



## In/visible: the inside story of the making of Arts at CERN

Ariane Koek 

Founder of Arts at Cern and Founding Director of Science Gallery Venice

### ABSTRACT

This is a personal account of the setting up and first five years of CERN's first institutionalized arts programme, in which artists from different art forms were invited to engage with scientists with no requirements for any outputs. The focus instead was on the creative process, the exchanges between the artists and scientists and their shared knowledge-making. Paradoxically, given this freedom, even by the end of the initial phase of the programme they had produced a range of artworks and performances, some of which were to go on to attract international acclaim. The paper identifies some of the key issues and challenges faced when undertaking an arts programme within a science institution. These issues are rarely openly discussed and written about, yet they are vital for shared cultural learning in this rapidly evolving and increasingly popular field.

### KEYWORDS

personal; CERN; initiating;  
institutional; process;  
exchanges

Imagination is more important than knowledge. Knowledge is limited; imagination encircles the world- (Albert Einstein)

### Beginnings

In 2008 I was fortunate to be given a Clore Fellowship award for Cultural Leadership, which offered me the unique opportunity to choose a placement anywhere.<sup>1</sup> My career had been exclusively in public service broadcasting and the arts, but I could think of nowhere more fascinating than CERN, the European Organisation for Nuclear Research, situated just outside Geneva, host to the world's largest particle physics laboratory. The facility houses the Large Hadron Collider – a 27-km machine 100 m underground that can recreate conditions like those that existed seconds after our known universe came into existence 13.7 billion years ago.

In a 10-page pitch to the then Head of Communications at CERN, I argued that in the twenty-first century there is one simple equation: arts + science + technology = culture.

I proposed that I would come for three months to explore a new initiative – the creation of CERN's first official cultural policy together with a feasibility study for the organization to establish and manage its own artists' residency scheme. It is testimony to CERN's extraordinary openness and willingness to experiment that two days later in July 2009 I got a phone call to say 'when can you start?'

Eight years later, Arts at CERN is a fully established programme composed of three strands: the Collide three-month residency strand, with one international and one Swiss award each year; the Accelerate one-month research strand with two annual awards funded by two different countries; and the Guest Artists programme which began in 2010 as Visiting Artists.<sup>2</sup> It was from the start a multidisciplinary arts programme: the participating artists have worked in film, dance, visual arts, music and sound art, theatre, literature, architecture, design and digital arts.

What follows is the description of how I devised this programme – some of the key considerations and obstacles I faced, and how they were dealt with.

## The feasibility study

What was going to make any arts programme at CERN special was undoubtedly the place itself. With 11,500 world-class scientists, technologists and engineers drawn from 680 institutions from 120 countries around the world, and with the very latest in knowledge about our universe and cutting-edge technology, CERN is a storehouse of the imagination and inspiration. In addition, in 2010 CERN enjoyed significant international press attention as it sought to find the Higgs boson – the particle that gives other particles much of their mass.

I was not starting with a blank canvas. Artists have been attracted to CERN since it first opened in 1956, both as tourists and as personal guests of the CERN scientists. They came seeking inspiration as well as collaborations, cachet and potential funding from being connected with the institution. Listing all the arts practitioners who had been through the doors was one of the first things I did as part of the three-month feasibility study. These included the first self-proclaimed artist in residence in 1972, James Lee Bryars,<sup>3</sup> and distinguished artists such as the German photographer Andreas Gursky, the Japanese artist Moriko Mori, the Icelandic singer-songwriter Björk, the French screenwriter/director Cedric Klapisch, English sculptor Antony Gormley and writers such as the poet Gwyneth Lewis and novelist Robert Harris.

CERN had also been the host of a pioneering arts/science initiative, ‘Signatures of the Invisible’, instigated in 2000 by the British film director Ken McMullen who was professor at the London Institute UK.<sup>4</sup> He selected twelve established artists to participate, including the French visual artist Sylvie Blocher, the ‘reverspective’ optical 3D painter Patrick Hughes, sculptor Richard Deacon and writer John Berger. The initiative resulted in an international touring exhibition and a film exploring ways of responding to ‘invisible’ or inaccessible theories in physics.

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<sup>2</sup><http://arts.cern/home>. There are two PhDs which include the Arts at Cern programme. The PhD thesis by Camilla Mørk Rostvik (2016) *At the Edge of their Universe: Artists, Scientists and Outsiders at CERN*, University of Manchester. This thesis states that the residency and arts programme was new media focussed which is inaccurate and that art works were made to ‘beautify’ the place which were controlled by the curator and CERN. As will be seen in my paper here, no art works were made for the site nor did the curator or organization have any control over the art works, as the programme was research focussed. 2016. <https://www.escholar.manchester.ac.uk/uk-ac-man-scw:302414>. For a PhD which reflects the programme more accurately and raises interesting questions see *Creative Collisions: Art Science Collaborations at CERN and the Theory of Everything*. (Phd 2016 University of South Wales – Troy Egan.) [https://www.researchgate.net/publication/305323798\\_Creative\\_Collisions\\_Art\\_Science\\_Collaborations\\_at\\_CERN\\_and\\_theTheory\\_of\\_Everything\\_2016](https://www.researchgate.net/publication/305323798_Creative_Collisions_Art_Science_Collaborations_at_CERN_and_theTheory_of_Everything_2016).

<sup>3</sup>For James Lee Bryars – see here. The art critic David Sewell said to own a copy of the CERN Courier in which he featured in 2017 was to own a major James Lee Bryar’s art work. <https://cds.cern.ch/record/2012228>.

<sup>4</sup><http://www.candlestar.co.uk/2012/09/signatures-of-the-invisible/>; <http://momaps1.org/exhibitions/view/195>.

My interviews with the scientists, technologists, engineers<sup>5</sup> and artists involved in this project provided invaluable insights into what had worked or not. Some artists had felt frustrated because there was no structure to the programme: they could come for one day, a week, or months, as they wished. This equally frustrated the scientists who felt exploited by the artists' lack of consistent time commitment, which meant that they were not integrated within the scientific community. Happy to share their knowledge, the scientists felt as if their brains had been picked to no reciprocal advantage.

Another issue was the science itself. While the artists might be well-informed on a general level – some had studied physics to an elementary level and all had read good popular science books – they were plunged into technical discussions of competing theories about gravity and the origins of matter, with an Alice in Wonderland vocabulary: wimpzillas, sparticles, anti-neutrinos. Then there was the alienating physical environment of the place: the hundreds of buildings housing multiple experiments and computing facilities, let alone the dazzling equipment. But without doubt they were all beguiled, holding in high regard, not to say awe, the scientists and the complexity of their research both in theory and in practice. And even with its limitations, 'Signatures' proved that interactions between artists and scientists could be truly inspirational. Solutions needed to be found to address the shortcomings.

## Solutions

The research findings made it apparent that an onsite curator/producer was essential as a translator and broker between artistic and scientific languages and world views, and for determining what was realistically possible in their encounters. It also became equally apparent that the artist in residence must not be a remote figure, sited off campus, coming in at whim, but instead should be integrated as much as possible into the life of the lab as well as the working lives of the scientists themselves. Tight-knit collaborations are at the heart of CERN's existence: physicists work in groups of up to 3000, as in the case of the ATLAS experiment, which has members from 38 countries and 174 institutions around the world. An on-site studio for the artists as well as an office for an arts team became an imperative, with regular interactions, structured as well as unstructured, involving the curator, artists and scientists.

We decided that induction visits of up to one week for the artists in residence would be conducted three months before the artists arrived. Day-long tours of the facilities as well as introductions to the physics and physicists were a way of inspiring the artists and familiarizing them with the complexity of CERN and the language of physics. (In the case of the 2014 international Collide resident artist, Ryoji Ikeda, the induction week was so inspiring that he created his installation SuperSymmetry even before he officially began the residency programme.)<sup>6</sup>

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<sup>5</sup>I am using the word 'scientists' generically throughout this text for brevity to refer to scientists, technologists and engineers. In fact this is done at CERN when informally communicating to the outside world – thus showing the unity of the way in which they work together.

<sup>6</sup>The installation SuperSymmetry was intended to be a multimedia platform which would be updated with new data when the residency officially began. <http://www.ryojiked.com/project/supersymmetry/>. After his residency, Ryoji also made another installation Micro Macro, originally shown at ZKM, Germany. Both these pieces are on tour today. [http://www.ryojiked.com/project/micro\\_macro/](http://www.ryojiked.com/project/micro_macro/).

During the induction, Inspiration Partners would be selected from the scientists, engineers and technologists in a three-way process between artist, scientist and producer/curator. The selection was made according to the individuals' personality and interests, with a view to forming a relationship which in the curator's opinion would take each participant further in their work. The term Inspiration Partner was suggested by the Director General, Rolf Dieter Heuer, in preference to 'mentor', to enshrine the notion of equality between the scientists and the artists. The CERN Inspiration Partner would be the crucial in-house guide to the physics, meeting the artist every week to discuss ideas and places to visit, in addition to routine meetings with the curator.

Another important aspect of the programme would be the series of public lectures held at the beginning and end of each residency, led by both the artist and his/her scientific Inspiration Partner. The webcast lectures were held in the curious wooden pavilion in the shape of a ball known as the Globe of Science and Innovation, CERN's outreach facility. These were combined with creative blogs from the artists and scientists which, like the lectures, were intended to make visible to the public the invisible ongoing creative process.

The final points that emerged from the study was that short well-planned residencies for artists were the ideal. The name of the programme had to be right too. In my strategy description I described the function of the CERN arts programme as instigating 'creative collisions between the arts and science' – implying an exchange of energy and a defiance of expectation, rather than an unachievable 'fusion'.<sup>7</sup> The name for the residency strand that best reflected this was 'Collide'. As a word, Collide possessed artistic, scientific and technological connotations, and was to become the name of the residency programme which was conceived from the beginning as the flagship of Arts at CERN.

## Great Arts for Great Science

What united the whole concept of the Arts at CERN programme and its Cultural Policy, 'Great Arts for Great Science',<sup>8</sup> – were the notions of 'quality' and 'equality'.

Despite the involvement of many leading artists in previous encounters, I picked up on a sceptical refrain uttered by some of the scientists: surely anybody could be an artist, they claimed, it was just who you knew which determined whether you were recognized or not. This misconception had to be addressed. I was determined that we should continue to invite only 'world-class' professionals at any stage of their career to match the world-class level of science practitioners at CERN. To make this evident, there would be open calls for the Collide residency awards – and later the Accelerate research awards – combined with a rigorous selection process involving a jury of experts from both arts and science, which could be regarded as an equivalent to the peer-review process in science.

Criteria for selecting the artists were drawn up. An openness and curiosity for CERN science was essential, but a deep understanding was not a prerequisite; in fact, those who had never had a residency at a science institution were prioritized in order to bring in fresh thinking and approaches. Each was asked to submit an idea, accompanied by a portfolio, to show that the science would be regarded as an imaginative springboard for new work. My overall aim was to develop a greater recognition within the institution

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<sup>7</sup>At the LHC, particle collisions cannot lead to fusion at the energy the collider is currently running at.

<sup>8</sup>Link to the announcement of the Cultural Policy <http://cds.cern.ch/record/1312210>.

that a profound depth of understanding about the history of art and critical thinking was as fundamental to the practice of art-making as was an imaginative facility with materials. Key to this also was the notion that the curator would have no control over whatever resulted from the artists' visits, with the artists possessing absolute rights to their own work.

Finally, to reflect the equal status, the artists in the flagship strands would not be second-class citizens having to find their own funding. They would be paid on a comparable level to their science peers, with the funding for the Collide residencies raised by the curator/producer, with an artist's fee of up to 5000CHF (the equivalent of £4000) a month and up to 40,000 CHF (c. £30,000) to cover travel, accommodation and living expenses.<sup>9</sup>

These were some of the main recommendations of the feasibility study that I proposed to the CERN Directorate in November 2009. Now all that remained was to make it happen.

### **CERN's first cultural specialist**

In April 2010, I was announced as CERN's first cultural specialist appointed by the Director General Rolf Dieter Heuer to implement the new cultural policy and programme. I was given a year to do it. CERN chose the term 'cultural specialist' because they considered that it reflected the values of the equation arts + science + technology = culture I had approached them with, and because of my own background as a producer in these fields. The Director General paid for my salary out of his own discretionary budget: I had to raise the rest of the money on my own. I knew that my three-month investigation had revealed only the surface of a complex bureaucracy which concealed private allegiances, delicate politics, hidden agendas and, of course, a few bristling egos. And I was right. Why did CERN need to employ a cultural specialist at all, I was asked, let alone run an arts policy and an artists' residency programme?

I used the official CERN magazine, sometimes jokingly referred to as 'Pravda', to pose some questions about expertise. 'Would you employ me to run the LHC?', I wrote,

Or perhaps to run an experiment at CERN with antimatter? After all, I have an abiding interest in physics – ever since an inspiring science teacher sparked my imagination with the Van de Graff generator and the laws of gravity ... Now turn this question round: would you ask a physicist to devise an arts programme or CERN's first cultural policy for engaging with the arts? What would your answer be? All right, I admit it. This is deliberate provocation.<sup>10</sup>

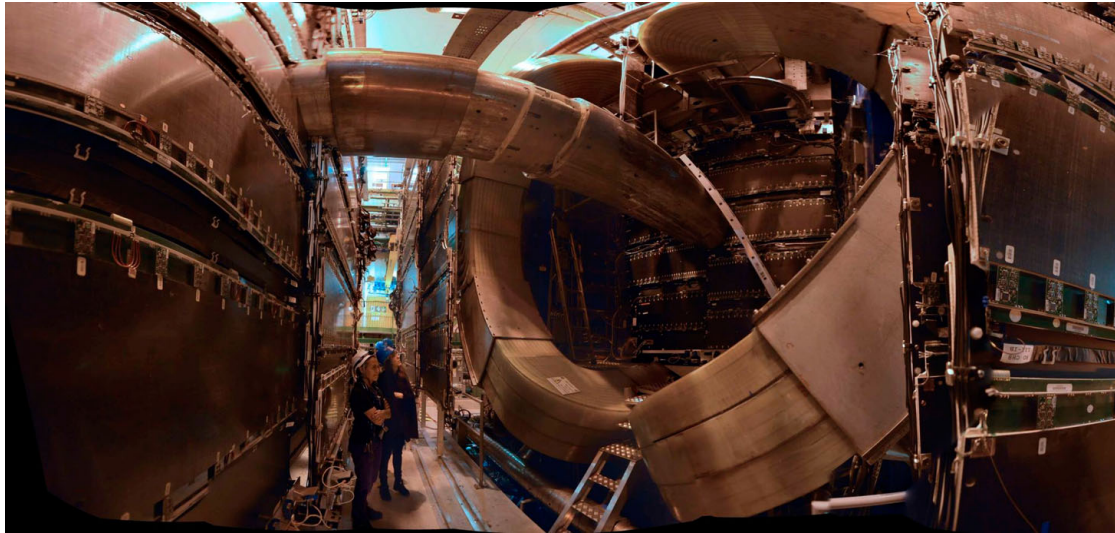
Throughout my next four years at CERN, I would discover that the posing of questions was an effective tool for creating understanding, providing the doubters with the opportunity to challenge their own assumptions and think matters through rationally for themselves.

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<sup>9</sup>These costings were later used for the shorter one month Accelerate research programme and both these schemes had administration fee costed in at 33% of the total price in order contribute to funding full-time administrative help for the programme (which in fact only happened after over three years. For the rest of the time it was me and volunteers). <http://www.aec.at/press/en/2011/05/03/ars-electronica-festival-2011-origin-wie-alles-beginnt/>.

<sup>10</sup>*Collide: A Cultural Revolution* – Opinion Piece on why an arts programme is important at CERN - CERN Courier 7th June, 2010 <http://cerncourier.com/cws/article/cern/42725>. <http://juliusvonbismarck.com/bank/index.php?/projects/imagefulgurator/2/>.





Visiting Artist, the fashion designer Iris Van Herpen at the Alice Experiment, CERN. Photo: Julian Calo.

### The first run of Arts at CERN

The Visiting Artists programme began in 2010 to kickstart Arts at CERN. This was a strategic decision to get the programme attention whilst I was fundraising and building partnerships for the Collide residency awards and later the Accelerate awards. Up to 12 Visiting Artists a year were selected by the curator, later approved by the Cultural Board when it was appointed in 2011, according to set criteria assessed during one day tailor-made visits to the laboratory, which the artists funded themselves. Many had substantial reputations but limited time to spend; they included the photographer Wolfgang Tillmans, the mixed-media artists Goshka Macuga, Mariele Neudekker and Ale de la Puente, painter Anselm Kiefer, photographer Linda Fregni Nagier and choreographer William Forsyth. Emerging artists included the composer Cheryl Frances Hoad, actor Niamh Shaw, and Ruben Van Leer who went on to make the award winning opera-dance film at CERN called *Symmetry*, which to date has won 12 international awards.<sup>11</sup>

The first full run of the Collide residency programme began in 2012, following the Open Calls for artists who could apply for both the Geneva and International strands announced at the Ars Electronica Festival in Autumn 2011. This, CERN's first collaboration with a major arts festival, involved a two-day symposium hosted by Ars Electronica Director Gerfried Stock, with talks by leading CERN scientists, artists, sociologists and technologists, examining the notion of CERN as a potential model for the future of a cooperative and collaborative society in the twenty-first century.<sup>12</sup>

In the first Collide Open Calls in 2011 announced at the festival, over 500 people entered – a number that has since doubled. Julius von Bismarck, the German artist and

<sup>11</sup>Over 50 artists came through the Visiting Artists programme 2011–2015, including young emerging artists such as the composer Arnoud Noordeggraaf (Netherlands) Travis Southworth (USA) and theatre maker (Ireland). Goshka Macuga created work for Documenta 13 inspired by her visit to CERN and Anselm Kiefer referred to his experience of visiting CERN where he investigated the importance of time over gravity when given the prestigious *Henrich-Heine prize in 2014* <https://www.welt.de/kultur/kunst-und-architektur/article135326592/Alexander-du-bist-ein-Teilchenbeschleuniger.html>. For Visiting Artist Ruben Van Leer's film *Symmetry*, see here [https://creators.vice.com/en\\_uk/article/yp53p5/epic-dance-opera-filmed-inside-cerns-large-hadron-collider](https://creators.vice.com/en_uk/article/yp53p5/epic-dance-opera-filmed-inside-cerns-large-hadron-collider).

<sup>12</sup><http://www.aec.at/press/en/2011/05/03/ars-electronica-festival-2011-origin-wie-alles-beginnt/>.

a former pupil of the Danish/Icelandic artist Olafur Eliasson's Institut fur Raumexperimente, was the first Prix Ars Electronica Collide residency award winner. Gilles Jobin was the winner of the first Collide@Cern Geneva award, which that year was dedicated to dance.

### **Case study 1: the first collide artists in residence**

Julius von Bismarck was a rising young star, having previously begun in digital and new media when in 2006 he won the Prix Ars Electronica for his experimental device, the 'Image Fulgurator'. The piece inserted images onto the negatives of photographs taken by media journalists without their knowledge to make a political point that the media can be challenged and the people can seize back control.<sup>13</sup>

Julius was in the process of switching from media art to a wider field in contemporary art. He has a restless intellect, so using my producer skills and curatorial understanding of what would inspire him, I set about offering a varied range of daily activities: for example, conversations about dark matter one day, followed by climbing the water tower which overlooks the whole CERN site on the next. Often I did not tell him in advance what was going to happen. The day he sat down with the physicist Mike Lamont who ran the LHC was extraordinary; he won respect by not only understanding the purpose and function of the facility but also asking challenging questions on the luminosity of the beam and other technical details.

The approach for Gilles Jobin was different. He confessed to feeling overwhelmed, despite his four-day induction three months before he began his residency. He had left school at 16, in spite of a natural intelligence and geeky love of new technology. My curatorial approach was different with him and encouraged him to focus on his own area of expertise: the human body pushed to extremes.

These two artists were interested in my idea of creating 'interventions' – unannounced 'happenings' and events which disrupted the daily working of the laboratory in order to make their presence felt. Julius's plot was the kidnapping of 30 scientists, holding them hostage underground in the pitch black, asking these seekers of the invisible what they saw in their minds' eyes. This was recorded on audio but has not been released yet – a deliberate tease by this provocative artist, creating an audio piece which may never be heard.

The most well-known intervention was created by Gilles. It took the form of a spontaneous happening in the CERN library called *Strangels*, involving two dancers, Suzanne Paradis and Ruth Childs. Performing as if invisible, they moved through the space, hanging off shelves, falling over chairs and plunging into piles of books. The dancers tumbled in front of a CERN physicist who was at his desk reading so intently he did not notice them – a photograph of which went viral around the world, published in *The Guardian* and the *Huffington Post*.<sup>14</sup>

An unforeseen creative collision happened when Gilles attended Julius's final public lecture at CERN at the end of this residency and saw his film 'Versuch Unter Kreisen',

<sup>13</sup><http://juliusvonbismarck.com/bank/index.php?/projects/image-fulgurator/2/>.

<sup>14</sup><https://www.theguardian.com/stage/2012/jul/16/cern-dance-strangels-sciart>. <http://www.gregorybatardon.com/album/gilles-jobin-strangels?p=1?p=1#10>. <http://www.gregorybatardon.com/album/gilles-jobin-strangels?p=1?p=1#1>.

an installation in which four lamps turn in separate orbits, surprisingly coming together in synch on the 68th turn. This inspired Gilles to ask if the installation could form the set for a new dance piece he would choreograph after his time at CERN.<sup>15</sup> The piece, *QUANTUM*, a physical ode to particle physics with six dancers, premiered in October 2013 at the CMS detector on the Large Hadron Collider ring, danced above one of the locations where the Higgs boson was detected. The performance was held in partnership with the local Forum de Meyrin Theatre during the CERN Open Days, in order to attract their dedicated dance audience, many of whom had never been to CERN. *QUANTUM* won a major international prize, the Hermes Foundation's New Settings Award 2013, which guaranteed it openings in Paris at Isle de la Cité and at the Crossing Lines festival in New York. The piece has been on tour ever since, and to date has been to 36 different countries in four continents and shows no sign of stopping. This co-production by the first two Collide artists won external funding to make it happen, and proved my point: imaginative curation in such a dramatic setting would inevitably lead to discernible outcomes in time.

### **Case study 2: visiting artist: Iris van Herpen**

Before I left CERN I invited as Visiting Artist the young Dutch fashion designer Iris van Herpen, whose wild imagination was matched by outstanding technical and digital skill. She was particularly beguiled by encountering the machinery involved in the ALICE experiment, which looks at what happens to matter when it is heated to temperatures 100,000 times higher than the core of the sun.

'It feels very futuristic', she commented,

but at the same time you see that every little thread, every cable has been attached by hand to a very high level of craftsmanship. There seems to be a contradiction between the application of skilful human craft and a daunting otherworldly vision. I find it beautiful.

Her subsequent Spring/Summer 2015 collection *Magnetic Motions* was shown on the catwalks of Paris.<sup>16</sup> The 3D printed dresses and shoes, designed by Jolan van der Wiel, were inspired by the shapes and patterns formed by particles responding to magnets with a force 300,000 times greater than the Earth's magnetic pull. The collection won the first prize in the 2016 European Commission's new STARTS award for innovation across the arts, science and technology. Iris has continued to be inspired by CERN physics, creating such extraordinary pieces as the Particle Dress, which was shown in the dance-fashion short film *Spatial Reverse* made as part of the MOVEMENT series for the partnership between AnOther magazine and Sadler's Wells Theatre, London.<sup>17</sup>

### **Making the programme happen**

None of this was achieved without sheer determination. When I was appointed in 2010, I knew I would have to raise the funds and set up partnerships without any support. I cannot pretend that this was anything but lonely. Of course, I could have devised an

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<sup>15</sup><https://vimeo.com/159421963>.

<sup>16</sup><https://theculturetrip.com/europe/the-netherlands/articles/iris-van-herpen-from-particle-acceleration-to-disruptive-fashion/>. <http://www.irisvanherpen.com/blog/another-magazine-interview-philip-beesley-x-iris-van-herpen>.

<sup>17</sup>Link to the film *Spatial Reverse* <https://vimeo.com/125569275>.



arts programme the purpose of which was simply to communicate and illustrate the science, like CERN's Collider exhibition created with London's Science Museum and the Photowalk competition which invited photographers to capture CERN at work. These are the staples of many outreach programmes, and if I had chosen this approach it may well have been funded internally from the communications budget. But I was creating a new scheme that was fundamentally an artists' research exercise, derived from knowledge exchanges between artists and the scientists, and focused exclusively on the creative *process*, not on 'product', 'outreach' or timed goals.

My belief was – and remains – that we have become too product-driven in our culture. We have lost trust in the creative process, trying to control it by devising overly bureaucratic reporting structures, strict deadlines and audience targets which can lead to strangulation and stagnation.<sup>18</sup> I knew that if the process were properly managed and curated, with an inbuilt combination of freedom and constraint – a fundamental precondition for creativity – real work of artistic integrity would emerge. It was crucial that neither the curator nor CERN should have control, power of veto or ownership of anything that emerged from the programme. All any of the artists who came to CERN were asked was to acknowledge Arts at CERN in any press or publicity if art work had emerged from their time at the laboratory. And ultimately it was up to them. It was not obligatory.

Selling all these ideas to potential funders proved a challenge. Public perceptions of CERN's funding did not help. The LHC alone had cost £6 billion, and CERN had an annual budget of £2 million – so why was additional funding required? The answer was simple. CERN is funded by the member states for its science. To do anything outside its core mission puts that funding at risk. And my conviction, drawn from careful research combined with the status of CERN and a growing public fascination with its work, made fund-raising possible even without the guaranteed production output.

I began my partnership quest with the locality – which I believe is an essential step in making any programme successful in order to give it solid connections. CERN is an isolated community, just below the ridge of the Jura mountains and crossing the Swiss-French border, with over 1000 buildings on its main site, including its own shops, bank and post office, as well as over 80 different leisure societies. The city of Geneva is just 8 km away and had been fundamental in the founding of CERN, which has a 99-year lease to use the land on which it stands for free. But during my study, it became clear that Genevans perceived CERN as a scientific 'cult', as I sometimes heard it called by the local and international communities, isolated in every sense. It seemed to me that one of the roles of an arts programme could be as a cultural bridge between the city and the laboratory. Geneva had had been a crucial place in the Enlightenment for Rousseau and Voltaire. It was the birthplace of one of the forerunners of science fiction: Mary Shelley's pioneering fantastical novel *Frankenstein*, first published in 1818.

With all this in mind, I managed to persuade the City as well as the Republic and Canton of Geneva to co-fund a Collide residency specifically for artists born or based in Geneva. But they were reluctant to agree to funding until I demonstrated I was not just interested in Swiss money. Fortunately I was able to secure private donations from art collectors from America, the UK, China and Hong Kong. Crucially too, I introduced

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<sup>18</sup>For my fuller discussion about creativity and control <http://median.newmediacaucus.org/isea2012-machine-wilderness/creative-collisions-beyond-paradigms-2/>.

the idea that each year the art form in the Collide Geneva open call would change: in the first year it was dance, in the second film, in the third sound and music. Next, I went for the global. As stated above, Ars Electronica agreed to collaborate and it supported 10,000 Euros of the international Collide residency award, which was multidisciplinary and open to dancers, architects, musicians as well as new media artists, although awardees were expected to engage with the digital as a means of production and/or distribution. I went on to find the further 350,000 Euros of funding from private individuals and UNIQA Insurances which agreed to sponsor the artists' insurances for both the international and the Swiss strands of the residency programme.

By 2011, the partnerships and funding for the Collide residency awards were in place. CERN's first Cultural Board was appointed in the same year, designed to bring expertise in the arts into the organization at the same level of its international status as the science. From the beginning, a scientist was on the board to create in-house knowledge as well as to reflect the notion of arts and science being part of CERN together.<sup>19</sup> This continues to this day.

### Ripples in the laboratory and beyond

The programme's inspiration for artists was to become evident in their subsequent exhibitions, performances and events. What was less clear was the influence on the scientists. Perhaps obviously, the involvement of artists did not lead to any great science discoveries – or not so far. However, some scientists did report on a subtle effect on their daily lives and working practices.

From the scientist's point of view, the benefit to the artist is opening the mind, seeing different ways of approaching nature and life, adding more humanity to what you do, thinking about the implications of what you do for fellow humans and nature,

Commented theorist James Wells who was the inspiration partner to Julius.<sup>20</sup> Others attested to being intrigued by the artists' attraction to detours and incidentals, realizing that a greater flexibility in thinking could assist the solving of problems, both in detail and also in offering a more open view of the task before them. 'Talking to the artists has made me realise I don't have a limited brain which is just focused on crunching numbers all the time,' experimentalist Alison Lister observed. 'I can do so much more and it makes me feel liberated.'

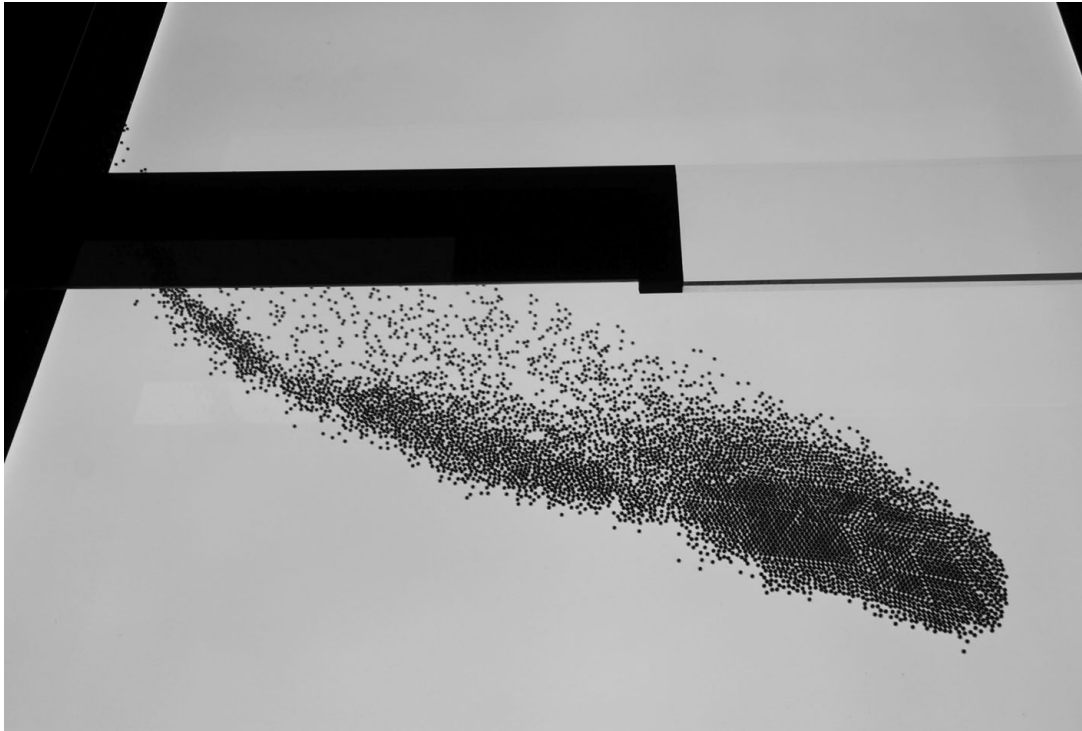
An article in *Nature* (3 October 2012, 8, 700–701) highlighted the impact the scheme was having on the scientists inside the laboratory. 'The excitement is palpable. It is as if there is a new nightclub in town', wrote experimental physicist and Cultural Board member Michael Doser.

As the programme continued, there was a noticeable increase in scientists volunteering in the annual open calls to participate in the programme; the physicist Subodh Patil used it with his public communications obligations for the EU's Marie Curie programme.

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<sup>19</sup>The original members of the CERN Cultural Board 2010–2015 were Beatrix Ruf then director of Kuntshalle Zurich, Serge Dorny of the Lyon Opera House, Frank Madlener of IRCAM Paris, Christoph Bollman then director of Art Geneve and CERN anti-matter specialist Michael Doser. All board members serve a four-year voluntary term, with two members of the board overlapping with the new board for a year.

<sup>20</sup>Quote taken from an interview with James Wells <http://www.dw.com/en/at-cern-art-and-science-collide/a-15838136>.



CERN Artist in residence Ryoji Ikeda: a detail from his multi- installation Supersymmetry 2014 inspired by CERN. Photo: Julian Calo.

The success of the Arts Programme inspired other activities inside the laboratory. In 2011 I offered to carry out a strategic review of the science film festival CineGlobe, which had been created by CERN scientists and staff members in 2007. This led to its fundamental restructuring, the development of a clearer vision, and the establishment of new partnerships and funding, giving it a wider international reach. The new cross-disciplinary innovation hub IdeaSquare, started in 2014, was also inspired by the Arts programme and the way in which interdisciplinarity generates new ideas and approaches. It harnesses the ideas and technology of physics and brings in designers and artists from local as well as international design schools to create practical solutions for social benefit.<sup>21</sup> Arts at CERN artists now lecture on this programme.

The programme began to have international influence too. By the time I left at the end of 2014, Arts at CERN had established an example for new arts/science initiatives in laboratories as far as Spain, South Korea and Australia. It inspired two new European Commission arts-science-technology programmes: the FEAT (Future and Emerging Technologies) arts awards funded under Horizon 2020, and the annual STARTS prize (Science, Technology and Arts Awards) for innovation and collaborative working. It also inspired the European Commission's Joint Research Centre, the environmental science policy and research hub, to initiate its own sci-art programme in 2017.

Finally, on the strategic and communications level, Arts at CERN enhanced the general reputation of the laboratory. The Director General found that when he spoke about the Programme at high-level meetings, it seemed to attract particular respect and new interest in CERN. New audiences entered the laboratory to attend Arts at CERN events and the

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<sup>21</sup><http://cineglobe.ch/festival/> and <http://ideasquare.web.cern.ch>.

lectures series at the 120-person-capacity Globe. There were also encounters with CERN physics outside the laboratory, for example at the lecture series hosted by the Alexander S. Onassis Foundation in Athens and at exhibitions in Taiwan, Austria and Germany, where works by the artists on the CERN arts programme were shown. Taking into account both real and virtual audiences reached through these activities, as well as media coverage and social media, in 2014 alone the programme had potentially reached over 14 million people, not including the coverage achieved through the CERN press office. In a science organization that deals in numbers, this was a useful political tool to justify the programme's existence.

## Securing the future

By the time I left CERN in January 2015, I had raised 4.1 m CHF both internally and externally, in cash and in-kind support to develop the programme and secure its future. It comprised, as it does to this day, the three annual strands which I had initiated and designed: the Collide international and the Swiss awards; the Accelerate one-month research strand with two awards; and the Visiting Artists programme (which has since become the Guest Artists programme, managed with international production and exhibition partners).

Politics and personalities change in any major organization, however stable they may appear to the outside world. I had deliberately created the new Accelerate@CERN strand in 2013 as a strategy to protect the Arts at CERN programme. There was a very real danger the programme would be discontinued. This was because my contract was limited and Director General Rolf Heuer was coming to the end of his term of appointment in 2015. He had always taken a personal interest in developing the role of science in society and was particularly open to the arts, but there was no guarantee that his successor (who would be nominated by the end of 2014) would be as enthusiastic, or indeed would support the programme at all.

Accelerate was designed to be supported by the cultural ministries and leading foundations of two different countries every year, as part of the CERN collaboration, thus providing potentially 60 years worth of funding from each of the 120 countries working with CERN. The first open call for artists in the funding countries – Greece and Switzerland – was announced in 2013, with Austria and Taiwan following in 2014. This plan was also a strategic way of increasing the reach as well as the diversity of the artists coming to CERN. Each country chose a different art form in keeping with Arts at CERN's multidisciplinary vision: Austria, for example, chose architecture; Taiwan, digital art and dance. Attempts to stop support for Accelerate would be difficult for a new director general, given the close involvement of the cultural ministries of two countries, and I was able to ensure that memoranda of commitment were signed for the next three years after I left, from foundations in countries such as South Korea and United Arab Emirates. Promises were also made for funding the Swiss Collide residency programme for the next six years by the City and Canton of Geneva, in rotation with the Swiss arts council Pro Helvetia. Since 2015, FACT Liverpool has succeeded Ars Electronica as partner for the Collide International strand.

To further confirm Arts at CERN's future sustainability, Rolf Heuer secured the administration of the programme by creating CERN's first fellowships for the arts: one for a curator and the other for an administrator, embedding the scheme into the structure of the organization.

## Conclusion

Looking back at the first five years of Arts at CERN, the five main achievements are: the programme's influence within the laboratory as well as internationally; the speed with which this multidisciplinary arts programme was set up and gained a reputation for quality; the crucial ingredient of a curator to direct the process; giving artists and scientists the time and space simply to explore and discover with no requirement for output; and the programme's continuation after the main proponents of the scheme left. The programme has triggered further discussion about the evolution of an aesthetic in the arts/science movement and in particular how artists using digital aesthetics inspired by science can act as a catalyst for further science investigation.<sup>22</sup> Ryoji Ikeda's work inspired by CERN created a heated discussion when the *Guardian's* art critic Jonathan Jones argued that art inspired by science is worthless.<sup>23</sup>

Critical learning points include the need for full documentation of the evolution and the progress of the entire programme for its first five years, including the encounters between the artists and scientists, and the need for an external evaluation. Additional administrative support would have helped towards my ultimate ambition that the programme become two-way, not one-way, with scientists in residence at art and design schools.<sup>24</sup>

In September 2017 CERN formally announced a 3 year fixed term staff position as Head of Arts at Cern at the laboratory showing that the programme has become an accepted part of the institution as well as the cultural landscape. There is, however, the risk that, as this permanent staff position is to be based within the Education and Communications Office (ECO) and part of the responsibilities will be exhibitions for the communications group, that the programme could become subject to a directive communications strategy, which will prioritise output, education and audience above the creative process, imagination, and originality of open-ended artistic research which was Arts at Cern's original vision. Only time will tell what the effect of this new structure and responsibilities will be. What is clear is that the new curator, as in any science laboratory arts/science initiative, will need strong political and strategic skills as well as the essential curatorial ones. The continued existence of any arts programme within a science institution relies on diplomacy and resilience as much as it does on openness, as well as a robust sense of purpose, clear boundaries and constant messaging to ensure the arts will not get subsumed by a science communications agenda and the politics of science.

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<sup>22</sup>Evidence made in *Creative Collisions: Art Science Collaborations at CERN and the Theory of Everything*. (Phd 2016 University of South Wales – Troy Egan). [https://www.researchgate.net/publication/305323798\\_Creative\\_Collisions\\_Art\\_Science\\_Collaborations\\_at\\_CERN\\_and\\_the\\_Theory\\_of\\_Everything\\_2016](https://www.researchgate.net/publication/305323798_Creative_Collisions_Art_Science_Collaborations_at_CERN_and_the_Theory_of_Everything_2016). Also at Pint of Science Festival in London 2017 I was approached after a talk and informed by a member of the audience that Ryoji Ikeda's work *Super Symmetry* had inspired a neuroscientist to completely rethink his approach to his work on mirror neurons. To date, there is no comprehensive analysis and data on if and how art can change the way a scientist conducts their experiments and thinking.

<sup>23</sup>For the arguments about aesthetics see Jonathan Jones controversial review of Ryoji Ikeda's work and follow the very long threads which show the different sides of the argument <https://www.theguardian.com/artanddesign/jonathanjonesblog/2015/apr/23/art-respond-science-cern-ryoji-ikeda-supersymmetry>. For an outline about the discussion about aesthetics <http://theartnewspaper.com/comment/articles/authors/162937/>.

<sup>24</sup>I began discussions about beginning a scientist in residence scheme through the Accelerate programme with the Rijksakademie, Netherlands in 2013. There will become a time where scientists in residence because as common place as artists in residence. Bozar in Brussels this year is introducing such a scheme.



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The Einstein quote is from an interview by G.S. Viereck, October 26, 1929. Reprinted in 'Glimpses of the Great' (1930).

## Notes on contributor

*Ariane Koek* is an international strategic consultant, producer, curator and writer, with an expertise in arts, science and technology, residency programmes and interdisciplinary working. In 2009 she initiated and directed Arts at CERN at the world's largest particle physics laboratory outside Geneva and was director of this multi-stranded programme until 2015. Prior to that, Ariane was awarded a Clore Fellowship for her work as Director of the Arvon Foundation for Creative Writing and for her career as an award-winning producer at the BBC in both television and radio. She is an External Policy Advisor on digital arts, science and innovation to the European Commission's ICT Directorate, is on the Artistic Advisory Boards of House of Electronic Arts, Basel, Switzerland and the CERN Cultural programme. She is also Expert Arts Advisor to the European Commission's Environmental science and policy hub, the Joint Research Centre, which has set up an arts/science programme inspired by her work at CERN. She is curatorial consultant for their 2017 Resonance's exhibition at the Museo Nazionale Scienza e Tecnologia Leonardo da Vinci in Milan, Italy. In November 2018, her exhibition on Particle Physics and its inspiration on Contemporary Art, Design and Architecture opens at Bildmuseet, Umea, Sweden. She took up the new post as Founding Director of Science Gallery Venice in September 2017.

## ORCID

*Ariane Koek*  <http://orcid.org/0000-0001-8217-2604>