham University / Professor Carlos Frenk: The Institute of Computational Cosmology, Durham University / Dr Walter: Fulgione Laboratori Nazionale del Gran Sasso / Joe Gerhardt: Artist / Dr Cham Ghag: UCL / Dr Alessia Giampaoli: Laboratori Nazionale del Gran Sasso / Professor Ifan Hughes: Durham University / Dr Andrea Ianni: Laboratori

Nazionale del Gran Sasso / Ruth Jarman: Artist / Dr Johanna Kieniewicz: The Institute of Physics, London / Robin Klassnik OBE: Matt's Gallery / Professor Frank Krauss: Durham University / Dr Marek Kukula: Greenwich Royal Observatory / Claudia Lastra: Arts Catalyst / Harry Lawson: Artist / Professor Roger Malina: University of Texas at Dallas / Gary Malkin: BALTIC Centre for Contemporary Art / Dr Massimo Mannarelli: Laboratori Nazionale del Gran Sasso / Nahum Mantra: KOSMICA Institute / Dr Richard Massey: The Institute of Computational Cosmology, Durham University / Emma Meehan: Boulby Underground Laboratory / Dr Andrea Molinaro: Laboratori Nazionale del Gran Sasso / Dr Mark Neyrinck: Durham University / Professor Sean Paling: Boulby Underground Laboratory / Blanca Pujals: Artist and PhD candidate / Professor Stefano Ragazzi: Laboratori Nazionale del Gran Sasso / Alistair Robinson: The Northern Gallery of Contemporary Art, Sunderland / Dr Nicola Rossi: Laboratori Nazionale del Gran Sasso / Anna Santomauro: Arts Catalyst / Tomás Sareceno: Artist / Dr Jurgen Schmoll: The Centre for Advanced Instrumentation, Durham University / Dr Suchitra Sebastian: Cavendish Laboratory, Cambridge University / Toby Shannon: The Institute of Physics, London / Professor Tara Shears / Louise Swan: The Institute of Physics, London / Dr Mark Swinbank: The Institute of Computational Cosmology, Durham University / Jol Thomson: Artist and PhD candidate / Christopher Toth: Boulby Underground Laboratory / Dr Nicola Triscott: FACT, Liverpool / Dean Turnbull: The Northern Gallery of Contemporary Art, Sunderland / Professor James Wells: CERN / Louise Yeoman: Boulby Underground Laboratory.

All images courtesy Fiona Crisp and Matt's Gallery, London unless otherwise stated.

Back cover image:  
*Material Sight* Arts Catalyst Centre for  
Art, Science and Technology, London.

7 June – 14 July 2018

Northumbria University, Newcastle.  
Art and Design: History, Practice and Theory.

**REF2021** Research  
Excellence  
Framework

