Welcome Disturbances

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Since the foundation of the State UCD has made a unique and unrivalled contribution to the development of modern Ireland. This has been based on successful engagement with Irish society on every level and across every sphere of activity.

UCD is committed to working with local and national authorities towards meeting shared objectives, capturing the value of a great public university to city and country. We are delighted to partner with Dublin City Council and The LAB in bringing Welcome Disturbances and it's engaging programme of events to the wider community.

I would like to thank the artists in residence for their valued contribution to the UCD community and congratulate them on this inspiring exhibition.

Prof. Andrew Deeks, President, University College Dublin

Welcome Disturbances, an exhibition and public events programme at the LAB Gallery brings together artists, academics, researchers, industry representatives and members of the public to explore new ideas and ways of working together to understand the world around us.

Dublin City Council is committed to delivering quality arts experiences for citizens and visitors to our City. Partnerships, like this one with UCD, allow us to build our programmes and share resources in order to best deliver on the aims of The City Arts Plan 2014 - 18.

Owen Keegan, Chief Executive, Dublin City Council

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Notes from the curators

In the process of developing the UCD Art in Science project, I was commissioned to make a piece of work to reflect the ground breaking research at the O'Brien Centre for Science. This centre, built with significant investment from the Irish State and private donors, promises to be a transformative resource in science education and research in Ireland. A key objective of UCD College of Science is to educate students in collaborative working environments, this is a core component of modern scientific practice. The piece is called The Reflective Eye, it draws from the buddhist concept of dependent origination – all things arise in relation. 158 interlocking mirrored cubes, form the shape of an eye, into which you can walk. It was intended to be a temporary installation but it's still there, and every now and then I dust it off and remind myself of the motivation behind it's living aspirational counterpart, UCD Art in Science.

Creating a future with solid foundations, for a sustainable global society, is synonymous with practising dialogue across the traditional boundaries of our beliefs and disciplines and creating conditions for the exchange of different ideas, positions and subjectivities. The artists and work in this exhibition embody the spirit and texture of this vision. In the accompanying essay, Fiona Fullam captures the variety of connections between the artists, students, academics and researchers and the importance of open–ended exchanges.

UCD Art In Science brings artists and scientists together at both student and professional levels. It supports sustained engagement between practitioners across multiple disciplines, and creates links between research, education and the wider public, through residencies, collaborative modules and a programme of public talks, performances and exhibitions.

We are delighted to work in partnership with the LAB and in particular Sheena Barrett in presenting *Welcome Disturbances*. The work in this exhibition, and the programme of public events represents a commitment to shared understanding, through dialogue, between all involved. In his 2014 Peace Proposal to the UN, Daisaku Ikeda, Buddhist philosopher writes;

"However tenuous our connections may appear on the surface, the world is woven of the profound bonds and connections of one life to another. It is this that makes it at all times possible for us to take the kind of action that will generate ripples of positive impact across the full spectrum of our connections…This is the process by which each of us, in our respective roles and capacities, can create that value which is ours alone to realise in order to benefit our fellow citizens, society as a whole and the future."

I'd like to express sincere thanks to the artists Mark Cullen, Cindy Cummings, Fred Cummins, Emma Finucane, Sofie Loscher, Meadhbh O'Connor, Siobhan McDonald, David Stalling and the scientists they have engaged with for their powerful ripples of positive impact, and for all the welcome disturbances.
To Sheena Barrett and the staff at the LAB for their enthusiasm and expertise, to all of the contributors to the rich programme of events for their time and generousity, to Prof. Joe Carthy and UCD College of Science for their continued support in this project and last but not least Prof. Lorraine Hanlon co-founder and champion of it all, thank you.

Emer O Boyle, Co-founder and Creative Director, UCD Art in Science

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The LAB Gallery shows emerging artists and emerging ideas. As a Dublin City Council gallery, we see our role as both providing supports for artists to develop their practice, and also to find fresh ways to engage audiences.

Artists develop new work specifically for this space and alongside the gallery presentations of their work, we develop public programmes of talks and events to explore the ideas manifest in the work. These ideas have led to collaborations and intersections with other disciplines including art, design, technology, science, astrology, architecture, dance, music and more. We have a core community of artists and we build our audiences through creating a range of ways for people to engage further.

We are delighted to present *Welcome Disturbances*, as both an exhibition and a public programme. In a previous collaboration and exhibition at the LAB, *Quantified Self,* Kieran Daly, then Vice President of Shimmer Research, commented on the vulnerability of artists as they present their work on the opening night. To show something so wholly representative of yourself, your way of working, your decision making process, without anything akin to industry's focus group prior to a public unveiling seemed brave, reckless even. The mutual respect inherent in the collaborations enjoyed by the artists and scientists on the programme has led to the series of works presented in this exhibition. Collaborations such as UCD Art in Science can both bolster confidence and unravel assumptions. Somewhere within the slippages of understandings, the new discoveries and the welcome disturbances to our ways of knowing, lies a shared dedication to practice.

It is perhaps no coincidence that many of the artists in the exhibition are artists who have exhibited at the LAB before. Inherent in their practice is an approach to

making that involves a sharing of ideas and an openness to working with others. The work presented in this exhibition has mostly been made in studios that were formerly labs in the Science Department of UCD. Though the work is being presented for the first time, it feels something of a homecoming. By it's very name, the gallery provides a continuation of that laboratory setting, an appropriate context for works that present a thesis, a resolution of a particular idea, at a particular time, to be tested or critiqued by the visiting public and the range of events that have been designed to provide a framework for discussion. I'd like to take this opportunity to thank the artists for their participation and look forward to continued sharing and learning at the public events.

Sheena Barrett, Curator, The Lab

Thinking Outside the Box // *Fiona Fullam*

Coincidentally, when I was asked to write this piece and began thinking about art and science and where these might have common ground, I came across a little paragraph, which was doing the rounds on Instagram. It was about the language of texting, explaining how the mind reads words using the first and last letters, how we can read appallingly misspelt words without problem, as we routinely ignore the letters in-between. Later walking up a stairs in the School of Physics in University College Dublin with Emer O'Boyle, co-founder and director of UCD Art in Science, we stopped to look at a photographic portrait, which she had been commissioned to make of Dr Brian Vohnsen, Optics and Advanced Optical Imaging. The face/head was upside down, however the smile and eyes were right side up, so when viewed from an upside down position, the smile and eyes were frowning, downturned. When reading the upside-down face as presented on the other hand, it read as smiling, reassuring. The eyes and the brain identified the essential elements and read those first and did not immediately recognise the face as upside-down at all. Emer had placed a short account of the complex processes at work here, *The Msrtyey of Eye Mnid Fncution,* beside the work. It is clear then, even from this one piece of work, that science and the visual are inextricably linked; how we see, perceive, read everyday or complex information is not simple, but can be understood and explained scientifically, as well as employed intuitively for art.

There are nevertheless as many different kinds of science and scientists, as there are artists and processes. To box them into two categories would be wrong and untrue. What is fascinating about the UCD Art in Science programme is the overlap in the ways of thinking about idea and concepts, and in the ways artists and scientists explore, test, work laterally and comment on the world around them. It appears that although the languages used are very different, that there is a commonality, a curiosity, an openness to ideas and discovery common to both. The UCD Art in Science programme was developed by artist Emer O Boyle and Professor of Astrophysics Lorraine Hanlon. There are three strands to the programme: an artists in residence programme at the Parity Studios based in the School of Physics at UCD; a collaborative module between fine art and science students called Tunnelling Art and Science, facilitated by Emer O Boyle, Prof. Philip Napier, Head of Fine Art, NCAD and Prof. Lorraine Hanlon, UCD School of Physics; and a public engagement programme, to which this exhibition *WELCOME DISTURBANCES* with its programme of talks and events, presented with and at The LAB belongs.

This exciting and vibrant programme is highly successful on many levels. It allows both artists and scientists a space to think and work outside of traditional boundaries, outside the confines of any given discipline, a more porous way of working, which further allows for original or new thinking, new insights, and subsequently, new

or original approaches to both artistic and scientific work. All of the artists and scientists I spoke to, agree that this is the case. It erases the limitations of each discipline. David Edwards, author of Artscience Creativity in the Post-Google Generation, has been studying these areas of crossover and their results for many years and writes:

"Our educational—and cultural institutions do not serve creators as well as they might were these institutions to integrate some organizational mechanism what I call the lab that selectively reduces barriers to idea translation between the arts and sciences."[1]

The UCD Art in Science programme has been given a ten year committment from the College of Science UCD and will continue to enrich the educational experience of students at both UCD and NCAD. This is a much more holistic view of education. The spirit of dialogue, of entering into a conversation with an open mind, is vital to this process and many of the artists cite this as the most valuable part of the programme. To have the opportunity to strike up a conversation with someone from a completely different discipline, discover how they think and work, as well as what they are working on, has been inspirational to the artists on the residency. The interdisciplinary programme of talks and events has likewise been very successful, inspiring people to come together and engage with each other's work, on many occasions then beginning to work collaboratively. These engagements include such diverse activities as Tuesday stretch classes for physics students given by Cindy Cummings, who also works with Dr Finola Cronin, a lecturer in Theatre and Performance; a lecture on the history of contemporary dance; a new accredited module for UCD science students entitled *Creativity in Science and Art* given by Méadhbh O'Connor; collaborative exhibitions on campus, both between artists and between artists and scientists; *Tunnelling Art in Science* at TBG&S; various public talks and lectures given by both artists and scientists. Artist Emma Finucane is now leading a research team on a scientific paper, based at the National Maternity Hospital in Holles Street. The range of practices at the residency is very diverse and each has embraced the opportunities which have arisen through their engagement in the programme. All the artists intend continuing to work with one or more of the scientists or lecturers in some capacity and many have commitments, commissions or firm plans to do so. The people who have been engaged in this programme have become a community, a collective, sharing skill sets, finding new and innovative ways to work together, discovering fertile avenues of thought, all of which feed into their own and each other's work.

The approach to making work has been different for each artist. For some the process of research and learning is the work and each process has been very different. Others have been inspired by the materials and processes which they encountered at UCD, thinking through a new language, which lies outside both disciplines.

David Stalling's work came about through thinking about the environments he came across in the laboratories. He was fascinated by molecular biology and the study of growth and decay. He worked with Dr Joanna Kacprzyk and Dr Paul McCabe, who study programmed cell death, which is the inherent ability of a cell to switch itself off to protect the rest of the plant, and began to think about the lifespan of sound or sounds. The sounds which were continuous, intermittent, or sudden, how they vibrate, resonate, on their own and together. In the laboratory, these sounds include those made by the many fans and fridges needed to maintain the growth chambers, the controlled environments required for growing the cells. David's installation piece plays with the idea of a chamber for growing sounds and ideas, the unpredictability of decay played against the controlled environment. The wall of fan sounds itself plays the role of a protective environment for the other more unpredictable sounds within.

Siobhán McDonald worked with Professor Jenny McElwain, Professor of Plant Palaeobiology and Palaeoecology in UCD School of Biology & Environmental Science. Professor McElwain creates atmospheres which existed up to 450 million years ago. Siobhán was attracted to this way of looking at and recording the world and began to ask questions about the metaphysical aspects and her own intuitive responses to impermanence. Professor McElwain entrusted Siobhán with material from very precious collections, even giving her ancient charcoal, which could be used as a material, so there was a lot of trust created between them in the course of their many conversations. Siobhán had already been working with John Gillis, Senior Manuscript Conservator at Trinity College Dublin, exploring the properties of calfskin and started to have conversations with Professor Padraig Dunne and Dr Tom McCormack, both physicists, about phenomena in the atmosphere, and these along with Professor McElwain's work, led to her interest in how sunlight has changed over the millennia. Sofie Loscher's work also explores the qualities of light. Sofie was moreover interested in the history of the science around light, which has fed into her work. Coming from questions about perception, Sofie explores scientifically and intuitively how light works and what it is. Through this residency, Sofie was able to experiment and open these questions up, trying out various processes in scientific ways, and using unusual materials for scientific purposes, for example, cellotape. Sofie's engagment is on several levels, as she works to understand this complex phenomena herself, also wishing to make it comprehensible to others, creating working processes and artworks in the course of her research. This approach is quite scientific and highlights the similarities between the ways in which many artists and scientists work and conduct research. The value of a 'mistake' or an experiment which didn't perform as expected, is often greater in terms of learning and understanding than the countless ideas and designs which run smoothly.

Fred Cummins, a cognitive scientist and senior lecturer in the School of Computer

Science & Informatics, has been very involved with the work of several of the artists, and is himself exhibiting work at *Welcome Disturbances*. For him the value of such an engagement lies in being able to pursue projects outside his discipline, which don't necessarily fit neatly into any one field, to have unconventional dialogues and discover alternative viewpoints. He collaborated in 2013 with artist Emma Finucane, and interestingly his main area of research as a scientist is about collective speech and collective intentionality. Mark Cullen's *MANDALA – AS WITHIN, SO WITHOUT*, shown in the O'Brien Centre for Science at UCD, explores aperiodicity, a characteristic shared by all life on our planet, using the mandala, which in psychology can represent the dreamer's search for completeness and self-unity. This looking at alternative viewpoints and ways of reading the world around us and our place within it reflects beautifully the ethos of the programme, meshing and intertwining the myriad approaches to understanding, interpreting and learning. Somehow, all things are connected.

Artist Emma Finucane's piece for this exhibition is a call for participants to take part in the research project, which she was invited to lead. This is a slightly different approach again, as it is activist in nature, inviting others to be involved in the research, the crossover of ideas, promoting, advancing and expanding this new area, this new language, which exists independently of the disciplines from which it has emerged. Méadhbh O'Connor too is exploring this new language, and has designed a creativity module for science students, which aims to broaden their educational experience. She has regular meetings and conversations with Dr Tamara Hochstrasser, lecturer in the School of Biology & Environmental Science. Here however it is the exchange of ideas, the conversation, which is important and Méadhbh is interested in the nature of the exchange itself, rather than a product or piece, which might arise from it. She has organised a panel discussion during the exhibition, which will bring together a cross-section of society, people from very different disciplines, who work in very different ways, for a public dialogue. Her piece in *Welcome Disturbances* is entitled *Cappriccio*, which refers to the many influences and ideas, including tensegrity (an engineering principle, whose discovery is attributed to an artist), which have infused and converged in its making. Méadhbh's interest is in an intellectual and ideas based collaboration, seeing connections between things which aren't immediately obvious, seeing these connections as part of a whole, ineffable. Again, this reflects the thinking behind the UCD Art in Science programme; we, from our various disciplines and areas of expertise are all trying to understand the whole, but scratching away at it from different points of view. What could happen, if those innumerable viewpoints were merged?

Cindy Cummings background is dance and choreography and during this residency, she has worked in various ways and formats with fellow artists, with scientists and with students. She met and had conversations with many of the

scientists and is working with Dr Finola Cronin, lecturer in the School of English, Drama & Film. As a dance artist, Cindy is used to relating, responding and reacting to her environment, acting as a conduit for other things to happen and in her attempt to explain her own background to the people she was conversing with, prepared and performed an imaginative lecture on contemporary dance. She also discovered through conversations with Professor Padraig Dunne and Dr Tom McCormack, that it might be possible to describe and explain dance and choreography using the language of physics. Action, balance, motion, potential energy, these were all concepts common to both their languages. In her collaborative video piece, made with Professor Padraig Dunne, you can almost hear the thinking, the shape of the thinking and the effort of translation happening. The aesthetic of the language of physics written down, side by side with the aesthetic of dance is also remarkable. The 'looking right' or 'feeling right' of a dance movement was also interesting from the physics point of view. Did this feeling occur when the formula describing it was closest to the action? This work is highly collaborative, each discipline feeling its way through the language of the other and making a new language in the process.

"Our ultimate ability to realize those ideas that possess intellectual, cultural, economic, and social impact may be limited by many things. But it is invariably limited by our ability to communicate across and create along intercultural barriers. Lowering those barriers accelerates idea translation and improves innovation."[2]

One of the many strengths of the UCD Art in Science programme is that it is a place where many different ideas can be explored without any predetermined parameters, outside narrow disciplines and specialisations. This is vital for those who are curious, who are interested in talking in inbetween spaces, liminal space, where there are no labels, no pressure towards output. The UCD Art in Science programme is a huge step forward in our approach to education and to creativity. It embraces difference and with each artist, new ways of working emerge. It has recognised the parallel between the studio and the laboratory and provides a space where the pressures and constraints of one's own discipline disappear, providing an outlet to express yourself more freely in a very reciprocal way. A very collaborative and textured engagement can be and has been the result of this. Through this, new questions can be imagined and asked, and other ways of thinking made more likely. It is a very free space, a space where anything is possible.

1 Edwards, David. Artscience – Creativity in the Post-Google Generation, Harvard University Press, London, 2008. p13.

2 Edwards, David. Artscience – Creativity in the Post-Google Generation, Harvard University Press, London, 2008. p176.

Mandala // *Mark Cullen*

Mandalas, in many cultures, are utilised as physical representations of internal spaces of consciousness. As maps to define regions of the mind, they pertain to the universal whole or the absolute reality. By directing visualisation to the interior spaces of the observer's mind, the mandala contributes a non-Western perspective on the two-dimensional mapping of physical space with its portrayal of metaphysical, multidimensional experiential space[1].

In these cases the mandala is describing a geometric form that is a base unit of a five-fold aperiodicity in both two and three dimensions[2]. It is taken from a electron diffraction pattern of an icosahedral Ho-Mg-Zn quasicrystal. A form that has been recently found to exist in nature[3] following its discovery in the lab in 1981 by subsequent nobel prize winner Dan Shechtman. This pattern is consistent with arrangements of Penrose tiles and the sacred geometry of Islamic tiling from the 13th century, which both exhibit self similarity, a feature of fractal geometry.

Aperiodicity is a very special characteristic that offers the potential to carry vast quantities of information within a repetitive structure. Indeed it is the very condition on which life is based on this planet. As predicted by Erwin Schrodinger, in his lecture at Trinity College, the material carrier of life would be an aperiodic crystal[4] and so it was discovered to be true, as our DNA that is shared by every living organism on this world exhibits these properties.

Within the aperiodic tiling I have noticed the motif pattern of the Romanian artist Constantin Branchusi's Infinite Column. As a modular pattern of repeating lozenges, that preoccupied the artist throughout his career, it resonates with the axis mundi of many world cultures, which is believed to be representative of the tree of life, or in many cultures the spiral ladder that connects the heavens with the earth. Recent research by Jeremy Narby draws a strong correlation between the nature of DNA as a light emitting molecule and the visions of twisted snakes that inform the pharmacological knowledge and world view of Amazonian shamanic culture[5].

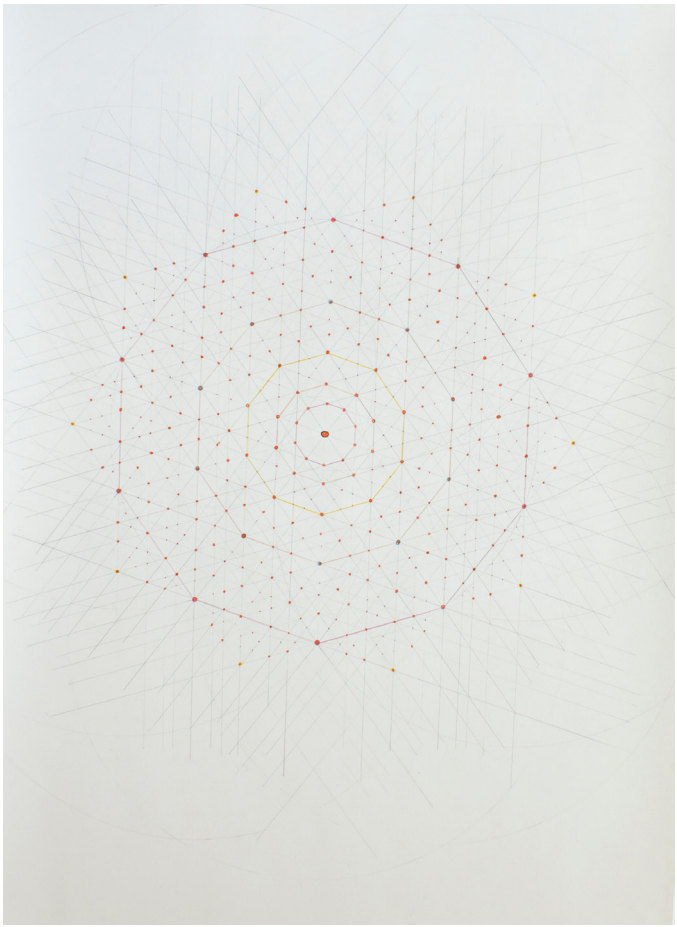
In drawing these few connections, overlaps, and points of confluence I am making a short case for considering the richness and depth of potential that can be explored through parallel modes of perception and interpretation, as the complexity of the story that is told and retold, reformed and renewed, intertwines into a fuller picture of what existence is and what it means to be us.

1 Mapping from a Different Direction: Mandala as Sacred Spatial Visualization, Susan M. Walcott, Journal of Cultural Geography Spring/Summer 2006 • 23<2):71—88

2 Interestingly the pattern is also consistent with a 2D projection of a 5-dimensional hypercube.

3 Icosahedrite is the only known naturally occurring quasicrystal phase. It occurs as tiny 0.1 mm grains in the Koryak Mountains, Russia. It has the composition Al63Cu24Fe13 and is a mineral approved by the International Mineralogical Association in 2010. Its discovery followed a 10-year-long systematic search by scientists to find the first natural quasicrystal. Intriguingly, evidence suggests icosahedrite is extraterrestrial in origin, possibly delivered to the Earth by a CV3 carbonaceous chondrite asteroid that dates back 4.5 Gya.

4 "Organic chemistry, indeed, in investigating more and more complicated molecules, has come



Mandala, Pennsylvania, GL. Coloured pencil on paper. 103x73cm. 2014

very much nearer to that 'aperiodic crystal' which, in my opinion, is the material carrier of life. And therefore it is small wonder that the organic chemist has already made large and important contributions to the problem of life, whereas the physicist has made next to none." What is Life? Erwin Schrodinger, First published 1944.

[5] Jeremy Narby in his book The Cosmic Serpent: DNA and The Origins of Knowledge presents a theory that nature is 'minded' and inter-communicates with humans at the level of DNA.

Mark Cullen was born in Dublin in 1972. Cullen works with various media. He was artist in residence in the School of Physics, University College Dublin in 2013 and exhibited Mandala: As within so without, in the O'Brien Science Centre, UCD in November-January 2014/15. Works include ARK, Dublin Contemporary, MAIM XI for Irish Museum Modern Art, Temporary Portable Reservoirs at The Hugh Lane Municipal Gallery, Dublin and Siege House, London, Cosmic Annihilator, an installation at Pallas Heights and Open EV+A (curated by Dan Cameron) Limerick City Gallery.

In 2009 he set up Difference Engine - a self determined art group which instigates an evolving exhibition methodology, as a model of artist self organisation, with artists Wendy Judge, Gillian Lawler & Jessica Foley. In 2005 he completed MAVIS at DLIADT and was an award winner at EV+A 2005. In 1995 he was the co-founding partner of Pallas Studios, Dublin. Pallas through their various guises and programmes have been key exponents of experimental art practice in Dublin. www.markcullen.org | www.pallasprojects.org

Iam a Scientist, and these are my Angels // *Fred Cummins*

What is the ground from which we speak? If science were to deliver cold, non-negotiable, truth, and if language were to pin that truth to the wall, then there would be no need to look over our shoulders, and to try to find the earth in which our pronouncements grow.

But science, for all its virtues, generates only local consensus, based on shared techniques of measurement, and common presuppositions. And science is vast, sprawling and messy, being done by people who vary as much as non-scientists. The territory is sometimes well mapped, navigable, and ascetic, but it is frequently wild and untamed. And the world of any scientist, or any local community of scientists, will rest on unspoken entities spawned by unseen metaphysical presumptions. These are my angels.

As science moves from the realm of the inanimate (planets, atoms, electricity) to the biosphere, the form of explanation changes. Concerns arise, and value and meaning must enter the discussion. Living beings have concerns, whether they are those of microbe, grass, or person. The sciences of the animate must therefore traffic in values, because the condition of the living is a precarious one. Here, our framing assumptions start to colour the stories we tell: are grasses good for us, or are we good for grasses? How do we balance the concerns of one species with those of another? In our scientific stories, we must now acknowledge conflicting perspectives, and concerns that grow from different and divergent grounds. How much more, then, as we approach human matters, as our stories about our being are couched in the incommensurable languages of biology, society, psychology and culture. These are not independent domains, for we are inextricably bound up in all of these and everything happens all at the same time. Now the proliferation of angels becomes inevitable, and we try to manage this by pretending that knowledge can be apportioned to separate disciplines, protected from each other by administrative fencing.

Within the Human Sciences, one important assumed entity resides, licensing billion-dollar industries, and fuelling popular myths of who we are, how we "work", and how we fail. The Psychological Subject, presumed to lie behind the personal pronoun, "I", appears as such an imaginary entity. Emerging over hundreds of years without any plan, but budding forth from the confidence of the Enlightenment, polished, carved, and refined by Protestant insistence on individual agency, given chimerical substance and indubitableness by Descartes, and knitted into our legal and economic fabric, the Subject is assumed, can almost not be questioned, but resists delineation. The subject (experiencing), the subject (legal), the subject (political), the person, the body, the self, the lover, the father, the citizen are mutually conflated and confused. Crafted then by psychologists in white rooms of isolation, with tinting and shading done by statistical construction and obfuscation, a necessary creature of our own construction comes forth, a golem. Unobservable but indispensable, revealed through reaction times, button presses, and Likert scales.

Half angel half painting. Acrylic on canvas 2015

The self, by general consensus is now shrunken to the walnut brain that invites and ignores the projections we cast upon it; this is the brain we speak of as if *it* felt, dreamed, decided, thought and saw, but this brain is meat. Fatty meat. The subject is now sometimes allowed to grow as far as the skin, with the trivial fixer-upper of embodiment. But the subject is still always separate, discrete, detached from the world and from others. We believe we are inside John Malkovichs head, but we cannot be John Malkovich. We think we observe others through a Rear Window, but we fail to see that we are continuous with the other, inhabiting a shared world, time, space.

I don't see what the problem is. Are you saying you don't exist? That I don't exist? I assure you I do. I know I exist long before any psychologist tells me so.

The only acceptable mode of inquiry in the Human Sciences must ask not only "What do we see?", but "What are we that we should see such?"

I am a scientist and these are my angels.

Fred Cummins is a Senior Lecturer and Cognitive Scientist in University College Dublin. He approaches the study of joint speech, as found in prayer, protest, football stadiums and schools, with a broad background that includes linguistics, philosophy and computer science. He directs a postgraduate programme in cognitive science in UCD that encourages radically interdisciplinary understanding of human affairs. This pluralism is reflected in his contribution, which seeks to speak with a voice that is independent of any one scientific position.

Spin/Span/Spine // *Cindy Cummings*

The spine is the home of the process
The fluidity of the movement radiates out from the central axis of the body
The ideas manifest into limbs
each one a process evolving over time:

A group choreography inspired by scientific methodology
An improvised performance of/by/for/in an extended moment
An evolving video work analyzing the creation of choreography through the lens of physics
An open conversation questioning the artistic and scientific notions of inspiration, rigour, experimentation, intuition and intelligence

Over the past year, my research has been to engage in several processes simultaneously with scientists, students and artists while in residence at the Parity Studios in the UCD School of Science. Of all the branches of science, physics provides a succinct perceptual framework and deeper understanding of my practice as a dance artist.
The root of my research - in practical terms - was to be present: physically, intuitively and creatively, and use the questions asked and ideas stimulated to feed into an evolving process. I spent the months in and around the studio having conversations -sometimes scheduled and sometimes spontaneous - with the curious inhabitants of this new landscape. I attended lectures in physics, not only to learn what I'd been scratching at the surface of for many years but to also witness the practice and environment of lecturing in a performative context. One manifestation of this was to create my own lecture for the scientists and students ('A Brief History of Contemporary Dance') in order to give a context for my work and lineage as an artist.
From the theoretical to the physical - quantum spin to dark matter - the conduit for kinesthetically understanding these micro to macro realities is the material I work with everyday: the body in motion. Translating these ideas from the language of mathematics into movement is an ongoing process that I expect will keep me busy for a good while to come.

Cindy Cummings (U.S.A) is an internationally acclaimed, award-winning dance artist based in Dublin. Cindy has evolved a mult-layered practice which regularly crosses boundaries between dance, theatre and live art. Cindy is one of the first dance artists in Ireland to become a member of Aosdána and specialises in dance with interactive technologies. She has presented her own work worldwide, has choreographed widely for theatre, film and TV, and has performed as an actor/dancer with many theatre and dance companies.
Images
above: Guest performance with Strange Attractor, O' Brien Centre for Science, UCD . 2014
centre: A Brief History of Contemporary Dance, a performative lecture, UCD College of Science, 2014
below: Performance at TEDX UCD 2014. Video still


Look
fore Yo
Leap
Look
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Download
TEDx UCD
x = independently organized TED event

Birth/Being Born // *Emma Finucane*

I develop artwork through dialogue, process based, participatory and collaborative practice. My aim is to understand the way we connect and communicate with others and ultimately how it contributes to the quality of our lives. My work has frequently combined education, research and arts practice.

This work has developed from a residency at the UCD College of Health Sciences through colaboration with Dr Maria Healy, Head of Midwifery. Dr Healy's research activity and interests include: Women's experiences of childbirth and the place of birth, Women's experiences of postnatal care, the normalisation of birth and midwifery-led practice. Dr Healy's research also involves 'The integration of Midwifery and Art Practice'.

As an Artist, my research interests include: How connecting, communicating, listening and being listened to impacts on the quality of life. These aspects of care resonate with my experience of giving birth in Ireland and highlighted concerns when trying to negotiate my care preferences, in someone else's care.

'*We cannot underestimate the lasting impact the experience of giving birth has on women. The way they were made to feel at this time, stays with mothers forever*'

(Higgins and Bree, 2014).

We are all born, but how much do we acknowledge our place of beginning? The latest scientific research is starting to link the way babies are born with health outcomes in later life (microbirth.com). I am investigating the social, political and health implications of childbirth through contemporary art. The subject of birth is rarely engaged with in contemporary art. Why is the representation less 'at home' in the art world than other controversial subjects, such as death? I wish to highlight issues like the shift towards medical intervention in birth and explore the impact of biomedical advances in modern maternity. How free women are to give birth in a way they want? I want people to consider the question: Who controls the process of childbirth, and why? I am investigating the role of the artist in healthcare education. What kind of knowledge can a birth visual art record convey in midwifery education? Will it be useful?

The research poster presented in this exhibition is currently being utilised to voluntarily recruit women to participate in a research project, which will examine in depth their experiences of childbirth. This research is currently being led by Emma Finucane along with Dr Maria Healy and Midwife Manager, Teresa McCreery, National Maternity Hospital. The research is entitled: An interpretive phenomenological study: Illuminating childbirth experiences of women attending a midwife-led service via visual art works. Insights from this research will highlight women's lived experiences of childbirth via visual artworks and academic publications. The artworks will be included in the UCD Health Sciences Library in book format as an educational tool alongside academic books.

Photo by the artist. Research poster at Satelite Clinc Greystones Health Centre, Co. Wicklow 2015

Emma studied Fine Art in NCAD where she received a first class honours degree in 1997 and a MFA in 2006. In 2014 she was awarded a place on the Arts and Health creative practitioner panel for DLR County Council to engage with local HSE funded residential and day care facilities. In 2013 she completed a public art commission for Carlow County Council, was awarded a residency in the College of Science at UCD and appointed to the Board of Directors in Black Church Print Studio. From 2011 to date she continues to work on an interdisciplinary team of arts and health professionals to establish the Creative Well Community Art College in Kildare. Emma has been invited to present at many seminars and symposia including: Re-Imagining Birth, UCD School of Humanities 2013; Art and Health Commission, Panel Presentation and Discussion VISUAL Carlow 2013: Sharing Space, Ballyfermot Senior Colllege 2010 and NCAD Art and Learning Communities 2006.
She has been commissioned and supported by the Arts Council Ireland, CREATE, Wicklow, Carlow and Kildare County Councils, The Open Window Project, and Pfizer Ireland. Her work has been shown in Dublin, Belfast, Denmark, Germany, the UK and USA and can be found in many private and public collections including: OPW, AIB, DIT, and UCD.

Triangulation // *Sofie Loscher*

I am currently exploring light in its most basic form.

A light wave vibrating along more than one plane is referred to as unpolarised light. It vibrates in all three dimensions in space, but, when transmitted through a polarising filter it emerges with half the intensity and only vibrating on a single plane—it emerges in a polarised form. Polarisers are optical filters that allow light of a specific orientation to pass through them. When two polarisers are placed in a perpendicular arrangement all light is blocked making an otherwise transparent object become totally black. The forms look completely transparent in the gallery but they turn black and solid when viewed through the polariser on the window. Placing sellotape between two polarisers produces prismatic colours due to double refraction: the colours shift and change as you move in relation to the work.

In the past I have used natural phenomena that are illusionistic in nature and that appear in an ephemeral form. I try to offset materials against themselves. This has meant maintaining a state of equilibrium between metals and magnetic fields, between dense and light gases, and between reflection and reality. It has meant creating conditions that are stable and balanced. I use the specific function of a material to create paradoxical situations that make the viewer more conscious of their own perception.

Over the year I experimented with various optical devices and materials as a way to better understand light—to see how it moves through space and to picture how we move in relation to it. I'm interested in the humble origins of optical materials. In 1671, James Gregory discovered that sunlight could be divided into component colours when it passed through a bird feather, or a diffraction grating as we know it now. By attaching a modern diffraction grating to a window in my studio I watched the movement of the sun throughout the day as a large spectrum moved along the walls changing in colour and brightness depending on the time of year and the quality of light. Although it's possible to demonstrate the physical qualities of light and to see how it affects different materials, it is still a phenomena that is so complex that we can never fully imagine it. I want to make light more understandable.

Sofie Loscher (b. 1987) lives and works in Dublin. She holds an MFA in Sculpture from NCAD and a BA in Visual Arts Practice from IADT. Recent exhibitions include Neutral: Tulca Festival of Visual Arts, Galway (2014); eva International, Limerick (2014) and Periodical Review #4, Pallas Projects/Studios, Dublin (2014).

Image: Work in progress. Photo by the artist 2015

Anima // *Siobhán McDonald*

The sensitive relationships between cultures and natures throughout spaces and times, is one that I have been concerned with throughout my artistic practice. This latest work, a collaborative project with the Programme for Experimental Atmospheres and Climate at UCD, has evolved by responding to ideas based on their research. In particular, how changes in atmospheric O2 and CO2 concentration have influenced the timing of key evolutionary shifts by observing the success of various plant groups throughout geological time. Through a series of explorations and happenings, I have sought to engage within my own practice, with some of these phenomenal scientific investigations.

In this work I'm engaging with a range of natural materials that have come into existence due to these mammoth cosmic events and consider how they might evoke a subjective or collective memory response within the viewer. For example, charcoal suggests an alchemical change, and calfskin, which has strong links to Irish art history - The Book of Kells - have been deployed for their symbolic and metaphorical associations. Within my interventions with the physical properties of matter, it is the element of chance, erasures and removals that presents the most interesting situations and questions. These for me, emphasize the qualities of being human, the impermanence and ephemeral nature of our existence.

Professor Jenny McElwain has created atmospheres from as far back as 400 million years ago. By observing these sealed bottles or chambers of 'atmospheres' I have tried to visualize their essential 'nature' that though invisible to the eye, appears to emanate from their wondrously gaseous, presence. To me, these vessels act as imaginary portals into the temporal states of existences and dimensions beyond explanation, scientific or otherwise,[1] leading to other questions:

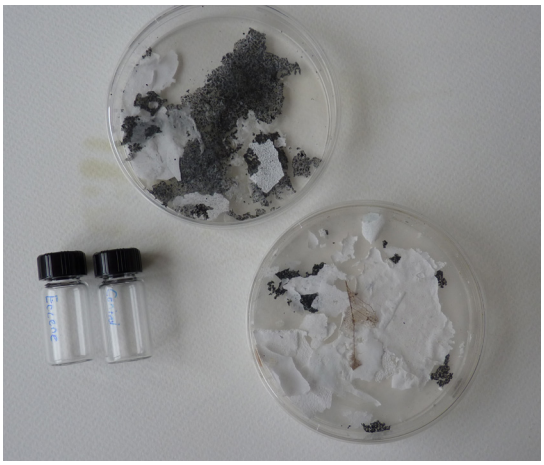
If I were an observer sitting on a rock in Donegal millions of years ago, how would the sunsets have looked?

The investigations began from conversations with physicists about how volcanic events have influenced the colours of the sunset over the last 50 million years. It led me to consider how the colour spectrum influences our perceptions of place and time.

These ideas fed into the work. *Sunset and Meteors* - a series of scrolls, of multiple worlds. Each painting recalls events in the evolution of life through a vast expanse of time - from the origins of plants, the shifting of tectonic plates, to the extinction of the Jurassic period triggered by a falling meteorite.

In *Every contact leaves a trace* I worked with 50 million year old charcoal gathered from the charred remains of a forest flash fire in Greenland. Part of this work was to connect with the ecological event and resurrect the fire, through a series of drawings made from the charcoal. What has been destroyed can be recreated as something new, something that may at this time seem unfamiliar. Art, like life, is fleeting and transient, but in these works I try to consider something beyond 'us' as humans. Life perhaps will be infinite, but in an altered state of matter in another time and space.

1 Dr. Jane Humphries, University College Dublin, ideas discussed in conversation at UCD, O'Brien Centre for Science, November 2014



With heartfelt thanks to Prof. Padraig Dunne and Dr. Tom McCormack, UCD School of Physics, Prof. Jenny McElwain, Péac, School of Biology and Environmental Science, UCD, John Gillis TCD, John O'Donoghue and Therese Raftery at Enbio.

Siobhan McDonald holds a Masters in Visual Arts Practices from IADT, Dublin and a BA in Fine Art from the University of Ulster, Belfast. In 2014 she completed a public commission for The O'Brien Centre, UCD; awarded The Arctic Circle Residency 2015 and The Tyrone Guthrie Award. Upcoming projects: commission for UCD in 2015 and Enbio for The Euorpean Space Agency. Her projects are supported by the IOP, Culture Ireland, The Arts Council and found in many international and national collections such as: OPW, Bank of Ireland, AIB, The Ulster Musuem, University College Dublin. www.siobhanmcdonald.com

Sunset and Meteors (detail of work in progress) Oil paint, meteor dust and charred bone on calfskin.
Eocene (work in progress)Bottled atmospheres from the Eocene period; charred bone baked at high tepmerature

Capriccio, A Synthesis of Thought // *Meadhbh O'Connor*

In 132AD, Zhang Heng, the ancient polymath and genius living under the Han Dynasty in Eastern China, built the Houfeng Didong Yi, the world's first known seismograph. Eight elaborate dragons rested, upside down, against a large bronze vessel. These dragons represented the Chinese force of Yang. They were positioned to mark eight different directions, like those of a compass rose, and each tenderly held a bronze ball in its mouth. At the base of the vessel, eight open-mouthed toads, representing Ying, sat correspondingly beneath the dragons. The instrument, which was decorated with a vibrant display of mountain scenes and animals, was brilliantly calibrated to detect subtle tremors in the ground. A tremor detected by the device would cause an internal pendulum to swing and trigger a mechanism that lifted the head of a dragon. This dragon, pointing in the direction of the earthquake, would expel its bronze ball. The ball would drop into the mouth of the toad below, causing a clang to alert anyone near the device that an earthquake had occurred. This masterfully crafted object was not only an instrument of science, but an object infused with philosophical symbolism and sophisticated artistic expression.

This is just one of an incalculable number of accounts in which art, science and philosophy sit comfortably side by side, brought into being by human creativity. Interestingly, the original seismograph was never discovered. Countless replicas, theories and stories about the instrument have come to exist over the two thousand years since the Houfeng Didong Yi was built. It is not a vessel trapped in a moment of time. It is something more akin to a living entity around which new ideas, new mythologies and new revelations continue to evolve. It is not of one time, nor is it of one form. Rather, it is of many.

The range of inspiring conversations, unexpected ideas, chance encounters, to one's assumptions and many other surprising revelations that I have experienced during my residency at UCD Science is difficult to encapsulate fully in a few short words. However I can say that the UCD Art In Science residency certainly marked a turning point for me as an artist.

As an artist, I have always been fascinated by science and I feel a natural affinity with scientists. During my time at UCD, I met many interesting people who introduced me to new and rich avenues of thought. I engaged in all kinds of activities, from attending and delivering lectures, to participating in lively conversations, to building and exhibiting a sculpture on campus with the help of staff and students, and more. I enjoyed all of this immensely.

I was particularly surprised by the manner in which my collaboration with Tamara Hochstrasser[1] evolved. The ease with which we could discuss all kinds of topics, from society to the environment, came as something of a surprise to me at first. As artist and scientist, we both seem to be motivated by curiosity, and an interest in the natural world and society at large. Our work together does not necessarily manifest materially, rather it manifests in an exchange of ideas. This contravened my assumptions of what an art and science collaboration would be. The product of this fruitful exchange thus far has primarily taken the form of public talks and writing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on environmental topics, delivered both together and independently. I look forward to sharing this during the programme of events for *Welcome Disturbances*.

In light of what is emerging though my work with Tamara and other collaborations in which I am involved, together with the collaborations of all the participants in the programme, it is becoming clear that we are all traversing a new territory which takes us to a point outside of our respective disciplines. What is coming into existence is something new – a third sphere outside of art and science. I did not envisage this before embarking on the residency.

UCD Art In Science allows all involved the freedom to explore all kinds of subject matter without predetermined expectations. In recognition of this openness, the particular work I have presented for Welcome Disturbances was born of an array of ideas. The sculpture is a piece of theatre, an object of 'retrospective science fiction', that traverses many ages and many styles. In light of this, it is titled Capriccio, a word loosely understood as fantasy, mix or whim, with many uses from terminology in music and art to everyday speech.[2] In music the word describes a lively, freeform composition written without adherence to any one style. In art, it describes any piece in which there is a strong element of fantasy. The style was frequently employed by Baroque painters in which they juxtaposed in one pictorial composition architectural features, human figures and other elements which denoted vastly different eras. Just as the ancient Houfeng Didong Yi continues to develop new meanings today, in these paintings the passing of time does not signify the end of an idea. Instead, the fruits of human thought and creativity produced throughout many eras are interpreted as one totality.

The sculpture I have built in a sense is a fleeting, material manifestation of a cross-firing of many thoughts. It is not clear at what point these thoughts 'begin', nor at what point they 'end'. It has some reference to the Medici collection of scientific instruments, to music, to time, and the modern discovery of tensegrity, amongst countless other thoughts which are impossible to trace. The form is held together using the principles of tensegrity – tension and compression.[3] The violin pegs and string are the tensioning force. The curved wooden struts act as the compression. Interestingly the discovery of tensegrity, which has many broad applications today and which has been enthusiastically adopted in the fields of engineering and science, is attributed to an artist.[4] This unexpected anecdote fittingly captures the reciprocal nature of the relationship between art and science. Capriccio attempts to preserve openness and ambiguity in place of resolution, with its broad reference points, in an effort to reflect faithfully my most lasting impression of UCD Art In Science as a continuum of intellectual exploration and creativity, with many more stories yet to unfold.

Upon commencing this piece of writing I did not know exactly what would emerge, rather this passage was formed gradually from a synthesis of many ideas, just like the sculpture. In the same way, it is through the gradual passing of time that the full effect of the rich exchanges and syntheses of ideas between the many artist and scientist participants who have come and who are yet to join the UCD Art in Science programme will be unveiled.

All are acts of creativity.

1 Lecturer and plant biologist of the UCD School of Biology and Environmental Science
2 Capriccioso! – free and impulsive in style.
3 Tensegrity is a new understanding of forces at play that was developed in the 20th Century. Also known as floating compression, it is a structural principle that sees isolated components (bars or struts) in compression inside a net of continuous tension (cables or tendons). The structures are stable not because of the strength of individual members but because of the way the entire structure distributes and balances stresses. The principle has extended beyond architectural applications to theories of cell structure in biology to anatomy to robotics to mathematics and many other disciplines.
4 Kenneth Snelson, a sculptor born in 1927 in the United States, is widely attributed to discovering tensegrity.

Image on page 23 : Preparatory notes for Capriccio. Composite Image. 2015

Méadhbh O'Connor (b.1984, Dublin), is an artist working through sculpture and environmental activism. After graduating with first class honours in 2009, she has since forged an ambitious art practice in which she works with scientists and experts in other fields. She has shown in numerous solo and group exhibitions such as Unknown Shores, a solo show presented at the UCD O'Brien Centre for Science, 2014; Towards A Dialogue of the Possible, Mermaid Arts Centre, 2014; powers + √roots, PP/S Projects, 2013; Things in Translation, Highlanes Municipal Gallery, 2013; and Biosphere, a solo show at Monster Truck Gallery, Temple Bar, 2011. She has received a number of awards such as the RDS Student Art Awards, 2009; UCD Science: Artist in Residence Award 2013; and the Fire Station Sculpture Workshop Award, 2015. Méadhbh currently teaches an experimental module she has designed, titled Creativity in Science and Art to UCD and international erasmus students, which was launched in 2015.

www.meadhbhoconnor.info

Mesocosm // *David Stalling*

Enclosed spaces are used to conduct research on cells as the basic units of life, on their growth and their decay. They are defined spaces, research chambers, often hermetically sealed, light, temperature and climate controlled, bacteria and virus free spaces, enabling the scientist to breed, cross breed or destroy cell cultures under ideal conditions behind closed doors, without disturbances. Simulated day and night sequences govern the flow of time. A sterile, clean room is required for exactitude and repeatability of the experiment, far removed from the real world.

A recording studio is also an enclosed space. It is designed for listening, an environment created for working with sound under regulated conditions. Sounds are edited, trimmed, isolated from each other, and then rearranged, manipulated, combined, spliced, filtered, mixed, welded by the artist.

Sometimes it is our purpose to work in isolation from external factors to yield precise results.

The field, the natural world, involves very complex systems. Here we keep an eye and ear on the elements in their infinite contexts and patterns, according to environmental cycles. Yet conditions will rarely be ideal. Instead, they are unpredictable, chaotic, asymmetric, contaminated, interrupted, distorted and disturbed.

There is an intermediate space between the artificial and the natural - a space where the defined and structured meets and interacts with the indeterminate and unexpected. This space is the mesocosm. It provides a link between the laboratory and the field. Restricted entry points and defined perspectives set the parameters for this experiment. Variables include sound, light, imagery, and objects. Foreign bodies permeate throughout.

In my work, I aim to strike a balance between boisterous movement and stasis, seeking to introduce evolving pattern into sensory and immersive sonic landscapes. These are often densely layered and closely knit constructs, in which the aural and the visual are unified. I sculpt sonic and physical space, examining the relationship between human activity and the natural world. The movements and repetitions of mechanical and kinetic systems fascinate me. The act of discovery is important to my process, as I try to leave room for the unforeseen, guided by curiosity. I create immersive experiences that envelope us by engaging the faculty of all our senses.

Originally from Bochum, Germany, David Stalling has been working as a composer, improviser, sound and installation artist since the early 1990s. His works have been performed and exhibited widely in Ireland and abroad. With a sensitivity to the sonic nature of both lived in and imagined worlds, David's practice transcends the traditional definition of composing, utilising a variety of media: acoustic and electronic sound; field recordings and found objects; video and lighting. He maintains an ongoing collaboration with Anthony Kelly. Together they create sonic and visual works, as well as run the sound art record label Farpoint Recordings.

davidstalling.com | farpointrecordings.com | cmc.ie

Photos by the artist. Growth chambers at UCD School of Biology and Environmental Science 2015

PROGRAMME OF EVENTS

All events take place at the LAB, unless otherwise stated. All events are free but places are limited, please go to www.thelab.ie

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February 12th
6 - 7pm
Commissioning and Curating at theIntersection of Art and Science.
description: a public talk

The discourse of curatorial practice is most often centred around the artist's project, given that the role of the curator varies from one project to another. Working with contemporary artists entails commissioning new works of art, often for new contexts, and new audiences. This curatorial role involves tasks associated with not only the presentation, but the production, documentation and preservation of the work of art. This lecture will focus mainly on two projects, LifeSpace at the University of Dundee, and the Transitio Festival in Mexico City, involving artists who draw upon research in the field of life sciences, and explore our increasingly digitally mediated experience of life itself.

Dr. Sarah Cook *is a curator of contemporary art, writer, and sometime new media art historian. For over fifteen years, Sarah has guest curated exhibitions, in Canada, the USA, Mexico, New Zealand, Europe, and online, which have been reviewed in Art Monthly, Artforum, Rhizome and we-make-money-not-art. She is the author (with Beryl Graham) of Rethinking Curating: Art After New Media (MIT Press, 2010) and co-founder of crumbweb.org, the international online resource for curators of media art. She is currently a fellow at Duncan of Jordanstone College of Art and Design at the University of Dundee, where, among other interdisciplinary research initiatives, she is engaged in curating artists' projects for LifeSpace Science Art Research Gallery.*

February 18th
Shifting Ground, Changing Roles – Collaborations and Perspectives.
6.30pm – 8pm
description: Presentations with panel discussion and Q&A

In 2011, The LAB Gallery presented Quantified Self, an exhibition of new work by artists Bea McMahon, Saoirse Higgins, Cliona Harmey and Michelle Browne in collaboration with Shimmer Research. The advances in technology since then would mean that collaboration today could look very different. In practical terms, the engineers might not even been needed but if that were so, many of the rich conversations that happened alongside but ultimately fed into the artist's thought processes, would have been lost. At the same time however, this democratisation of technology opens up the potential to disrupt both how it is used and developed

into the future. In this session, we'll have short presentations on approaches and perspectives from experienced collaborators Cindy Cummings, dancer and choreographer and Prof. Padraig Dunne, Head of UCD School of Physics along with Bea McMahon, visual artist and Kieran Daly, COO and Co-Founder of Health Beacon (formerly of Shimmer) followed by a panel discussion chaired by Rachel O'Dwyer, Trinity College.

March 4th
6-7pm
The Ground from which we Speak.
description: Dr. Fred Cummins & Prof. Alexandra Greiser in conversation

The ground from which we speak is the unseen, unacknowledged background, without which nothing we say could make sense to us. As we speak, we reveal our own embedding in webs of belief. This is as true of scientists as it is of clerics or farmers. In this unusual debate, two scholars from very different fields will interact, in unscripted but moderated fashion, to ask about how we negotiate reality, how we access truth, and how we manage the conflicting claims of the political, religious, scientific, legal, and common everyday reality. The vastly different fields of the two speakers converge in consideration of very concrete aspects to the creation of a common world: the sensory basis for the reality we meet, and the form of the words we utter together.

Prof. Alexandra Grieser *is Assistant Professor for the Theory of Religion in Trinity College Dublin. In her work, she explores the interconnectedness of knowledge from domains of religion, science, politics, and beyond, with a singular interest in the aesthetics of knowledge.*
Dr. Fred Cummins *is Senior Lecturer and cognitive scientist in University College Dublin. His work on joint speech, as found in prayer and protest, provides an empirical route to studying the ground of belief, and it confronts us with the challenge of reconciling individual and collective intentions.*

March 11th
6 - 7:30pm
Pathways Towards Sustainability. A Collective Conversation.
description: Presentations with panel discussion and Q&A

UCD Art In Science is delighted to present Pathways Towards Sustainability. A Collective Conversation, a panel discussion that maps the ways in which individuals working in different fields are driving and implementing change towards a more environmentally sustainable future.
Rapid developments in earth system sciences over the 20th and 21st centuries have advanced our knowledge of the complex and interconnected nature of earth's living and non-living systems. This has lead to a better understanding of our

inextricable link to and dependence on highly complex biosystems, and of the impact of human activity on these. The collective goal-setting of sustainability is our expression of concern that humans ultimately will suffer the consequences of our impact on our fellow species and on the environment upon which they depend.
The issue of sustainability spans science, politics, policy development, society, culture, industry and many other areas of human interest. In light of this, for this event representatives from science, environmental policy development, arts curation, arts practice and ENGOS will come together to share their perspectives and experiences on how they are attending, in their own unique ways, to this central topic. The intention is to capture a picture of the work being carried out by these different agents independently of each other, in order to achieve similar goals in preserving a functioning biosphere for the enjoyment of future generations. UCD Art In Science is a hub through which connections and partnerships amongst individuals working in different disciplines can be initiated. This event aims to adhere to that principle in the hope of generating cross-disciplinary discussion and the possibility of future continued interaction amongst all in attendance. The event will follow a format of brief presentations by each panelist, followed by a lively and chaired discussion with audience participation.

Panel members will include ***Conall O'Connor****, Assistant principal for the Marine Strategy Directive, Dept. of Environment, visual artists* ***Cathy Fitzgerald*** *and* ***Meadhbh OConnor****,*
Dr. Tamara Hochstrasser *UCD School of Biology and Environmental Science,* ***Anabel Fitzgerald*** *from An Taisce.*

March 18th
6 - 7:30pm
Pathways to New Perspectives
description: Presentations with Q&A

The work of both artists and scientists is enriched by encounters with approaches and ideas that are different from their own. This session will present a series of six very different approaches and ideas by artists and scientists engaged in the UCD Science artist in residence programme. Moderated by Lorraine Hanlon, Professor of Astrophysics and co-founder of UCD Art In Science, the intention of this event is to stimulate new connections, ideas and inspirational partnerships.

Panel members will include
Prof. Chris Bean*, currently co-director of the UCD BSc in Climate and Earth Systems Science.*
Dr. Maria Healey*, from UCD School of Midwifery, is currently collaborating with Emma Finucane and a team of midwives to promote normal birth.*
Dr. Fred Cummins (see page 13)*, cognitive scientist, UCD School of Computer Science & Informatics*
Visual artists ***Vanessa Daws****,* ***Maria McKinney*** *and* ***Fiona Marron*** *recently selected for the UCD Science Artist In Residence programme 2015.*

March 25th

5:30 - 7pm

Art & Ecology - Artist Residency Experiences

Alongside the exhibition presenting work developed as part of the artists in residence programme at UCD, this session will present a range of experiences of artists working in different contexts relating to ecology and the environment. Artist Gareth Kennedy will present and discuss the genesis and development of his project Post Colony over a 3-4 year period which culminated in production in May and June of 2014 during the Rhododendron bloom in Killarney National Park. Ruth le Gear will present her experience of the Arctic Circle. Linda Shevlin's residency as part of Spark Residency at the Organic Centre resulted in Supernature, presented at the LAB last year. Oisín McGann is writer in residence for Weather Stations Dublin produced by Tallaght Community Arts and Collective Action with the support of the Culture programme of the European Union. More info: www.globalweatherstations.com. The presentations will be followed by a panel discussion chaired by Emma Lucy O'Brien, curator at VISUAL Carlow.

Live Performances

7 - 8pm

description: Improvised performance with sound and movement by Cindy Cummings and David Stalling Film with performance by dance artist Emma O'Kane

"Continuum," a short film by Siobahn McDonald documents a set of ancient Irish Coral Fossils and their journey through smoke as patterns in motion across time.

April 9th

Re-enacting Atmospheres

4 -5:30pm

NOTE : This event will take place at University College Dublin

description: Public talk and tour of The PÉAC laboratories at UCD Rosemount

Prof. Jenny McElwain simulates climate conditions going back 500 million years or going forward to what we predict into the 21st century.
The Programme for Experimental Atmospheres and Climate facility (Péac), offers researchers the opportunity to see how subtle changes in the atmosphere can affect living organisms. The large chambers allow tight control over important factors such as light, temperature, humidity and the levels of oxygen, carbon dioxide and sulphur dioxide gases. A tour of these fascinating laboratories will follow the talk.

Prof. McElwain is a research leader in Earth system science and plant evolution. Over the past 20 years her research and teaching have focused on the development and use of palaeobiological proxies to understand the evolution of Earth's atmosphere and climate on multimillion year timescales and how fluctuations in both have influenced large scale patterns in plant evolution and ecology throughout Earth history.

Welcome Disturbances
Curated by Sheena Barrett & Emer O Boyle

Published by Parity Studios at UCD Art In Science on the occasion of the exhibition

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