



ORIGIN

ORIGIN

cross-disciplinary
science engagement
networking & education



Michael.Hoch@cern.ch for ORIGIN – CMS
FSU – Florida State University Tallahassee, US
September 2021

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Art University Collaborations

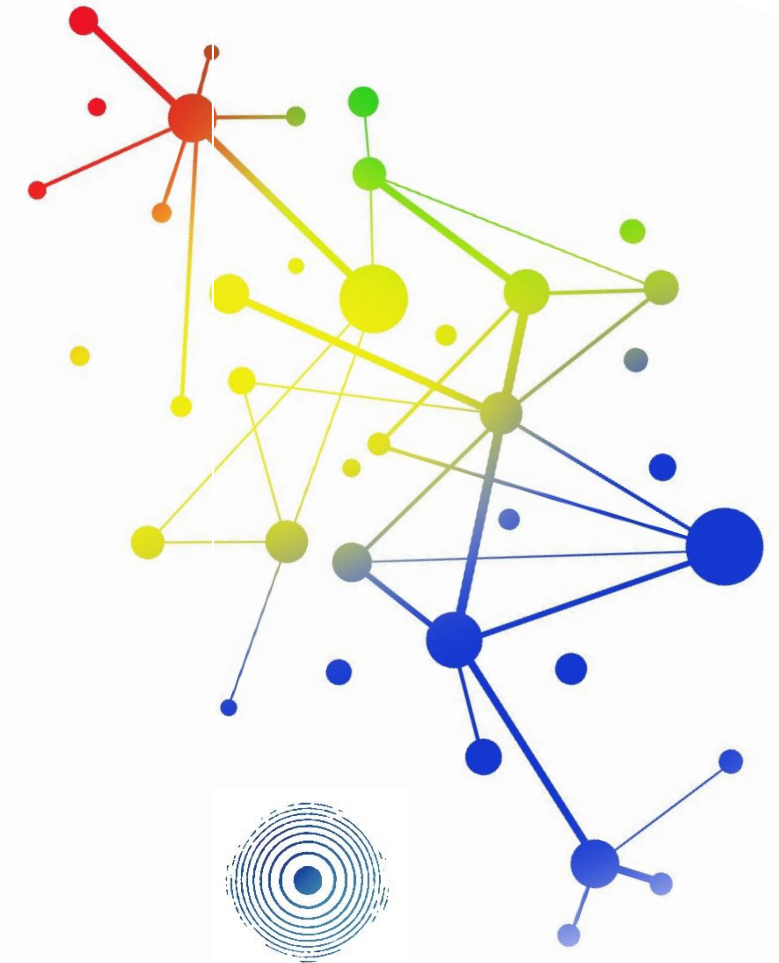
- Chelsea College of Arts/ UK, Central Saint Martins College of Arts/UK, (p68)
- University of Applied Arts Vienna/ AT, Ecole d'Art Superieur Lille/ FR
- Art University Cetinje/ MO, KASK Royal Arts Conervatory Ghent/ BE
- Suratomica Bogota/ CO

Further Collaboration opportunities

- Examples of further collaborations (p80)

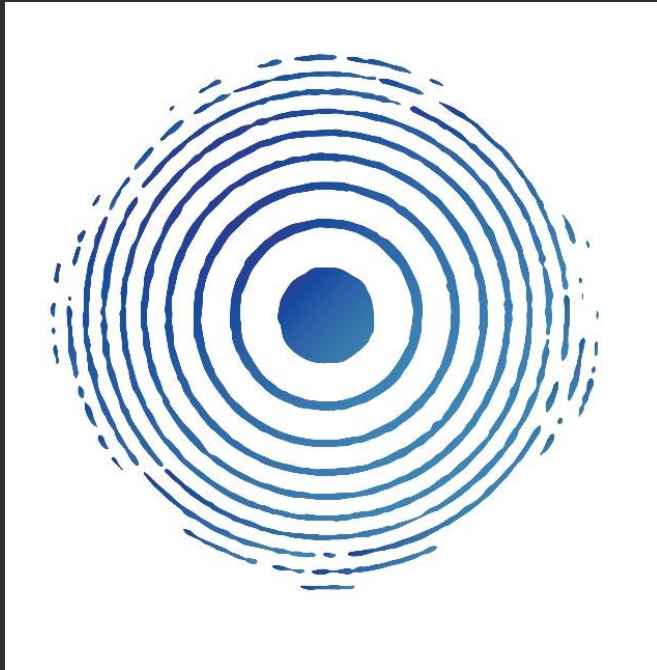
Collaborative Artists

- List of various collaborative artists 2013 - 2015 (p85)



ORIGIN

Since 2017



ORIGIN

Supported by

ATLAS, ALICE, CMS, LHCb,

LIGO, VIRGI, ICEcube, DUNE

Muography, Perimeter Institute,

Canadian Light Source, and other
international partners

Particle Physics

Astrophysics

Gravitational Waves

Neutrino-Physics

Muography

Accelerator

Technologies

Since 2012

Methology develped & disseminated since 2012

By CMS collaboration via art@CMS

Global cross-disciplilnary science engagement & networking program



ORIGIN program **Mission**



Objectives:

cross-disciplinary science **engagement & networking** with special emphasis on education

- **THINK globally ACT locally** –
- support our science community where they need support –
 - > at their HOME country

“Arts as a tool to engage actively and empower them to own the topic and allow them to contribute”



ORIGIN: *What We Do*

Exhibitions

The outcome of a dialogue and collaboration between artists, art institutes or communities with our science community. An exhibition or performance will act as catalysts for promoting public interest and understanding of science concepts as well as artistic expressions.

all creative expressions are invited, photo, painting sculpture, music, dance, lyrics, performance

science & art workshops – for graduate and undergraduate students

Interdisciplinary in their nature, SciArt workshops enable young people to gain a better understanding of science in general. Participants get inspired and encouraged to foster their own creativity, linked to scientific methodology. Critical thinking is key to cope with the challenges of the 21st century.

science learning (masterclass) followed by philosophic discussion and creative art production

The **exhibition** serves always as **framework to support** activities like : presentations, round table discussions, science and creative workshops, meet real artist or scientists,

our Scientist and our collaborating professional artists act as authentic **role models for students**

Cross disciplinary EDUCATIONAL Formats

3 models for different implementation scenarios

© Michael Hoch

1) sciARTmasterclass

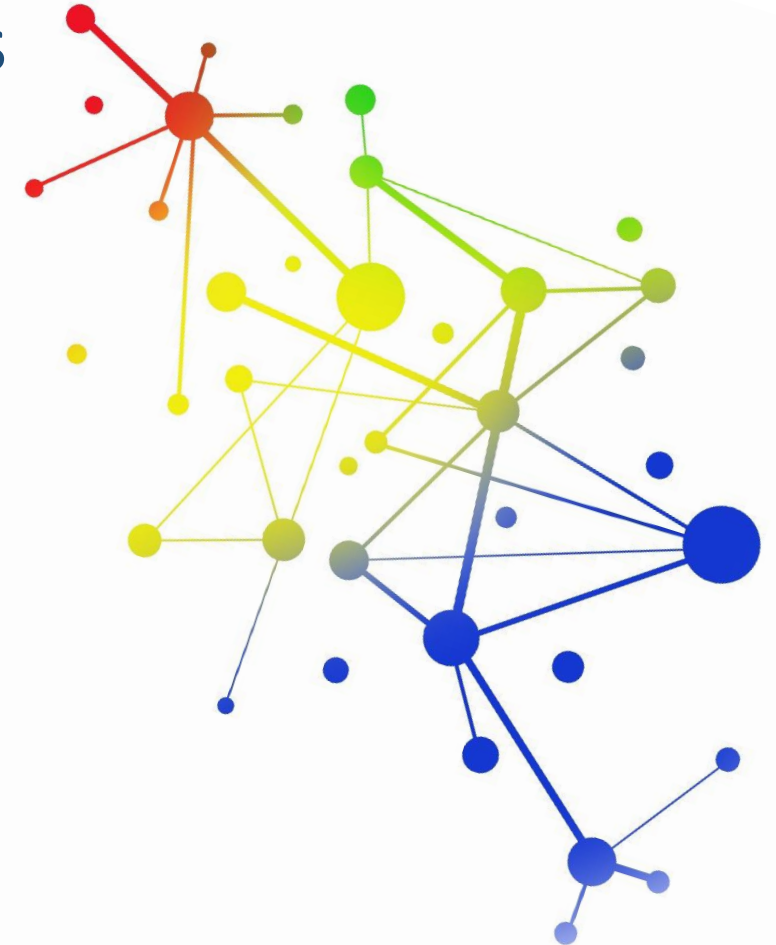
- short engagement scenarios e.g. science festivals

2) Science&Art@School

- authentic school student engagement & inspiration

3) Cultural Collisions

- full cross disciplinary science engagement inspiration & research




sciARTmasterclass

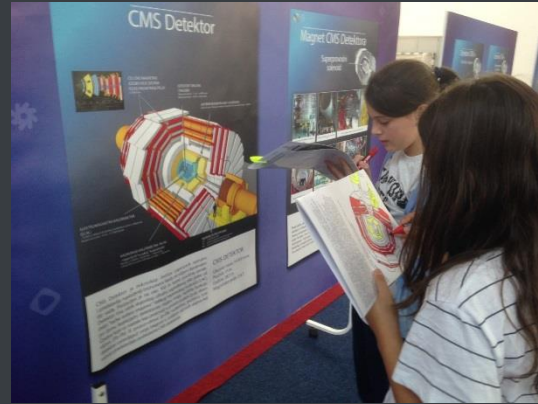

one day event e.g. science festival or science day,..



Otvoreni dani nauke
Mladi naučnik
5-9 godina



Ime: _____ Godine: _____



Students participating in the ScienceFlashMob,
CMS Junior Scientist Program -> Booklet
art@CMS interdisciplinary Exhibition with: real detector & accelerator equipment, art works, creative corners , lectures and detector workshops as well as sciART workshops.
Montenegro 2017: <https://www.youtube.com/watch?v=9vfiW-Pf7vg>
Athens 2015: <https://www.youtube.com/watch?v=t8MHsCaYks>





Science&Art@School

supporting school curriculum or after school activity



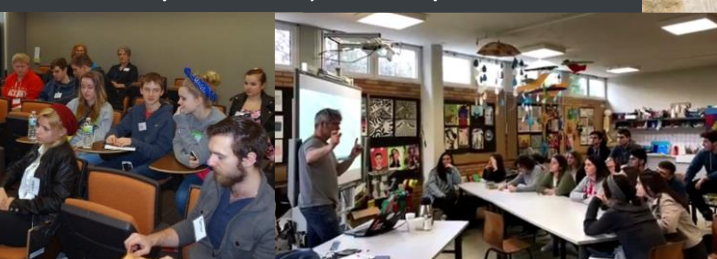
Graz/ AT 2012, 2013, 2014



Sofia Bulgaria 2015, Vienna/ AT 2016



FERMILAB/ US 2015, Athens/ GR 2017



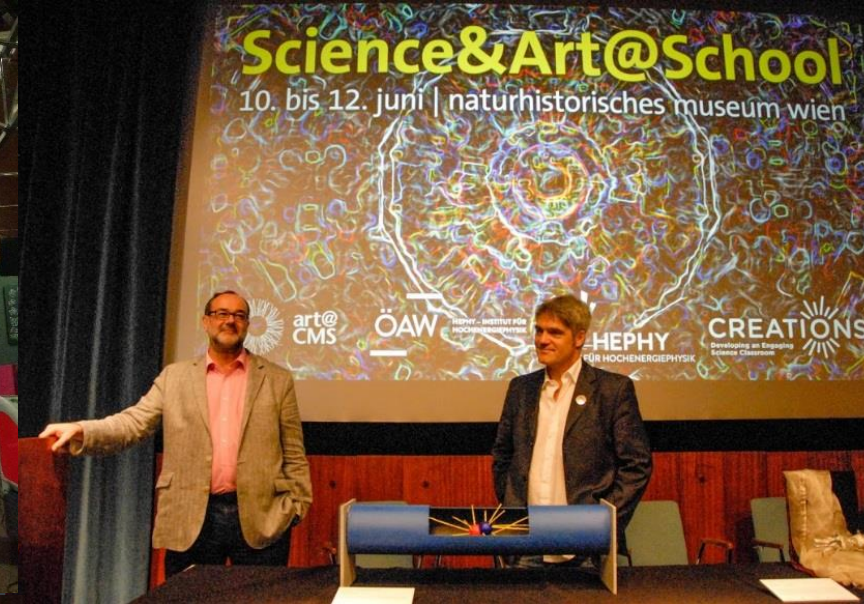
Best National dissemination : Science & Art across Italy <https://web.infn.it/artandscience/index.php/en/> 2016 - 2017 - 2018,

You are cordially invited to
Cultural Collisions

An art exhibition, music and dance performance presented by Austrian and Genevese students



2016 : CERN Bldg 40 became a stage for students



CERN Meyrin Bldg 40

February 24th 2017

In the presence of His Excellency Thomas Hajnóczi,
Permanent Representative of Austria to the international organizations in
Geneva / Switzerland

18h30 Opening
19h00 Welcome
19h15 art show & performance by Haydn Gym. Vienna,
Herz Jesu Gym. Salzburg, ECOLINT LGB Geneva,
20h00 Drinks
21h00 Close



2017 and 2018: NHM – National History Museum Vienna Austria
2017: Museum fuer Vorgeschichte Halle / Germany

Cross-Disciplinary Cultural Collisions

Science & Art

Education

CC Ontario, Canada

p11

CC Vienna, Austria

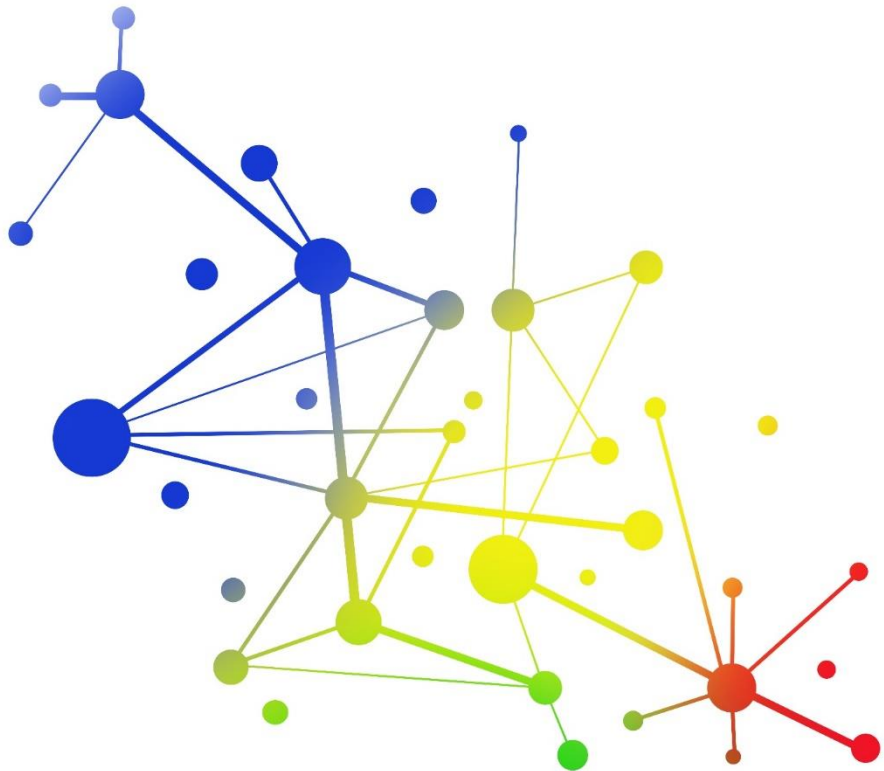
p20

CC Bosnia Herzegovina

p24

CC Croatia

p32



Cultural Collisions Canada

Venue: **Ontario Science Centre, OSC** formal evaluation by the Ministry of Education

Cross disciplinary exhibition April 9th – 15th 2018

Student exhibition: May 29th – June 3rd

Organization: creation of **ORIGIN**

Toronto Ministry of Education: general and education organization, evaluation

art@CMS: Exhibition curation **ORIGIN:** Scientific curation

art@CMS, ATLAS, CLS, CMS, LIGO/VIRGO, Muography, Perimeter Institute

More institutions are interested to join: **TRIUMF, Snowlab**



Cultural Collisions by **ORIGIN** - Canada



Cultural Collisions Canada — week schedule

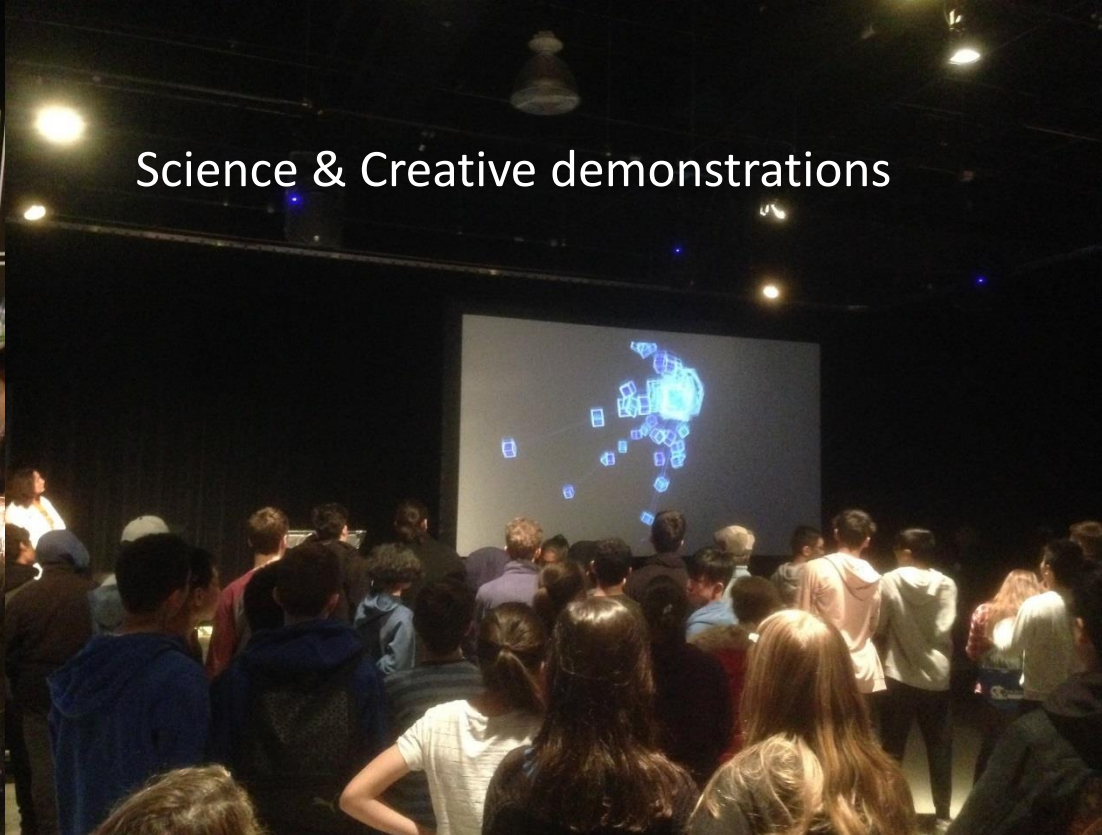


Cultural Collisions Project with Origin - Maximum number of students per day (Tuesday - Friday) is 100 to accommodate workshops - Exhibit can always handle visitors

	Monday April 9, 2018	Tuesday April 10, 2018				Mercredi 11 avril 2018				Thursday April 12, 2018				Friday April 13, 2018				Saturday April 14, 2018	Sunday April 15, 2018
	Schools: Danforth Collegiate, Ecole secondaire Toronto Ouest, University of Toronto Schools	Danforth Collegiate (60 grade 9 and 11 Students) and University of Toronto Schools (6 Grade 11 students) + OSC invitations				Ecole secondaire Toronto Ouest (61 étudiants - 10e et 11e année) - École francophone				University of Toronto Schools (95 students - Grade 8, 10) - Shifted schedule 30 minutes later - Start time is 9:30 am this day only!				Open for Ontario Science Centre Invitations to Participate - York Region Schools				Open to the public - Open at 10 am	Open to the public - Open at 10 am
9:00 AM		20 Minute Talk: Karola Dette, University of Toronto - From Particle Physics to Astrophysics				Mini-présentation: Karola Dette, Université de Toronto - De la physique des particules à l'astrophysique				20 Minute Talk: Karola Dette, University of Toronto - From Particle Physics to Astrophysics				20 Minute Talk: Karola Dette, University of Toronto - From Particle Physics to Astrophysics					
9:30 AM	Opening Event (9:30 - 10:00) - Richard Franz, Maurice (OSC), Rock Paper Science Hall (RPS)	Workshop 1A	Workshop 1B	Workshop 1C	Workshop 1D	Atelier 1A	Atelier 1B	Atelier 1C	Atelier 1D	Workshop 1A	Workshop 1B	Workshop 1C	Workshop 1D	Workshop 1A	Workshop 1B	Workshop 1C	Workshop 1D	Exhibit area activities will be available for the public	Exhibit area activities will be available for the public
9:45 AM		9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	9:30 - 10:30 am	
10:00 AM		What keeps us stuck to the Earth? (EN)	Playing with Data (EN)	Particle Surprise in a Cloud Chamber (EN/FR)	Celestial Luminescence	Qu'est-ce qui nous garde les pieds sur Terre? / What keeps us stuck to the Earth? (EN)	Jouer avec les données (EN/FR)	Surprise de particules dans une chambre à nuages (EN/FR)	Celestial Luminescence	What keeps us stuck to the Earth? (EN)	Playing with Data (EN)	Particle Surprise in a Cloud Chamber (EN/FR)	Celestial Luminescence	What keeps us stuck to the Earth? (EN)	Playing with Data (EN)	Particle Surprise in a Cloud Chamber (EN/FR)	Celestial Luminescence	People to be within the exhibit area to support the programming	People to be within the exhibit area to support the programming
10:15 AM		Perimeter Institute	CMS - CERN, University of Notre Dame	ATLAS, CMS, CERN	York University	Institut Périmètre	CMS - CERN, University of Notre Dame	ATLAS, CMS, CERN	York University	Perimeter Institute	CMS - CERN, University of Notre Dame	ATLAS, CMS, CERN	York University	Perimeter Institute	CMS - CERN, University of Notre Dame	CMS - CERN	York University	Open till 8:00 pm	Open till 6:00 pm
	Science Flash Mob (10:00 - 10:45)	Kelly Foyle and Kevin Donkers	Tom McCauley	Michael Hoch	Robin Kingsburgh	Dave Vrolyk et Nathan Chow	Tom McCauley	Michael Hoch	Robin Kingsburgh	Dave Fish and Damian Pope	Tom McCauley	Michael Hoch	Robin Kingsburgh	Olga Michalopoulos	Tom McCauley	Michael Hoch	Robin Kingsburgh		
10:30 AM		30 students	30 students	30 students	15-20 students	30 étudiants	30 étudiants	30 étudiants	15-20 étudiants	30 students	30 students	30 students	15-20 students	30 students	30 students	30 students	15-20 students	Pop up Public Talks	Pop up Public Talks
		RPS Hall	Room: Workshop 4	Room: Dry Lab	Exhibit area	Salle avec des tables -RPS Hall	Salle: Workshop 4	Salle: Ecosystems Lab	Aire d'exposition	RPS Hall	Room: Workshop 4	Room: Dry Lab	Exhibit area	RPS Hall	Workshop 4	Ecosystems Lab	Exhibit area	11 am - 20 Minute Talk: Peter Krieger, University of Toronto - ATLAS / LHC	
10:45 AM		10:45 am - Talk in Exhibit Area - By Perimeter Institute - Dr. Kelly Foyle, Black holes and the Event Horizon Telescope				10:45 am - Brigitte Tessier, Artiste collaboratrice de la France & Montreal - "QUI DES DEUX INSPIRE L'AUTRE: Le SCIENTIFIQUE ou L'ARTISTE?"				10:45 am - Talk in Exhibit Area - By Perimeter Institute - Dr. Damian Pope - Hidden Patterns in Physics				10:45 am - Talk in Exhibit Area - Peter Krieger					
11:00 AM		Exhibit Area with Scientists and Artists				Aire d'exposition avec les scientifiques et les artistes				Exhibit Area with Scientists and Artists				Exhibit Area with Scientists and Artists				12:00 pm - 20 minute talk: David Griffin (OCAD University)	
11:15 AM	Moderated Panel: Meet the Scientists and Artists! (10:45 - 11:15)													Exhibit Area with Scientists and Artists				1:00 pm - 20 Minute talk: Robin Kingsburgh	
Lunch	11:15 am - 12:00 pm	11:30 am - 12:15 pm				11:30 am - 12:15 pm				11:30 am - 12:15 pm				11:30 am - 12:15 pm				3 pm - 20 minute Talk: Consensus Science Rep	
12:00 PM		12:15 pm - Talk in Exhibit Area - Michael Hoch or Robin				12:15 pm - Talk in Exhibit Area - Peter Krieger				12:15 pm - Talk in Exhibit Area - Peter Krieger				12:15 pm - Talk in Exhibit Area - consensus				Volunteers Coming:	Volunteers Coming:
12:15 PM	Performance of Consensus, interactive component, Scott Wilson with the audience and then Q & A	Workshop 2A	Workshop 2B	Workshop 2C	Workshop 2D	Atelier 2A	Atelier 2B	Atelier 2C	Atelier 2D	Workshop 2A	Workshop 2B	Workshop 2C	Workshop 2C	Workshop 2A	Workshop 2B	Workshop 2C	Workshop 2C	Peter Krieger (ATLAS Canada, Professor, U of T)	Peter Krieger (ATLAS Canada, Professor, U of T)
12:30 PM		12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	12:45 - 1:45 pm	Michael Hoch CMS
		Listening to Einstein's Universe (EN/FR)	Playing with Data (EN)	Accelerating Colours (EN/FR)	Science through Rap	Écouter l'univers d'Einstein (EN/FR)	Des données créatives au son (EN/FR Maybe)	Accélérer les couleurs (EN/FR)	La science à travers le rap	Listening to Einstein's Universe (EN/FR)	Creative Data to Sound (EN)	Accelerating Colours (EN/FR)	Science through Rap	Listening to Einstein's Universe (EN/FR)	Creative Data to Sound (EN)	Accelerating Colours (EN/FR)	Science through Rap	Wen Yi Song (ATLAS Canada, York University)	Bianca Ciungu (ATLAS Canada Toronto MS)
12:45 PM		LIGO, University of Glasgow	CMS - CERN, University of Notre Dame	CMS - CERN, Collaborative Artist from Montreal working in France	Consensus	LIGO, University of Glasgow	BEER, University of Birmingham	CMS - CERN, Collaborative Artist from Montreal working in France	Consensus	LIGO, University of Glasgow	CMS - CERN, University of Notre Dame	CMS - CERN, Collaborative Artist from Montreal working in France	Consensus	LIGO, University of Glasgow	BEER, University of Birmingham	CMS - CERN, Collaborative Artist from Montreal working in France	Consensus		
1:00 PM	Workshops and Activities in Exhibit Area																	Lisa Cole	Lisa Cole
1:15 PM	Activities in the exhibit area	Martin Hendry	Tom McCauley	Michael Hoch and Brigitte Tessier	Antoine Gittens-Jackson	Martin Hendry	Scott Wilson	Michael Hoch	Antoine Gittens-Jackson	Carl-Johan Haster	Tom McCauley	Michael Hoch	Antoine Gittens-Jackson	Heather Fong	Scott Wilson	Michael Hoch	Antoine Gittens-Jackson	Consensus	Vincent Pascuzzi (ATLAS Canada Toronto F)
1:30 PM	Prompts?	30 students	30 students	20 students	20 students	30 étudiants	30 étudiants	20 étudiants	20 étudiants	30 students	30 students	20 students	20 students	30 students	30 students	20 students	20 students	Brigitte Tessier	
1:45 PM	Interaction with staff, scientists in the staff	Room: RPS Hall	Dry Lab	Exhibit Area	Room: Studio 3	RPS Hall	Workshop 4	Aire d'exposition	Salle: Dry Lab	Room RPS Hall	Workshop 4	Exhibit Area	Room: Studio 3	Room: RPS Hall	Workshop 4	Exhibit area	Dry Lab	Bianca Ciungu (ATLAS Canada MSc Student, Toronto)	
2:00 PM	Artists present in exhibit area	Activities in Exhibit Area with Q & A				Activités dans l'aire d'exposition (questions et réponses)				Activities in Exhibit Area with Q & A				Activities in Exhibit Area with Q & A					
2:15 PM																			
2:30 PM	Departure at 2:30 pm	Departure at 2:30 pm				Départ à 2:30 pm				Departure at 2:30 pm				Departure at 2:30 pm					
		Open till 6:00 pm				Ouvert jusqu'à 6:00 pm				Open till 6:00 pm				Open till 6:00 pm					
						Evening Talk - 7:00 pm													



Science personal dialogue



Science & Creative demonstrations



Creative workshops



Specialized topic talks



General science talks

Young audience



Cloud Chamber Workshop



Life Size Photo Wall



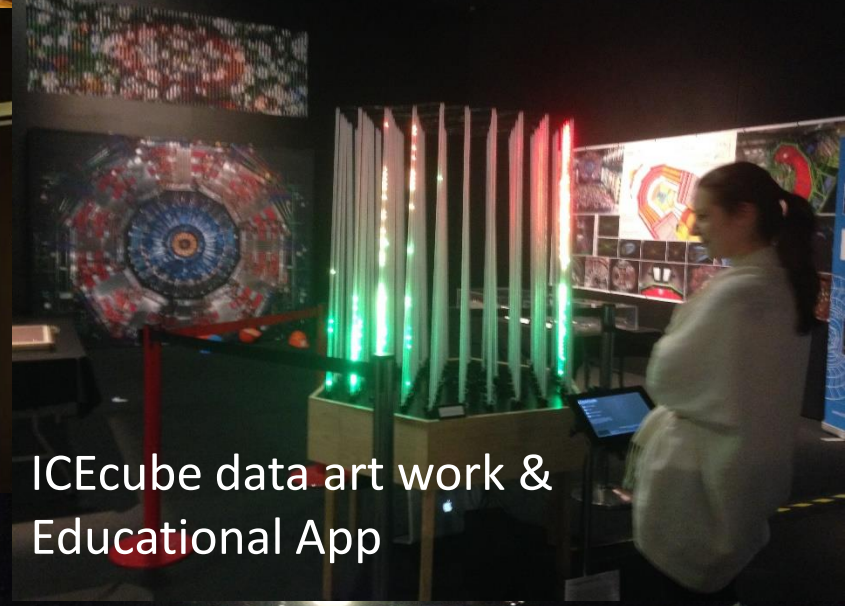
Rap Workshop



Creative Photo Wall



ICEcube data art work & Educational App



General Science Morning Introduction Talk



Exhibition & Great Conversation Evening

“Science engagement through the Arts”



LHC tunnel Photo wall



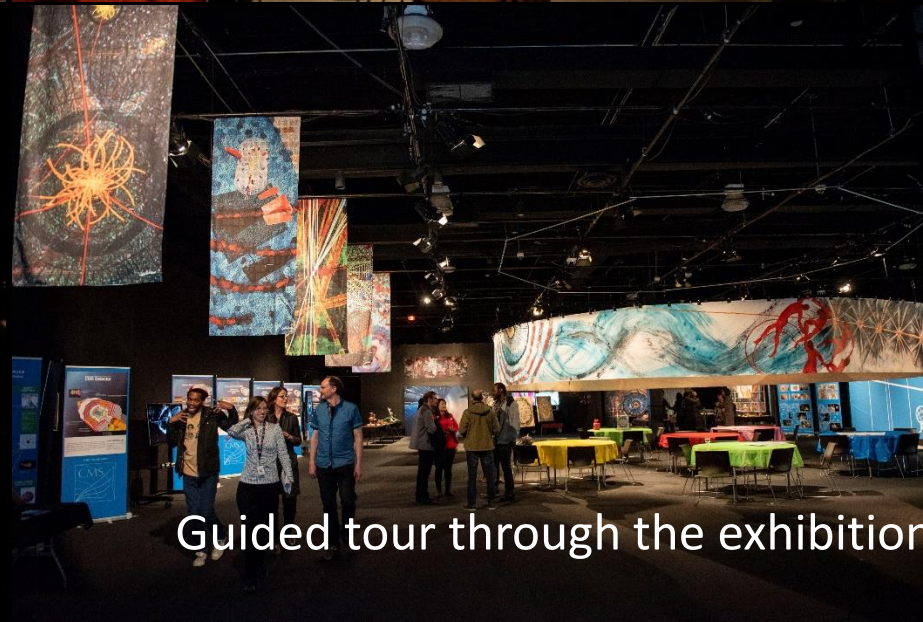
Science Centre CEO Maurice Bitrain



Direct dialogue



presentation



Guided tour through the exhibition



Entrance CMS life size photo

Concert at the Royal Music Conservatory

Scott Wilson (BEER) world premier "Dark Matter"



Data Sonification Workshop



World Premier "Dark Matter"



Pre Concert Conversation



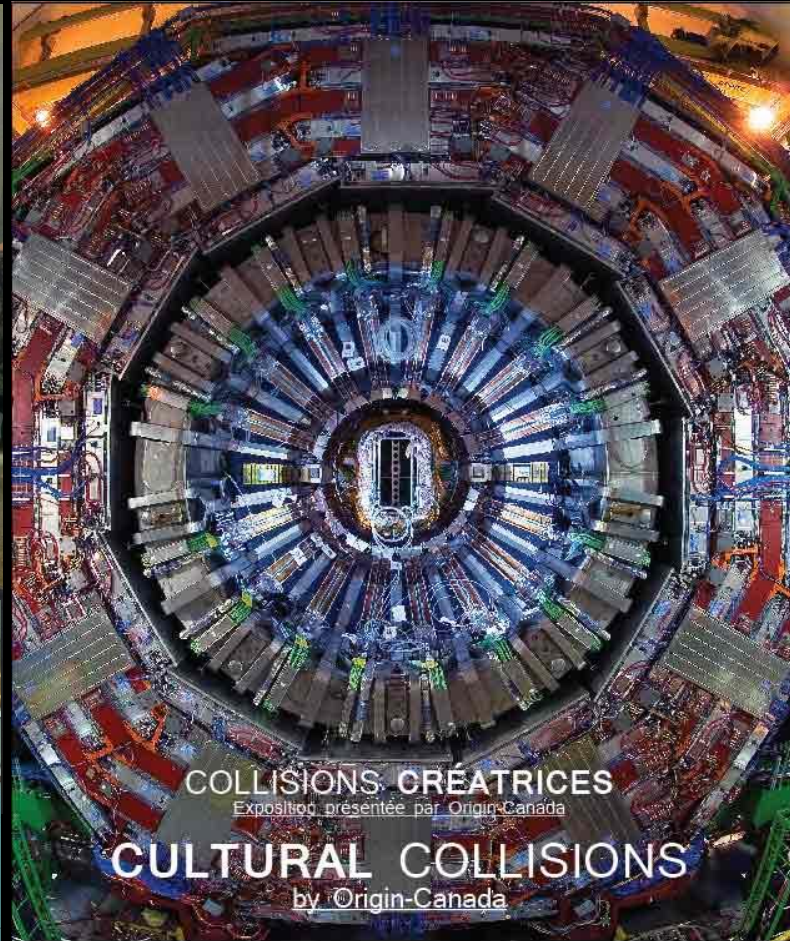
Pre Concert Conversation



OSC data sonification
Life demonstration



Second Exhibition - Student Results - artWorks



STUDENT ART ŒUVRES ÉTUDIANTES
INSPIRED BY SCIENCE INSPIRÉES PAR LA SCIENCE

From May 29 to June 1, 2018 Du 29 mai au 1^{er} juin 2018

Danforth Collegiate and Technical Institute
École secondaire Toronto Ouest
University of Toronto School





Student Exhibition Opening – Rap & Dance Performances



Rap performance & HipHop

Ontario Ministry of Education evaluation & report



*Some links to documents on the CCC project and the evaluation;
with courtesy of the Ontario Ministry of Education and Ontario Science Centre;*

Final evaluation report of the Cultural Collisions Canada

- Exploring the Nexus for Student Learning when the Arts and Science Collide

<https://originnetwork.web.cern.ch/sites/originnetwork.web.cern.ch/files/CC%20Public%20Report%20Final.pdf>

Final presentation Cultural Collisions Canada

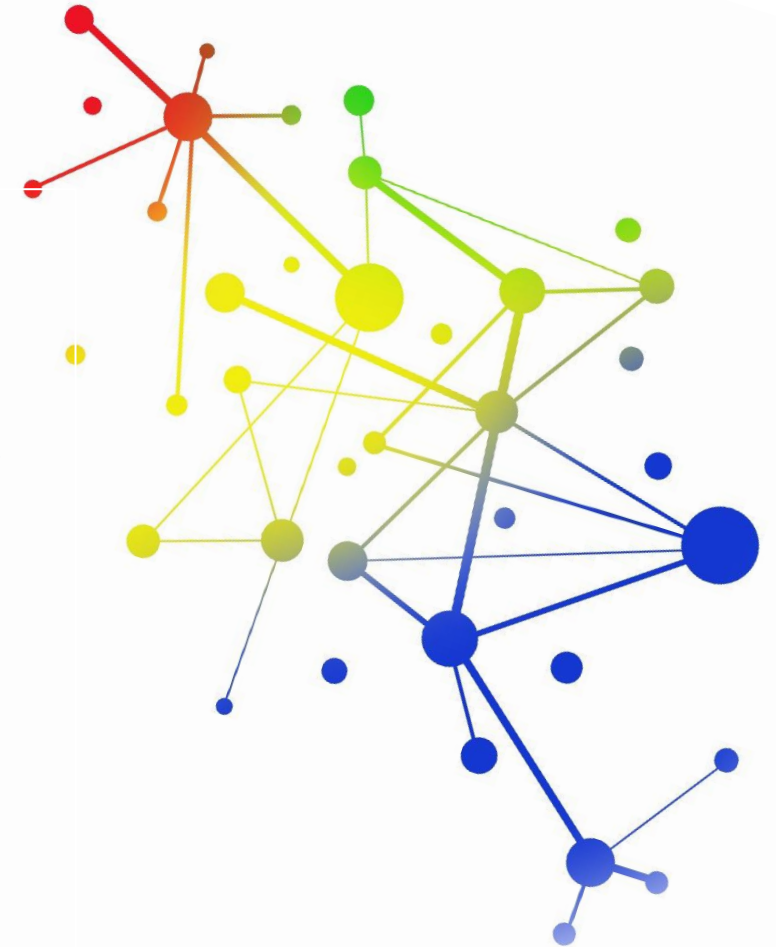
- by Toronto Science Centre & Co

<https://originnetwork.web.cern.ch/sites/originnetwork.web.cern.ch/files/OriginCanadaSlides.pdf>

video walk through the exhibition

-- Ontario Science Centre

<https://www.youtube.com/watch?v=4Hkrr1mCz7o&t=184s>



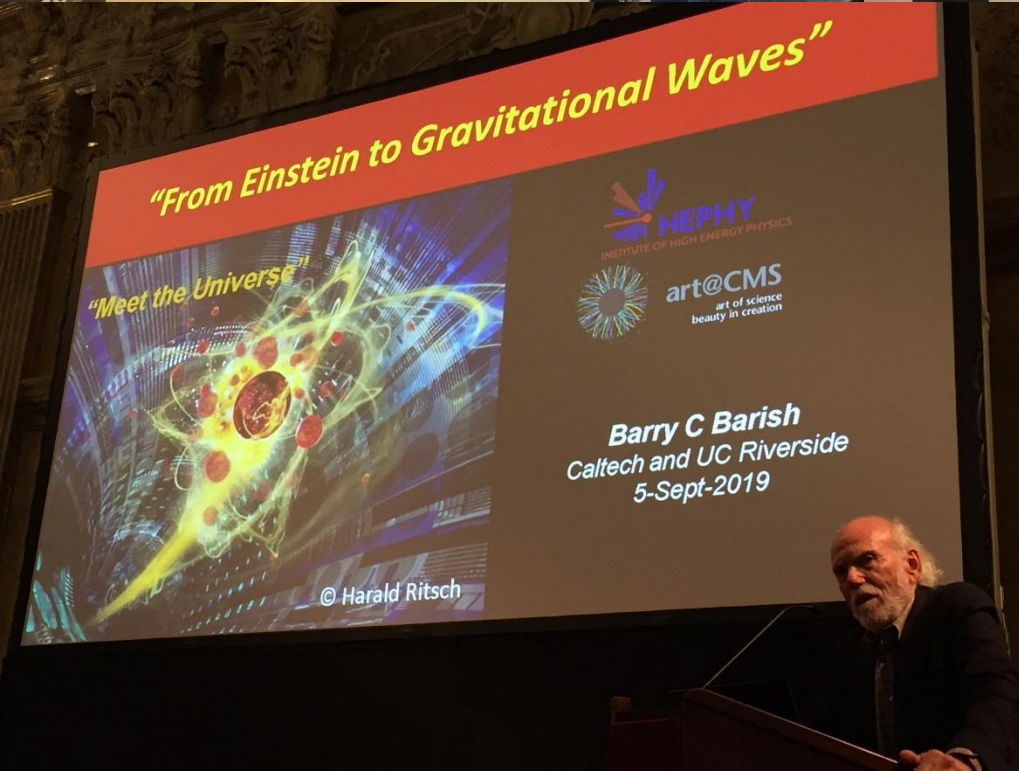
<http://originnetwork.web.cern.ch>

Cultural Collisions Vienna/ Austria

“Meet the Universe” exhibition by HEPHY Institute OeAW & ORIGIN;
exhibition ‘Aula der Wissenschaft’ September 2019; Cultural Collisions September 2019 – June 2020







Cultural Collisions Vienna outlook

cross-disciplinary science & art HUB

long terms aim

proposed Collaboration following years:

- University of Technology
- HEPHY – Austrian Academy of Science
- MUMOK – Museum for Modern Culture
- TMW - Technisches Museum Vienna
- Kultur Wien
- Bildungsdirektion Wien BDW - Vienna City School Council
- Pedagogische Hochschule Wien



Cultural Collisions Bosnia and Herzegovina

PAST, PRESENT AND FUTURE OF UNIVERSE SCIENCE&ART - CONNECTING PEOPLE

Jadranko Batista¹, Daniela Brill², Azra Gazibegović Busuladžić³, Nikola Godinović⁴,
Mirza Hadzimehmedović⁵, Michael Hoch⁶, Ivica Puljak⁴, Nemanja Rakić⁷, Christoph Schäfer⁸

¹University of Mostar, Mostar, Bosnia and Herzegovina

²Master, Science & Art, University Applied Arts Vienna, Austria

³University of Sarajevo, Sarajevo, Bosnia and Herzegovina

⁴University of Split, Split, Croatia

⁵University of Tuzla, Tuzla, Bosnia and Herzegovina

⁶FSU – Florida State University, United States

⁷University of Banja Luka, Banja Luka, Bosnia and Herzegovina

⁸CERN - European Organization for Nuclear Research, Geneva, Switzerland

Aim:

Schedule:

to Connect teams from all over BiH
November 2020 – June 2021

11 teams in 6 towns:

- Banja Luka,
- Gradačac,
- Mostar
- Sarajevo,
- Tuzla,
- Zenica

Every team consists of :

- Students
- One teacher
- One scientist
- One local artist



austrijski kulturni forum^{sar}

DAADCONNECT2020



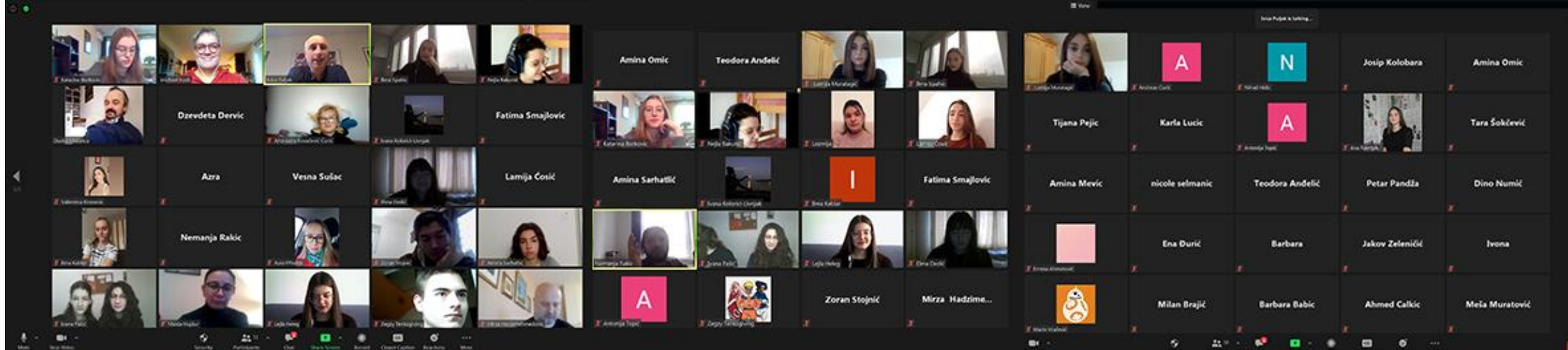
Schedule & Planning:

1. **Pre Opening:** install in 4 cities small local inspiration exhibitions:
 - 18 printed posters sent to each town to create 4 local science & art exhibitions for inspiration.
 - All 4 exhibitions sponsored by ACF and DAAD stay permanently with local partners.
 2. **Kick-off online Symposium:** – 6 and 7 Nov 2020; <https://indico.cern.ch/event/970862/>
 3. **First Ideas Exchange Session:** -12 Dec 2020; <https://indico.cern.ch/event/1015445/>
 4. **Second General Rehearsal Session:** - Feb. 16th 2021; <https://indico.cern.ch/event/1005605/>
 5. **Virtual Visit to CERN / CMS:** - March 25th 2021; <https://indico.cern.ch/event/1018237/>
 - Plenary session contributions by director Austrian Cultural Forum, Science Minister Sarajevo, Vice Rector Univ. Banja Luka, Art Gallery Director Mostar
 - Introduction Presentation & Virtual Visit to CMS/ CERN followed by Q&A session
 6. **3rd General Rehearsal session:** - May 26th 2021: <https://indico.cern.ch/event/1041786/>
 7. **Closing Hybrid-Vernissage:** - June 18th 2021: <https://indico.cern.ch/event/1047913/>
 - International Zoom Conference + 2 physical presents Vernissages (Sarajevo + Banja Luka)
 - Student presentation + Plenary Session with local partners
- **Preview: Kick Off of Cultural Collisions Cycle 2021/2021: Autumn 2021**

Virtual Visit to CERN / CMS

Dates: March 25th 2021, CERN/CMS virtual visit:

<https://indico.cern.ch/event/1018237/>



Program:

- 10:30 Welcome / Prof. dr. **Mirza Hadžimehmedović**, University of Tuzla
- 10:33 Cultural Collisions – Sci&Art, Dr. **Michael Hoch**, FSU Tallahassee USA
- 10:40 Dir. **Sabine Kernthaller**, MA, Austrian Cultural Forum Sarajevo
- 10:45 Dr. sc. **Melika Husić-Mehmedović**, Science Minister, Higher Education and Youth, Kanton Sarajevo.
- 10:50 Prof. dr. **Biljana Antunović**, Vice-Rector for International and Interuniversity cooperation University of Banja Luka
- 10:55 **Dalibor Nikolić**, Galery Kraljica Katarina Kosača, *Mostar*
- 11:00 START CERN - CMS VIRTUAL VISIT
 - lecture: Prof. dr. **Ivica Puljak**, University of Split
 - guide at CERN/ CMS: Dr. **Michael Hoch**, FSU Tallahassee USA
- 12:00 Question and Answer session with all experts
- 12:30 Closing

Number of online participants following the zoom event: 556



Cultural Collisions Bosnia & Herzegovina

Hybrid Vernissage June 18th 2021

PAST, PRESENT AND FUTURE OF THE UNIVERSE - SCIENCE & ART CONNECTING PEOPLE

13h – 16h20 General Session:
Students of 6 different cities present the results of their creative dialogue Sarajevo, Banja Luka, Mostar, Tuzla, Zenica, Gradačac

16h30 – 18h General Discussion:
Michael Hoch, ORIGIN program leader
Ivica Puljak, ORIGIN regional coordinator/ Split Mayor
Mirza Hadžimehmedović, ORIGIN Bosnia & Herzegovina coordinator
Sabine Kernthaller, Director Austrian Cultural Forum/ Austrian Embassy Sarajevo
Marcus Bleicher, DAAD /CONNECT 21 project leader
Christoph Schäfer, CERN
Melika Husić-Mehmedović, Minister Higher Education and Science, Sarajevo
Mirza Dautbašić, Vice Rector UNSA
Sanja Bijakšić, Vice-Rector University of Mostar
Elvis Baraković, Minister for Science & Education Tuzla
Vesna Bratovčić, Vice Rector IR UNTZ
Jasmin Imamović, Tuzla Mayor
Srđan Rajčević, Minister Science and Technology, Higher Education Republika Srpska
Goran Trbić, Dean Faculty of Natural Sciences and Mathematics, University of Banja Luka
Biljana Antunović, Vice-Rector for International and Interuniversity Cooperation, University of Banja Luka
Suzana Gotvac Atlagić, Assistant Prof. RMSchools Ambassador at Schools 4.0. EIT

Program:
<https://indico.cern.ch/event/1047913/>
Zoom: <https://cern.zoom.us/j/68405785504?pwd=dU13dG9mOVNtL0FVc052NHJlczFqUT09>
Zoom Meeting ID : 68405785504

Venue:
Sarajevo Druga Gimnazija, Sutjeska 1, Room: Kuća Znanja [13h - 18h]
Banja Luka University, Prirodno-Matematički Fakultet, Mladena Stojanovića 2, [13h - 18h]
Banja Luka Studentsko pozorište Banjaluka, Ulica Veselina Masleše 20; [20h - 22h].



Hybrid Vernissage June 18th 2021

Online Zoom conference

&

2 physical Vernissages venues

- Sarajevo
- Banja Luka

EPS2021 Jul 31st Aug.3rd

conference contribution
Poster session

Paper in preparation

CULTURAL COLLISIONS

Bosnia and Herzegovina

A creative approach to engage on scientific topics.
November 2020. - June 2021. Authors Jadranko Batista 1, Daniela Brill 2, Azra Gazibegović Busuladžić 3, Nikola Godinović 4, Mirza Hadžimehmedović 5, Michael Hoch 6, Ivica Puljak 4, Nemanja Rakić 7, Christoph Schäfer 8



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- 4) University of Split, Split, Croatia
- 5) University of Tuzla, Tuzla, Bosnia and Herzegovina
- 6) FSU – Florida State University, United States
- 7) University of Banja Luka, Banja Luka, Bosnia and Herzegovina
- 8) CERN – European Organization for Nuclear Research, Geneva, Switzerland

Abstract

Cultural Collisions is a novel cross-disciplinary science engagement, networking and education programme designed to stimulate the interest of high school students in science by introducing the methods and concepts of art and creativity into their standard science studies. It is based on a unique collaboration of international, national and local partners (scientists, artists and educators), using modern communication tools which in particular facilitate the participation of in city base or rural communities. It provides access to and is supported by science centres and museums through workshops and exhibitions. Cultural Collisions Bosnia and Herzegovina has brought together 11 working groups in 6 different Bosnian cities and has been run entirely online.

During a whole school year, a total of 130 students participated in workshops and 556 in complementary events, including virtual visits and public lectures. They were supported by a unique collaboration of their teachers, local artists, local and international scientists, and demonstrated strong interest and enthusiastic engagement. Their commitment and efforts have resulted in an enhancement of their skills, an improved understanding of big science questions, scientific methodology, and an enhanced ability to discover creative solutions to complex problems. Furthermore, the programme demonstrates that the creative approach to engage on scientific topics encourages an increase in the participation of girls. The program is organized by ORIGIN/CMS following the Cultural Collisions methodology of previous successfully disseminated programs in Canada, Germany, Switzerland and Austria.

6 Different Bosnian cities **11** Working groups **130** Students participating in various workshops

- Cultural Collisions is divided into 3 phases:
1. **Interdisciplinary exhibition / lectures and Workshops:** (beginning of School Year e.g. September or October) - science, technology and art exhibition lectures and workshops held by scientists and artists.
 2. **Elaboration of the topics at schools: (e.g. October – May)** - further research and work of the students with creative supervisors in dialogue with science teachers at the schools. Several event should be offered: ideas exchange rehearsal sessions, mentoring and discussion sessions with in international partners/ Virtual Visits to large international Science experiments e.g. CERN
 3. **Final presentation of the students' works: (end of School Year; e.g. May or June)** - exhibition of the themes/artworks created by the students in a museum, possibly again with a supporting program.



Each team consisted of:

- Students
- One scientist
- One local artist
- One teacher

October 2020 - Pre Opening: installation in 4 cities local permanent inspiration exhibitions sponsored by ACF and DAAD
6th and 7th Nov 2020 - Kick-off online Symposium: - <https://indico.cern.ch/event/970862/>
12 Dec 2020 - First Ideas Exchange Session: - <https://indico.cern.ch/event/1015445/>
Feb. 16th, 2021 - Second General Rehearsal Session: - <https://indico.cern.ch/event/1005605/>
March 25th, 2021 - Virtual Visit to CERN / CMS - <https://indico.cern.ch/event/1018237/>
May 26th, 2021 - 3rd General Rehearsal session: - <https://indico.cern.ch/event/104786/>
June 18th, 2021 - Closing Hybrid-Vernissage: - <https://indico.cern.ch/event/1047913/>





<https://www.connect2020.online>



time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
		Registration and Testing from 8:00				
09:00 - 09:30	Arrival	Opening and Introduction Marcus Bleicher / Mirza Hadzimedmedovic	Video editing and camera motion tracker Mirza Hadzimedmedovic	Science communication during pandemics Jelena Kollinc	Education system reform Jadranka Batara	Online Science Communication Tijana Prodanovic (online)
09:30 - 10:00		Project writing Sara Caci	Augmented reality technology in education Ksenija Vukob	Iba Milica Babacan (online)	Multidisciplinary approach for science popularization Nermina Rasic	International Networks Marcus Bleicher
10:00 - 10:30		How to write a project proposal and get funds Elvin Almetovic	Can Hasbro help with science popularization? Dulica Maralica	Hands-on session 3	Hands-on session 5	orig@CMS Michael Hoch
10:30 - 11:00		Coffee	Coffee	Coffee	Coffee	Coffee
11:00 - 11:45		Introduction to Science Communication Suzana Vogel	Storytelling Bradley van Paridon	Hands-on session 4	Hands-on session 6	Future of Science and Humanity Ivica Puljak
11:45 - 12:30						Presentation preparation Marina Maralica
12:30 - 14:00		Lunch	Lunch		Lunch	Lunch
14:00 - 16:00		Dialogue Forum, Prejudging Groups for hands-on sessions	Dialogue Forum	Common excursion	Dialogue Forum	Dialogue Forum, Preparation for final presentations
16:00 - 16:30		Coffee	Coffee		Coffee	Coffee
16:30 - 18:00		Starting projects / Hands on session 1	Hands on session 2		Hands-on session 7	Final Presentations
18:00 - 18:15	Wrap-Up	Wrap-Up	Discussions / Social Dinner	Wrap-Up	Wrap-Up	



DAAD - CONNET2021 Collaboration with ORIGIN-CMS Cultural Collisions Bosnia and Herzegovina Neum/ Bosnia August 8th – 14th 2021

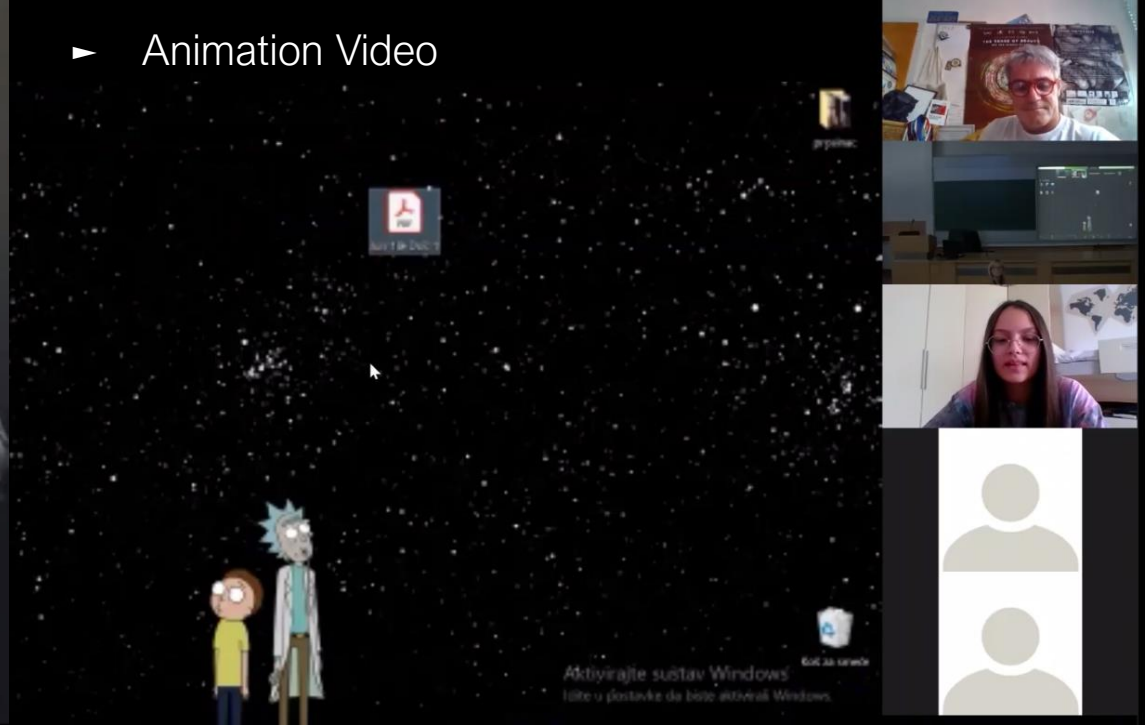


▶ Round Table Discussion

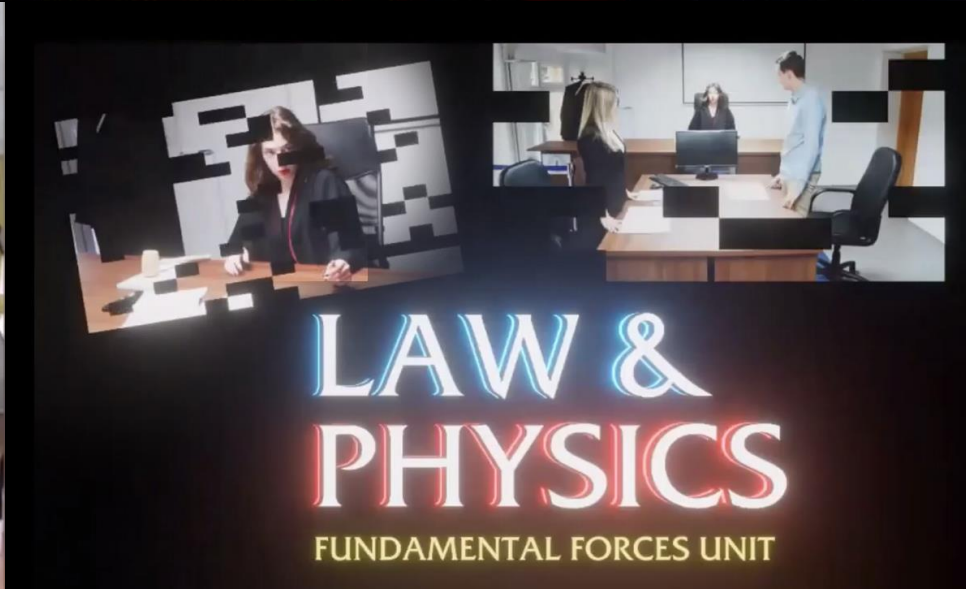


Mira-I research the black holes and that's what attracted me to this project.

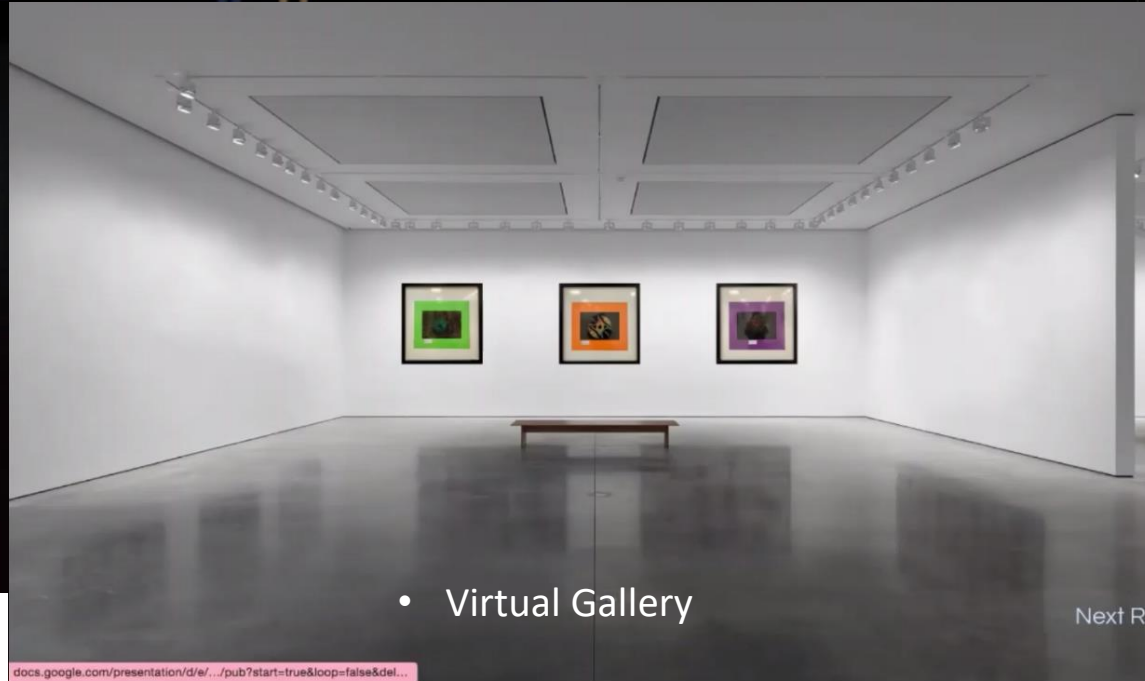
▶ Animation Video



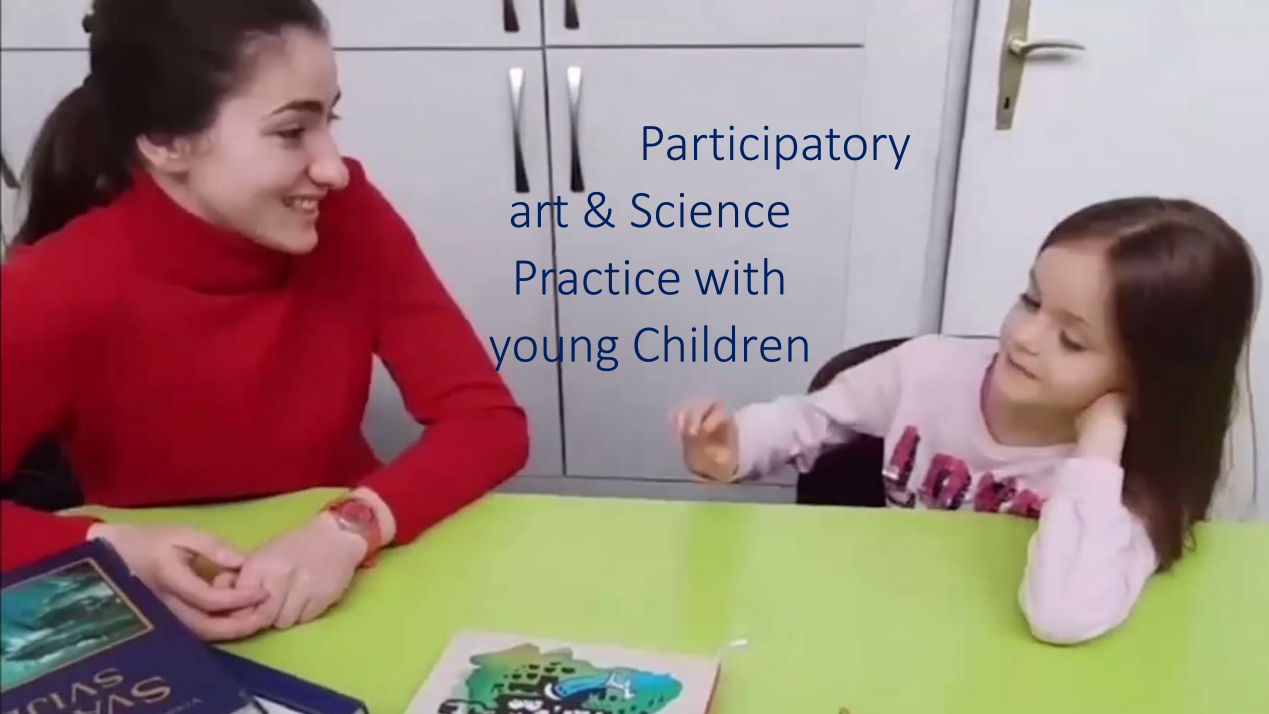
▶ Creative Production



▶ TV Serie Law & Physics Court Room



• Virtual Gallery



Participatory
art & Science
Practice with
young Children



Theatre Play & Poems



Stop Motion Film



Dance Performance Video

- **Excellent first cycle kick-off – program designed for long term engagement**
- **Enthusiastic Participation and Strong Engagement of Various Communities contributed to the Outstanding Success:**
 - Students / Teachers
 - Regional scientist groups / international science community
 - Local art community / international guests
 - Local and regional support by political opinion leaders, academic institutions
 - Galleries, Theatre, Schools, Radio Stations, TV stations
 - International support by diplomatic institutions
- **Excellent Networking and support by local scientists and local creative & art community**
 - Enthusiasm level high particularly among students and supervisors
 - Passionate engagement of regional and international science community
 - High interest of opinion leaders, higher education institutions as well as local and regional creative community
- **Next steps Cultural Collisions Bosnia and Herzegovina 2022**
 - **Enlarge & Network in the region: Bosnia, Croatia, Montenegro, Serbia**
- **Prepare for funding to make it sustainable**

Cultural Collisions Croatia



Video of walk through the exhibition: <https://youtu.be/XYIDehGg4Xs>

workshop program:

Workshop 1: Thursday 15h

- Gravitational waves - building interferometers
- Martin Hendry, Chiara Mariotti, Nikola Godinović with teachers and students from the Science and Math gymnasiums
- Number of students: about 20 + few teachers

Workshop 2: Thursday 17h00

- Higgs boson discovery - event display
- Claire Adam Bourdarios, Chiara Mariotti, Ivica Puljak with teachers and students from the Science and Math gymnasiums
- Number of students: about 20 + few teachers

Workshop 3: Friday 15h

- Gravitational Waves - extreme processes in the universe
- Martin Hendry, Nikola Godinović with teachers and students from the Art school
- Number of students: about 20 + few teachers

Workshop 4: Friday 17h00

- Creating musics with physics - Arduino and other platforms programming
- Chiara Mariotti, Michael Hoch, Ivica Puljak with teachers and students experienced in robotics + a teacher of music
- Number of students: about 20 + few teachers

Workshop 5: Friday 18h30

- Origin and evolution of universe
- Nikola Godinović, Ivica Puljak with primary school teachers and students

public lectures program:

Tuesday 18h30

Thursday 18h30

Thursday 20h00

Godinovic

Friday 18h30

Science & Art - Michael Hoch

Listening to Einstein's Universe – the Discovery of Gravitational Waves – Martin Hendry

Round Table Discussion - Understanding the World Through Arts and Science – Nikola

LHC physics – James Beacham



Cultural Collisions by ORIGIN - Croatia



Science: from Astrophysics to Particle Physics

- First exhibition September 17th – 22th 2018 Venue: **Old City Hall**
Research & Inspiration for students
- Second exhibition: do be fixed still
- Public presentation and talks during the **LHC Days in Split / Palazzo Milesi**

Art: International art@CMS collaborative artists and local artists

Organization:

University of Split: general organization

art@CMS: Exhibition curation

ORIGIN: Scientific curation

ORIGIN – South East Europe :

art@CMS, ATLAS, CERN, CMS, LIGO/VIRGO, Muographer, University of Split



Cultural Collisions –Croatia train the trainers

During the main exhibition we trained students from primary and secondary schools to act as lectures for following (see next slides).



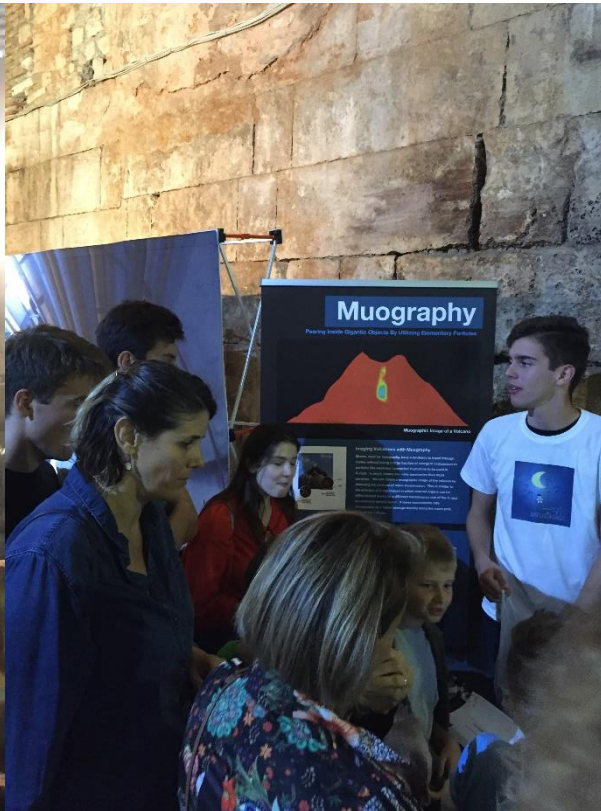


Cultural Collisions – Split /Croatia by ORIGIN

Researchers night – September 28th

Format: students we trained become lecturer to general public and training other students.

Audience during the researchers night: few thousands citizens



Cultural Collisions – Split /Croatia

by ORIGIN

Four secondary schools – one primary school



Format: exhibition and lectures, one day

Exhibition presented by **trained students**

Lectures given by **CMS scientists**

Audience:

Primary School – 100 students participating

Secondary School : ~500 secondary students





Cultural Collisions – Split /Croatia

Visiting primary school – October 2nd

Format: exhibition & lectures, one day

Audience: about 100 primary school students



Cultural Collisions – Split /Croatia by ORIGIN

Primary school visit – October 29th

Format: lectures with trained student, training & participation





Cultural Collisions, Imotski / Croatia by ORIGIN

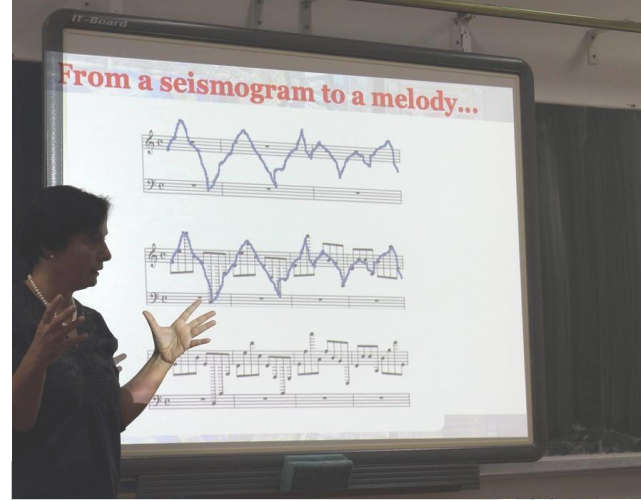
Exhibition and Concert, October 27th 2018

Format: Exhibition, masterclass, lectures, concert with French and local orchestra

-2 workshops in parallel with 2 teams:

Physics & Music, Gravitational Waves, Playing with data

Audience: 400 students of 4 school attending lectures and 70 students workshops participants



Cultural Collisions Montenegro

art@CMS – Art University Collaboration

Gallery National Museum, Cetinje/ Montenegro October 2018

Format: art exhibition lectures and Cultural Collisions workshop start 3 schools 85 students

Event is the final show of our 2 semester course “art@CMS – Art University Collaboration, 2017/ 2018”
Presentation: Final presentation of 5 university art students + art@CMS collaborative artists

Video walk through the exhibition : <https://youtu.be/UUnBDYhiSlk>



Cultural Collisions BiH

Science & Art, Sarajevo /Bosnia by ORIGIN -
Fine Art Academy, 15th -22nd October 2018

Format: cross disciplinary exhibition ORIGIN, public lectures in the exhibition

Audience: general public and about high school **students 400 attending lectures**

Further remark: Art university Sarajevo requests of art university collaboration



Cultural Collisions BiH

LHC workshop & cross disciplinary exhibition Akademia Shkencave Tirana / Albania October 2018

Format: 2 day science workshop enhances by “light art exhibition”, aim: inspire students and general public and build up interest in our science community

Audience: 3 guided tours with High School students + general public conference



Cross-Disciplinary Exhibitions

Seoul, Korea
Daejeon, Korea
Mustar, Oman
Chateau d'Oex

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p65





May 20th – October 30th

THE COSMONAUT

우주+人, 과학으로 풀고 예술로 빛다

THE COSMONAUT- a contemporary SciArt exhibition

2021.05.20. THUR – 2021.10.30. SAT

The **Hanyang University Museum** is proud to present a special **international exhibition, ‘The Cosmonaut’**, which explores the relationship between the cosmos and humans through science and art. It introduces and brings together **scientists and artists** who have wondered about the **origin of the universe**.

The international curator of the exhibition, Dr. Michael Hoch, a CMS scientist and artist based at **CERN**, introduces **through art the beauty of the CMS detector**, one of the experiments which discovered the Higgs particle in 2012. Another **CERN experiment, ALICE**, is also featured, along with exhibits from the Nobel Prize winning gravitational wave research team **LIGO**, and the Antarctic neutrino detection team **IceCube**. The Korean teams of **CMS, ALICE, LIGO and ICEcube are partners in the ORIGIN network** supporting **cross-disciplinary science engagement, global networking and education**.

Korean scientists participate in all of these experiments and their work is featured in the exhibition alongside artworks of Korean artists who create their own universe in original ways.

The actual **exhibition is supported by an online exhibition** that opens the possibility to view it from anywhere via the internet. In addition, there is a **program of educational activities** such as science and art workshops, presentations, round table discussions etc.

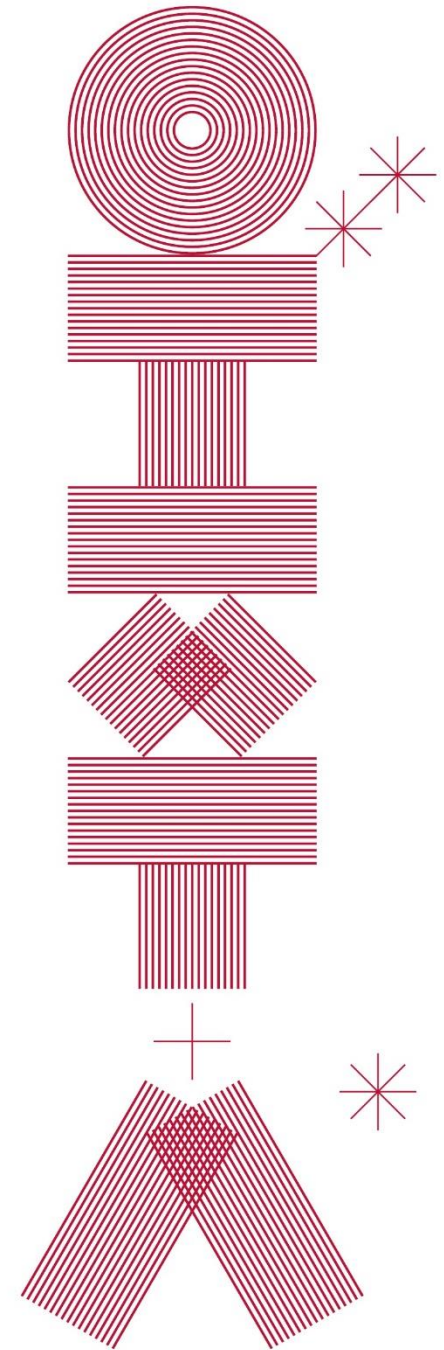
In the time of Pandemic, please join us on this special SciArt journey to space beyond Earth. Director,

Hanyang University Museum, Ahn, Shinwon

The Cosmonaut

by ORIGIN-CMS

- Where: Seoul /South Korea
- Venue: Hanyang Museum, ~ 800m² exhibition
- When: opening 20th May– 30th October 2021
- Topics: from particle physics to astrophysics
- Who: CMS, ALICE, CERN, LIGO, ICEcube = reginal ORIGIN network
- Artists: 4 Local artist and M. Hoch
- Local responsible: Tae Jeong Kim
- Concept: Michael Hoch



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THE
COSMONAUT

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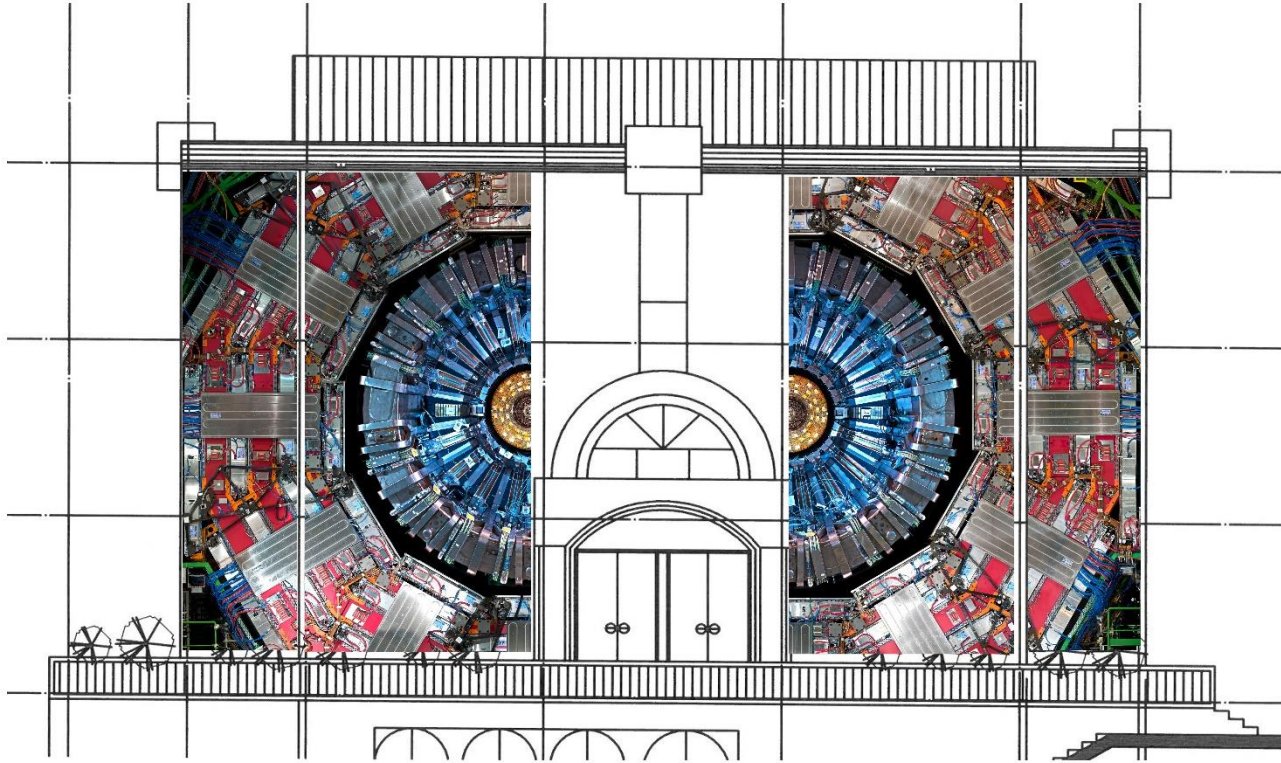
우주+人,

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Museum becomes CMS



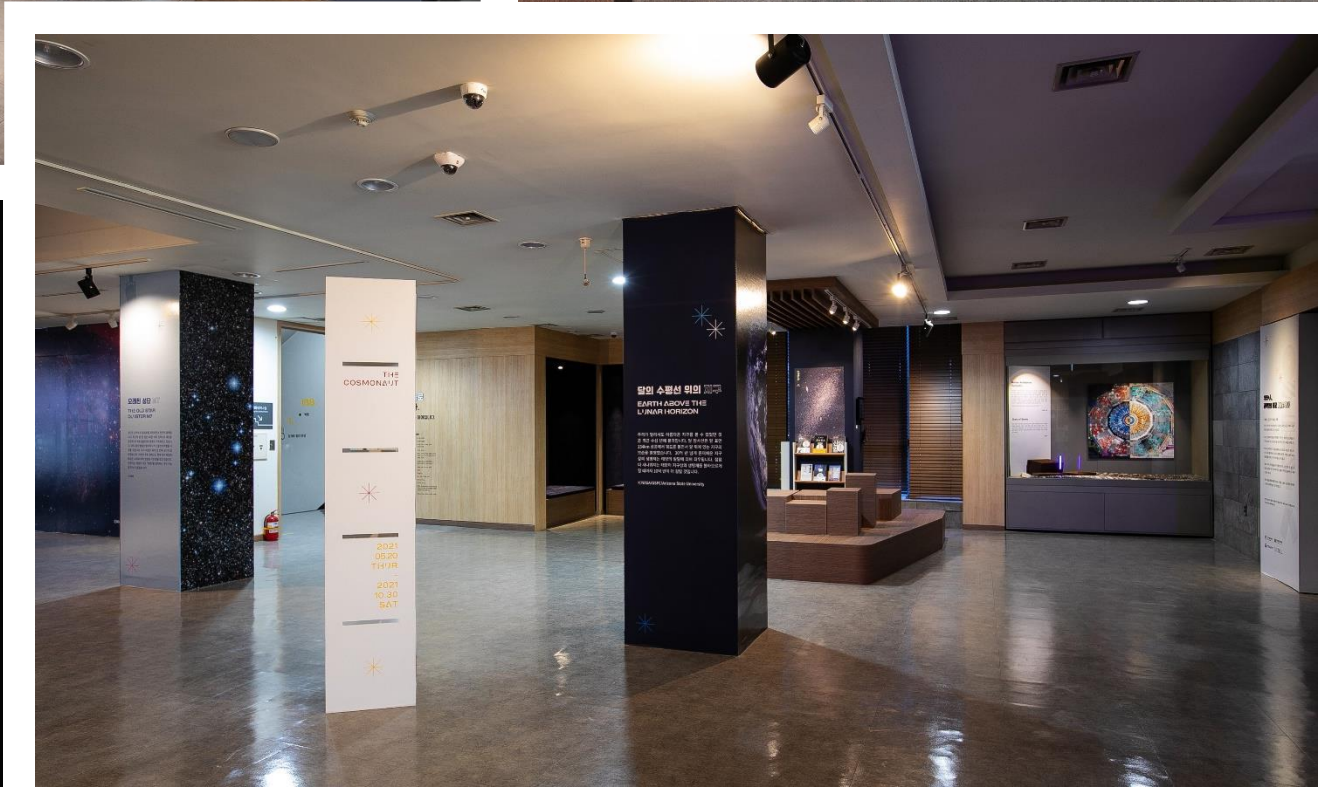
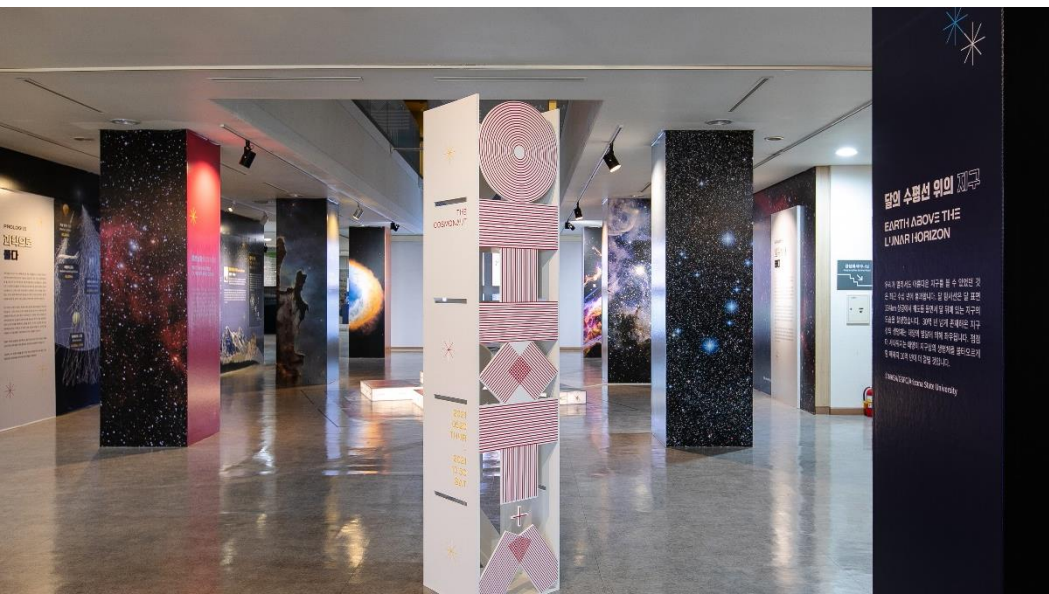
Video: "MUSEUM becomes CMS":

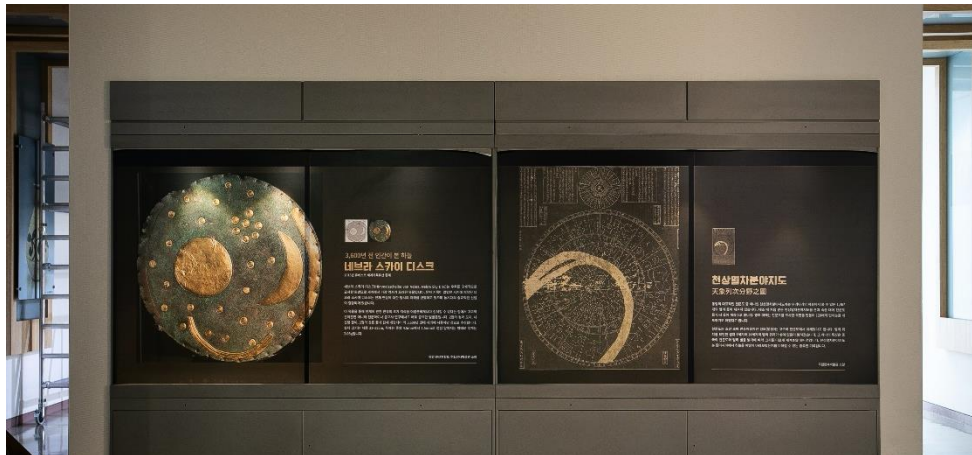
<https://youtu.be/91rQ2irmsjo>

Art Teaser Video

[\(274\) 메인서브 합 마이클호치박사님 - YouTube](#)







IBS cultural centre, Daejeon/ Korea

April 24th – July 26th 2019

next exhibition venue in preparation; Seoul (April – July 2020)



T H E
A R T
O F
SCIENCE

과학의 아름다움

IBS <신을 쫓는 기계> 展 기념 마이클 호처 작가 대중강연

2019.04.24.wed. 17:00 — 18:00

IBS 본원 이문동 8109 | 대전광역시 유성구 엑스포로 55 기초과학연구원





Cooperation with the Ministry of Education Oman Oman Science Festival 2019

Michael Hoch for CMS and the art@CMS & ORIGIN team



Contact with Oman Education Ministry and Geneva Mission since 2015

2017, Invitation to the Oman Science Festival – Michael Hoch keynote presentation at the opening about interdisciplinary science education.



إشارة واسعة من مختلف المؤسسات التعليمية

اتفاقية تعاون بين هيئة الترقية، والشراكة من أجل التنمية، والتربية، لتدريس منهج STEM في ٣٠ مدرسة

Oman Science Festival 2019

- M. Hoch received an Invitation to present an exhibition of the style IBS cultural center Daejeon, Korea 2019 <https://www.youtube.com/watch?v=8I7V6pY0lml&t=241s>

- Requested Educational program: lectures and workshops on science & art

Target audience:

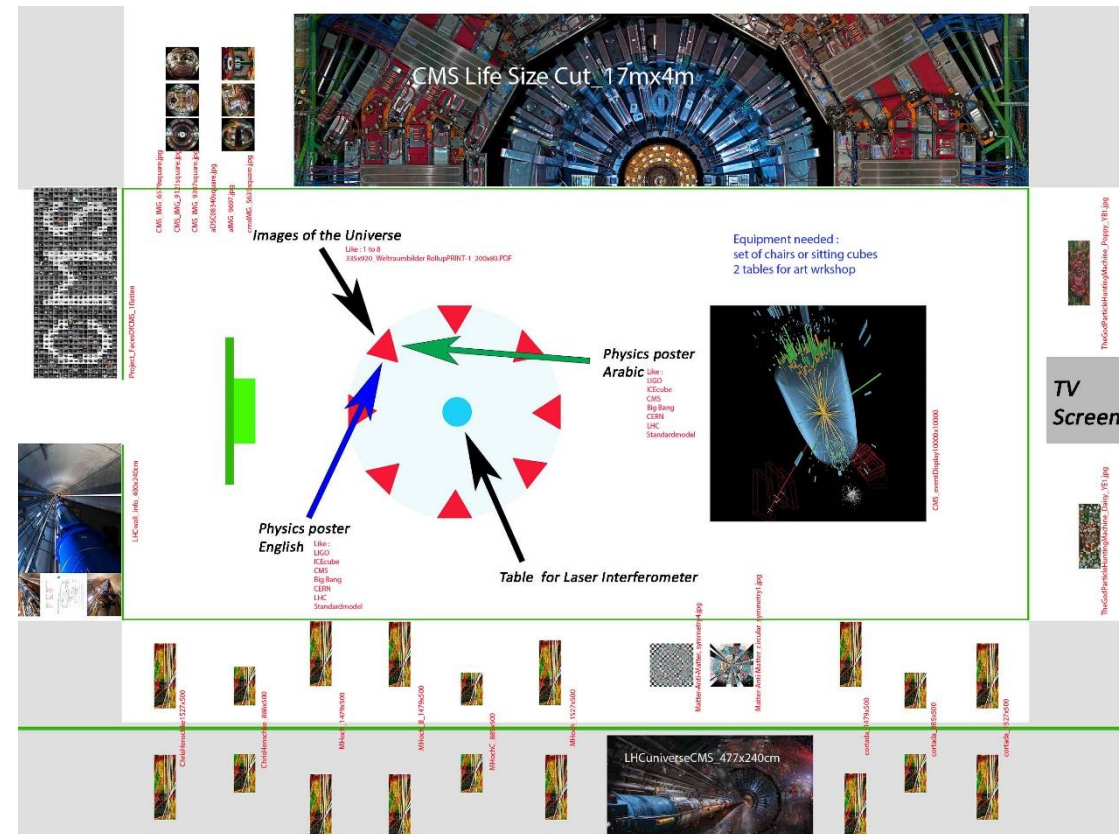
- 1) high school teacher
- 2) high school students
- 3) primary school students

- Introduce “Cultural Collisions” format, style Ontario Science Centre Toronto/ Canada 2018 for a possible project in Oman 2021

<https://www.youtube.com/watch?v=4Hkrr1mCz7o>



Floor plan OSF2019



art@CMS Korea -> ORIGIN Oman [to inspire for big Cultural Collisions]

<https://www.youtube.com/watch?v=8I7V6pY0lml&t=241s>

- Exhibition venue:

Convention Centre Muscat

'Meet the Universe' exhibition 210m²

- Science Topics:

particle physics: CERN & ATLAS, ALICE, CMS, LHCb

Gravitational waves: LIGO, VIRGO

Neutrino physics: ICEcube

- Contributions talks, lectures workshops:

Martin Hendry / LIGO

Michael Hoch / CMS

Amr Radi & Team / Local University

- Contributions material:

- Handouts CERN, ATLAS, ALICE, CMS, LHCb

- Laser interferometer : LIGO, VIRGO

- Detector Hardware: CMS



Oman Government in the exhibition “Meet the Universe”

Secretary General of the
Council of Ministers

Minister of Education



Minister of Information Technology





Using the exhibition to perform :

- Talks
- Lectures
- Guided exhibition tours
- Workshops
 - Science
 - Creative

Audience:

- Government
- High school students
- Primary school students
- University students
- General Public

- Presentations given by





Lectures by
Dr Amr Radi & SQU
team
Local Scientists,
Particle Physics/ CERN

Dr Martin Hendry LIGO
Gravitational waves &
Astrophysics

Dr Michael Hoch CMS
Particle Physics /CERN &
Educational Formats





From the right Dr Assous the head of Physics department in SQU, Dr Maya ALAzri Ministry of Education and Undersecretary of the Ministry Education
Dr Amr Radi & SQU University team in public engagement and student education





Creative workshops



Science Flash Mob



primary school student lectures

Creative workshops

Science workshop

creative teacher workshop





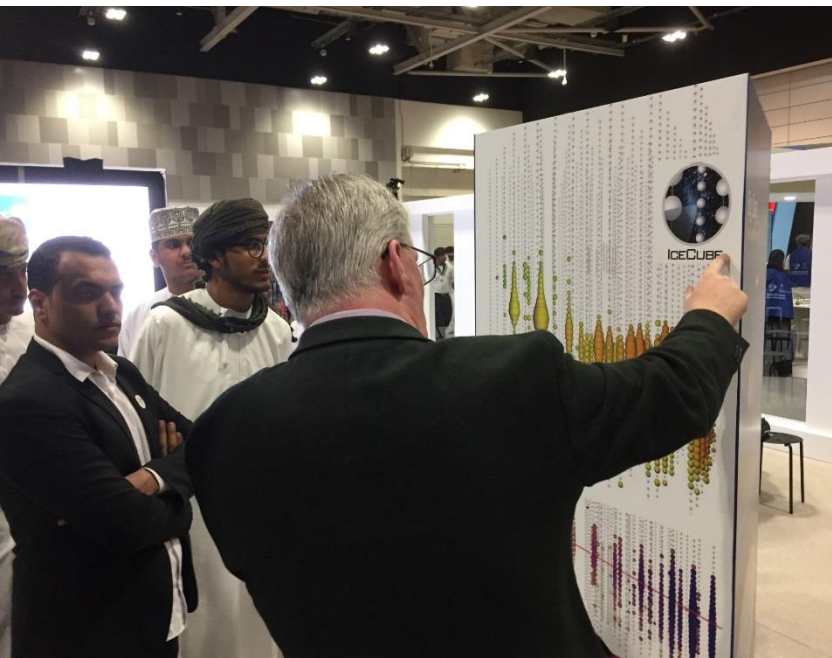
Particle Physics- masterclass
Neutrino Physics - ICEcube



laser Interferometer WS
Creative Teacher Workshop



Creative Primary School Students
CERN Virtual Visit





education material



LHC photo wall



education material



education material



space time distortion workshop



detector hardware on display



Lectures by local scientists from SQU



children workshops



astrophysics



Public engagement by local SQU University staff

“Art&Science” Balloon Museum Chateau d’Oex/ CH

April 2019 – March 2021 by art@CMS/ ORIGIN

In collaboration with University Bern, University Fribourg, CHIP, HFSJG, CMS, ATLAS

Cross disciplinary exhibition on Cosmic Ray Discovery with Balloons, lectures , Junior Scientist booklet, various science & creative lecture and workshops during Balloon Festival January 25th – February 1st 2020

ART & SCIENCE
du 4 mai 2019 au 31 mars 2020

espace **BALLON**
CHÂTEAU-D'OEX

ÉVEILLER LA CURIOSITÉ

2 chemin des Ballons - CH - 1660 Chateau-d'Oex www.espace-ballon.ch +41 78 723 78 33

Pioneers of Cosmic Rays

Entdecker der kosmischen Strahlung

Pionniers des rayons cosmiques

Albert Gockel 1860 - 1927
Professor at University of Fribourg (CH)

Victor Hess - 1883 - 1964
Nobel Prize 1936
Austrian Academy of Science Vienna, later Professor at Universities of Graz (A) and Innsbruck (A)

Werner Kohlhörster 1887 - 1946
Balloon flight 1914
Professor at the Physics Academy of Sciences

Werner Kohlhörster 1887 - 1946
Balloon flight 1914
Professor at the Physics Academy of Sciences

Ionisation increases with altitude

Electrometer around 1909

Eiger Mönch Jungfrau 4158m

Jungfraujoch 3500m
Sphinx Observatory 1931

IceCube South Pole - 2450m, 2005 - ongoing

Super Kamiokande (J) - 1000m, 1996 - ongoing

Pierre Auger Observatory (RA) 1400m, 2004 - ongoing

MAGIC, La Palma (E) 2200m, 2004 - ongoing

weather balloon 30 000m

ISS - AMS experiment 400 000m, 2011 - ongoing

Bertrand Piccard World Tour 11 700m

Air plane traveling altitude 10 000m

Werner Kohlhörster 9300m 1914

Victor Hess 5300m 1911

Albert Gockel 4500m 1909

COMMUNE DE CHÂTEAU-D'OEX
PAYS D'ENHAUT
BREITLING
CHALETBAU MATTI

“Art&Science” Balloon Museum Chateau d’Oex/ CH

Through the opening of the exhibition:

Guided tours

lectures

Junior Scientist booklet



42e Festival International de Ballons

25th January – 2nd February

Scientific Contributions by Swiss and ORIGIN partners to the festival:

25th January Saturday Opening Day

- Historic Balloon flight up to 6000m altitude with real Cosmic Ray measurement – University Fribourg
- Lecture and Workshop program from 11h30 till 19h
- key note presentation during the opening

26th January Sunday

- Lecture and Workshop program from 11h30 till 19h

29th January Wednesday – Children Day

- Lecture and Workshop program from 11h30 till 19h

1th February Saturday

- Lecture and Workshop program from 11h30 till 19h

2nd February Sunday Closing Day

- Lecture and Workshop program from 11h30 till 19h



HONDA

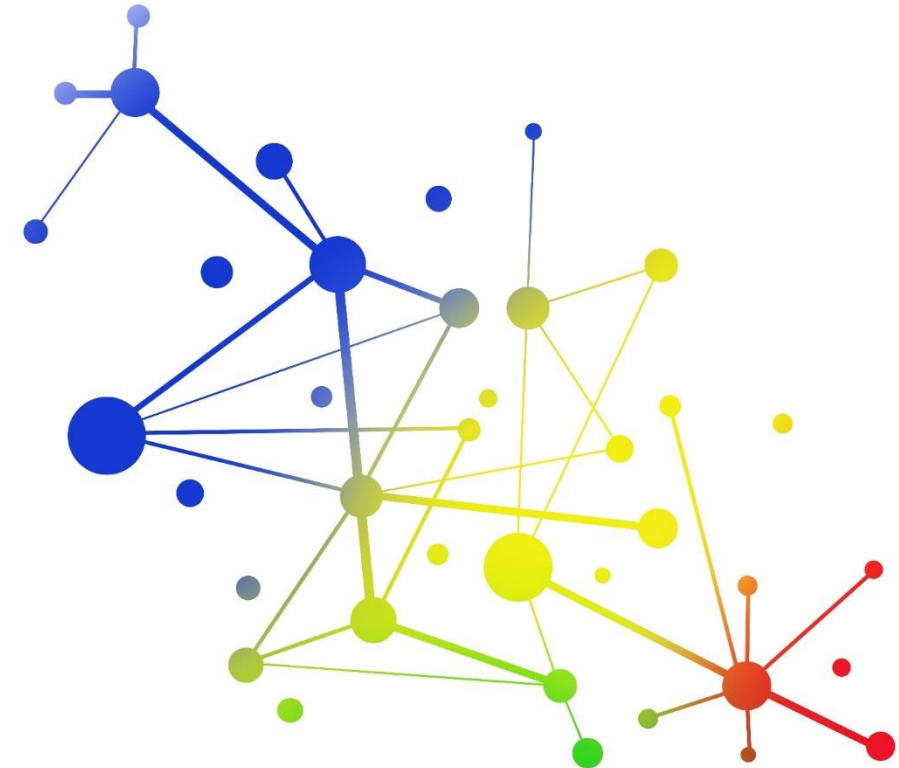


Avec le soutien des Communes de Château-d'Œx, Rossinière, Rougemont et Saanen, de Pays-d'Enhaut Région et de la Loterie Romande

Collaborations Art Universities

Collaborations recent years:

Chelsea College of Art London/ UK	2014 – 2016	(p69)
Central Saint Martins College Arts London/ UK	2016 – 2020	(p70)
Applied Art Vienna University, Vienna/ AUT	2016 – 2015	(p73)
Ecole d'Art Superieur, Lille/ France	2013 – 2015	(p75)
Art University Cetinje/ Montenegro	2017 – 2018	(p76)
KASK Royal Art Conservatory, Ghent/ BE	2017 – 2019	(p77)
SURATOMICA, Bogota/ Colombia	2018 – 2020	(p79)



Chelsea College of Arts London

1 semester sciART course October 2014-2015-2016

- supervision Prof. Dave Webster
- Weekly lectures and discussions at UAL
 - 2014/ 2015 Visit at CERN with 4 students + 4 trainees Shoreditch Trust
 - 2015/2016 - Visit at CERN 5 days, Final show TriangleSpace London June



OUR CONCERN

A collaborative project between the CMS collaboration at CERN, Camberwell, Chelsea and Wimbledon Colleges of Arts (part of UAL), the Shoreditch Trust and Allminds which involved recent Fine Art graduates from Wimbledon College of Arts and young people from the Shoreditch Trust Active Citizens programme visiting the CERN laboratory.

Friday 28th Nov 2014
 Private view: 9 - 8pm
 Restaurant Exhibition:
 • Performances
 • Food and drinks (canapes)

***Saturday 29th Nov to 9th Jan 2015**
 Restaurant Exhibition

Waterhouse, 10 Orsman Rd
 London N1 5QJ

*Please note Waterhouse will be closed for the holidays from Dec 25th - Jan 6th

University of the Arts London -Saint Martins College of Art

local scientific partner: Imperial College

2 semester sciART course October 2016 – June 2017

- 22 students supervised

Responsible: Prof. Nathan Cohen, Prof. Heather Barnett, Dr. Andrew Charalambous

- Weekly lectures at the UAL/CSM
 - Lectures from colleagues of Imperial College
 - Visit at CERN 5 days December 5 days May
 - Offered workshops at CERN during May visit
 - Final show in London June and November

Photos: <https://goo.gl/photos/VfSSqkg7cN7Ejzs97>

ARTISTS PRESENTATION EVENING

Central Saint Martins MA Art & Science students (London) present a

PechaKucha Night

Tuesday 9 May
drop in from 5pm

Restaurant 1, next to the glas box



PHOTOGRAPHY WORKSHOPS

with Central Saint Martins MA Art & Science (London) students at CERN this Wednesday – FREE

Wed 10 May 10.30–12.30pm UP TO 12 PEOPLE
Pinhole Camera Workshop
with Olga Suchanova

In this workshop, you will learn how to make a pinhole camera in a 30-minute demonstration using a special edition beer can designed and sold by Tate Modern and the basis of Olga's camera. We will take photographs with this device and develop them in a DIY darkroom. Also, you can become part of the project 'Chasing the Sun' and learn how to take Solargraphs. All materials provided.

To register, email Olga at olga.suchanova@hotmail.com

Meeting point Bldg 40 coffee area CMS side 10:25



Wed 10 May 2.30–3.30pm UP TO 12 PEOPLE
Solar Prints–Cyanotype Workshop
with Lisa Pettibone

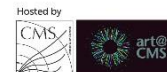
This workshop will use the sun's ultra-violet rays to interact with ferric-based chemicals on paper, creating beautiful images called cyanotypes, an early photographic process used by Sir John Herschel in 1842. We will make contact prints using objects arranged on pre-coated paper and placed in the sun. Mysterious shapes emerge from an intense blue background. Please bring several objects to use, other materials are provided.

To register email Lisa at lpettibone@btinternet.com

Meeting point Bldg 40 coffee area CMS side 14:25



for any further questions please contact Michael.Hoch@cern.ch
CERN phone 16 5720



10AM - 6PM
14 JUNE - 17 JUNE
**CSM x CMS:
ENTANGLED**
FOUR CORNERS GALLERY
121 ROMAN ROAD E2 0QN
BETHNAL GREEN - LONDON
- PRIVATE VIEW -
6PM - 8:30PM
THURS 15 JUNE

Twenty artists from Central Saint Martins' MA Art & Science respond to their visit to the CMS particle detector and CERN facilities near Geneva, in a stimulating student-led exhibition including sculpture, video, printmaking and photography.

facebook.com/entangledcsmcms

fourcorners CMS art@CMS ual: central saint martins

design by Victoria Westerman

University of the Arts London - Saint Martins College of Art

local scientific partner: Imperial College

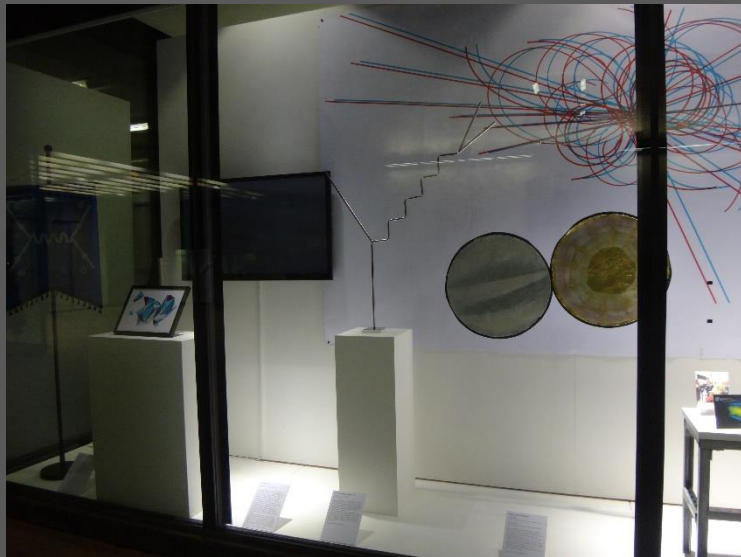
Vernissage / Exhibitions: June (Labyrinth) November (CSM) 2017



University of the Arts London -Saint Martins College of Art

local scientific partner: Imperial College

Windows Gallery Exhibition CSM –Nov 2017 Jan 2018 – Symposium November 24th
(collaboration 2019 – 2020 interrupted due to Covid March 2020)



Applied Arts University Vienna

local scientific partner: HEPHY

2 semester sciART course October 2016 – June 2017

- 2 classes each 11 students + 11 staff
responsible: Prof. Virgil Vidrich, Prof Paul Petritsch
- Weekly lectures at the Applied Arts University
 - Visit & Lectures from colleagues of HEPHY & TU
 - Visit at CERN 5 days December
 - Artwork rehearsal March
 - Particle detector construction workshop March
 - Final show in Vienna June

Photos : <https://goo.gl/photos/i6MqYfwCRgnNVs4N9>

Opening
June 6th 2017, 19:00

Accompanying Program
June 9th 2017

das weisse haus
Hegelgasse 14
1010 Vienna

EXHIBITION
JUNE 7th-17th 2017

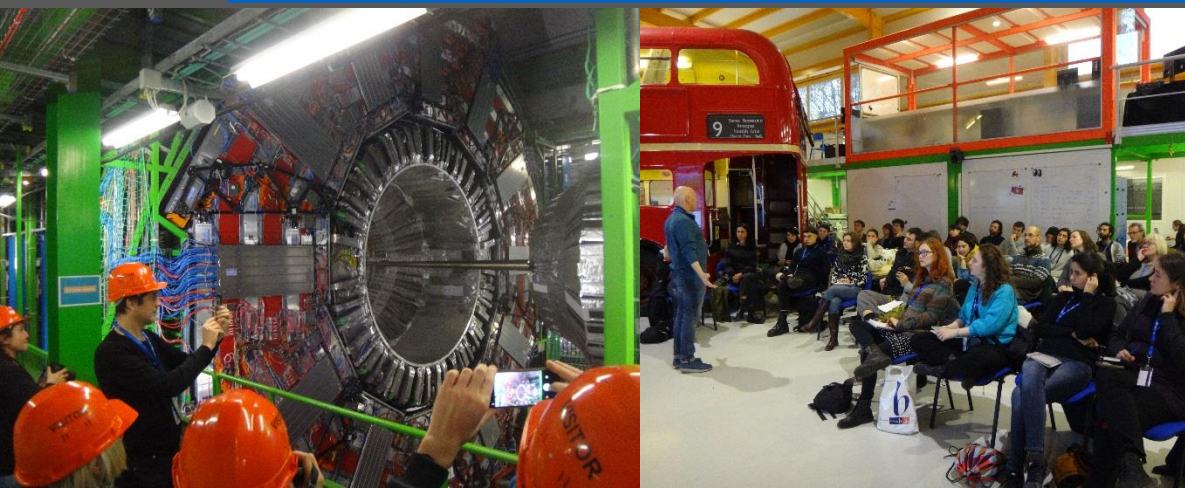
CIRCUIT TRAINING

A FORAY INTO THE WORLD OF THE LARGE HADRON COLLIDER

A project from students of the University of Applied Arts Vienna (Art@Science and Site Specific Art) in cooperation with CERN (Art@CMS and HEPHY)

Participants: Natalia Goreva, Carmelia Tarilante Rodriguez, Denise Schellmann, Athanasios Gramosis, Lukas Gritznner, Benedikt Melzl, Rosie Beem, Johanna Falkmann, Marko Markovic, Lela Nomada, Marina Rebhandl, Canan Ergin, Rafael Lippuner, Galnaz Bashiri, Andrea Vesgo, Nora Drumeva, Francesca Aldighini, Andreas Budak, Daniela Brill, Frederique Neuts Leroy

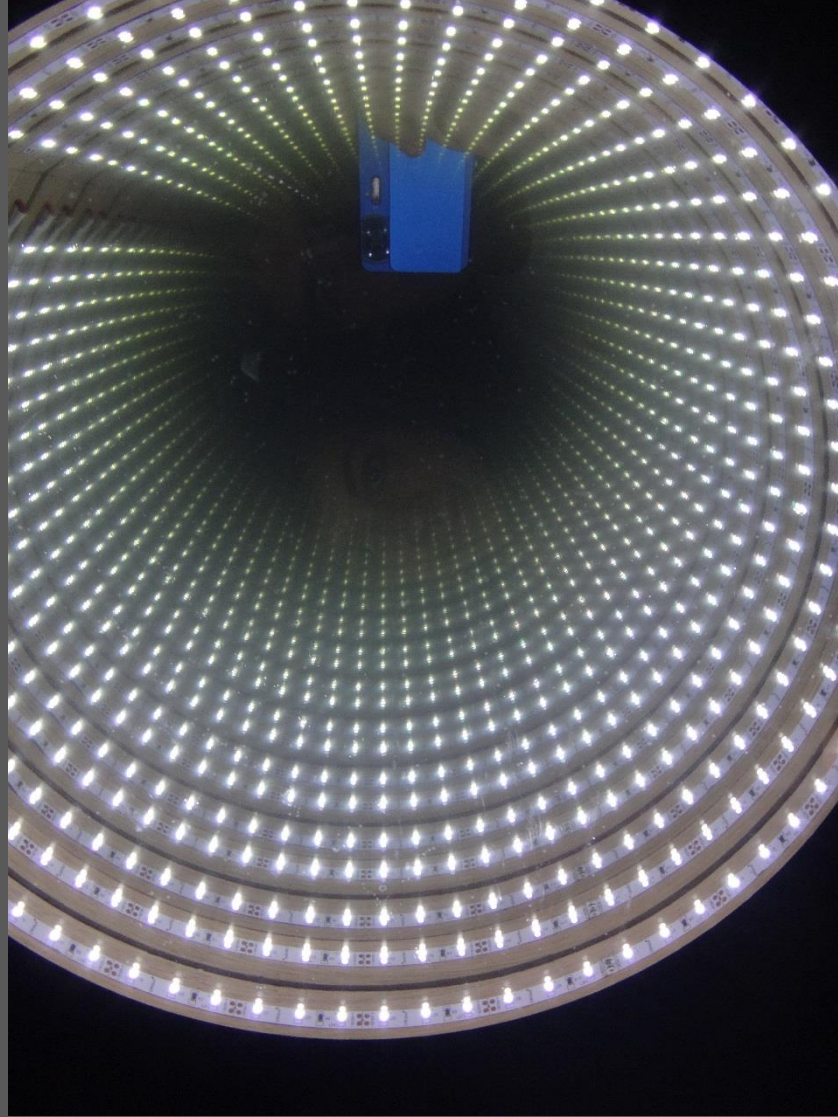
Logos: W, dt: angewandte, HEPHY, art@CMS, CMS



Applied Arts University Vienna

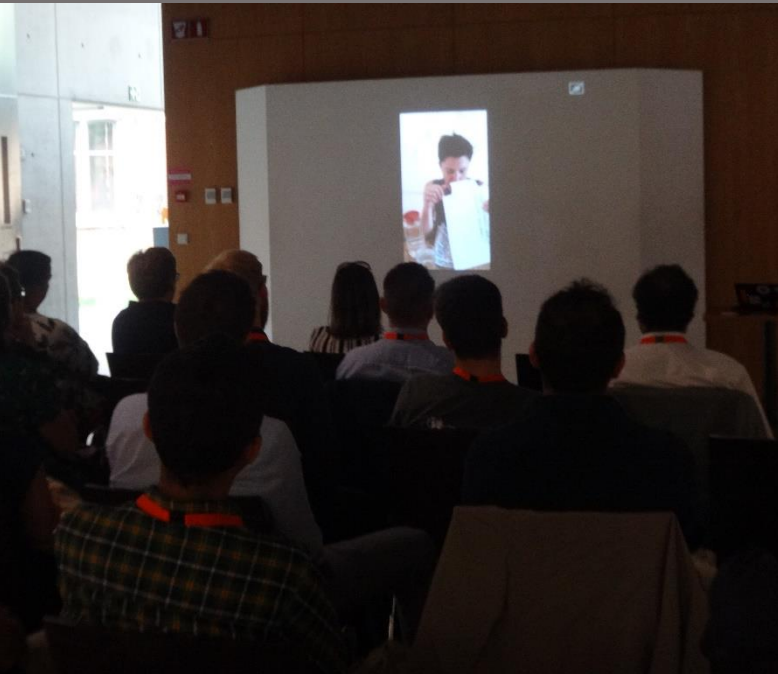
local scientific partner: HEPHY

Vernissage / Exhibition June 2017



ESA – Ecole Supérieur d'Art - Lille/France 2017-2018

Exhibitions Lille Salle



Art University Cetinje/ Montenegro

art@CMS – Art University Collaboration

Gallery National Museum, Cetinje/ Montenegro October 2018

Event is the final show of our 2 semester course “art@CMS – Art University Collaboration, 2017/2018”

Presentation: Final presentation of 5 university art students + art@CMS collaborative artists

Video walk through the exhibition : <https://youtu.be/UUnBDYhiSlk>



KASK Ghent / Belgium 2017-2019



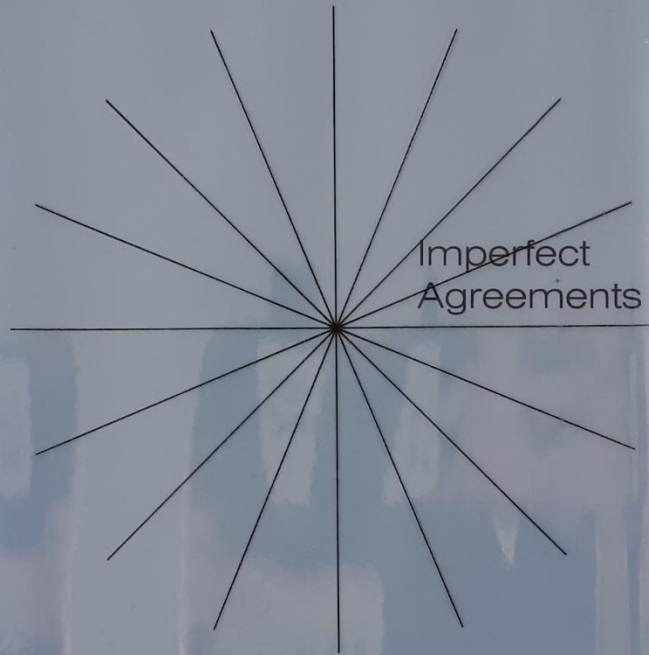
2 Exhibitions during EPS2019 conference by

1) KASK curatorial class 2018/2019
Botanic Garden; "Harbinger- Subtle Collisions"

2) art@CMS art University collaborative artists
Zwarte Zaal – 'ORIGIN poetics 2019',



Harbinger



Imperfect
Agreements

Curatorial Studies
2018 – 2019

ORIGIN POETICS 2019

Venue: "Zwarte Zaal" KASK, Ghent/BE

Dates: July 10th – 17th 2019

The artworks on show have been produced by a range of international artists and art students from various art Universities who are working in collaboration with the art@CMS-ORIGIN programme.

Based on personal interests and research by each artist each piece has been created using a wide range of media and provided by the artist to be exhibited here. The inspiration for these works is either scientific knowledge, research or meditations around the scientific world.

The artists involved are linked to a number of art groups and institutions, which include Cuántico /CO, Central Saint Martins /UK, Chelsea College of Arts /UK, University of Applied Arts /AT, Art University Montenegro;

Collaborating Artists:

Daniela Brill Estrada, Denise Schellmann, Andy Charalambous, Iva Kasalica, Lois Bentley, Sleepwalker, Jylle Navarro, Raji Jagadeesan, Mariana Heilmann, Diane Wingate, Riko Yasumiya, Lottie Bolster, Laura Madeley, Hannah Pratt, Hannah Brown, Debi-Sara Wilkinson, Rose Megmei Zhou, Yang Li, Maximilian Gallo, Johannes Frauenschuh, Hannah Scott, Mila Balzhieva, Istem Ozen Ruber, Monica C. LoCascio, Lisa Pettibone, Nicolas Strappini, Olga Suchanova, Maria Macc, Peter Bellamy, Rosa Nussbaum, Stephen Bennett, Reggy Liu, Chiara Campanile.

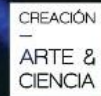
The 'Noncentral Essential', Daniela Brill Estrada, 2019.



South America, Bogota/ Colombia
December 2018 – April 2020

“SURATOMICA” cross-disciplinary science engagement & networking
with Colombian artists and Colombian school in dialogue with our
ORIGIN partners in Colombia and at CERN.

Supported by_



CONTACT

Daniela Brill - Wien, Austria.
+43 677 61297012
suratomica@gmail.com

FIRST
CREATION SPACE
BY SURATÓMICA
AT CERN

Images: Reverberations of a Topological Daydream. Artist Santiago Tavera. Pix Abraham Mercado.
/ Distiller of the Self. Artist Natalia Rivera / Vi Creation - Art & Science Encounter. Distrito
Cinematheque. / Poetry in Particle Collisions / Thinking Group Suratómica / CMS Experiment /
Ideasquare at CERN / ConcueroPmov Collective / Queer Architectures and the Virtual Body
Workshop. Artist Santiago Tavera. / Colorful Spaces of Transformation. Artist Martin Roth.



“SURATOMICA” cross disciplinary science engagement & networking with Colombia

Collaboration schedule 2018/2019:

Nov/2018 – April 2019 project preparation

April 2019 kick off symposium

- selection of artist groups
- each 2 weeks work meetings
- dialogue with ORIGIN partners

Sept/ Oct 2019 working visit CERN 2 weeks

Oct 2019 School visit at CERN 1 week

- Alcaparros school, Bogota

April 2020 science & art festival Bogota

- art exhibition of participating artists
- school students exhibition

Project: <https://mhoch.web.cern.ch/Art@CMS/Suratomica.pdf>

artists @CERN: <https://indico.cern.ch/event/793349/>

project video : <https://youtu.be/E4f85WpEevo>

Outlook 2020 – 2022:

- Second SURATOMICA Colombia
- first contacts to Mexico, Brazil

04-19_
04-20

Suratómica

Suratomica is a space for creation and collaboration between art and science where artists from the Global South will strengthen their practice through cooperation and encounters with scientists and their environments.

The program enables new ways of dialogue between scientific thinking and artistic knowledge, promoting open access to creation in these fields and aiming to strengthen the reflection from the Global South upon science, development and access to knowledge.

This first edition, which will be held in Bogotá and Geneva, will host Colombian artists at CERN European Organization for Nuclear Research in Switzerland, for a two-week interdisciplinary science program. Likewise, artists and scientists currently associated with CERN will be invited to Colombia.

Organized by:
Mutante.Lab - Bogota, Colombia
Cuántico - Wien, Austria
art@CMS | ORIGIN - Geneva, Switzerland

www.suratomica.com
@suratomica

CONTEXT



04.19

RESIDENCY



09.19

FESTIVAL



04.20



Thinking Group

RESEARCH

06-08.19



Artworks

CREATION

10.19 - 03.20

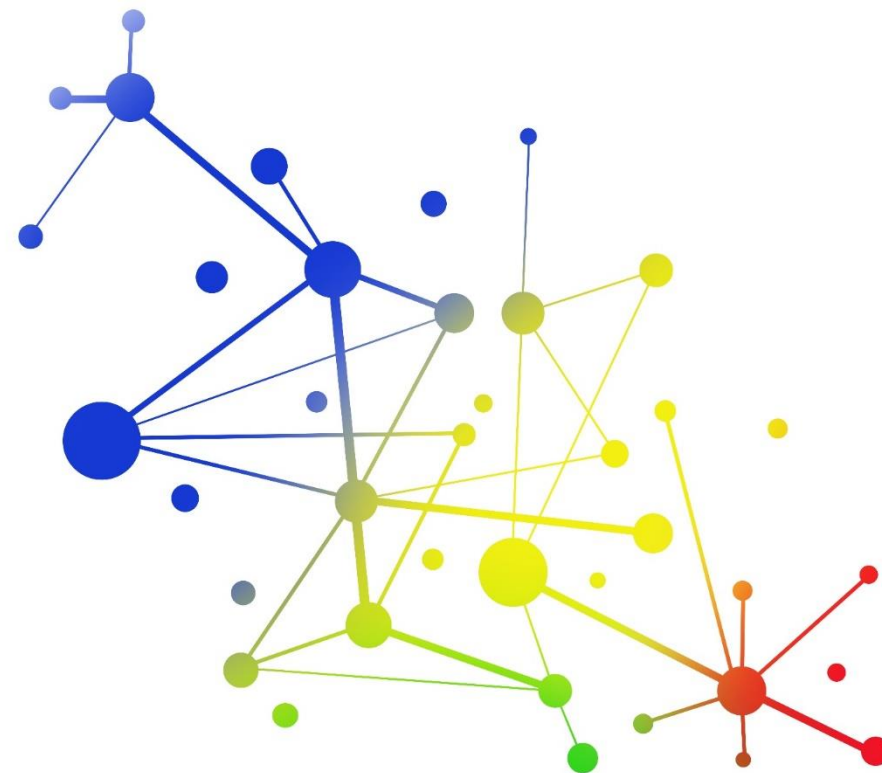


Workshops

PROPAGATION

04.20 +

Further Collaborations



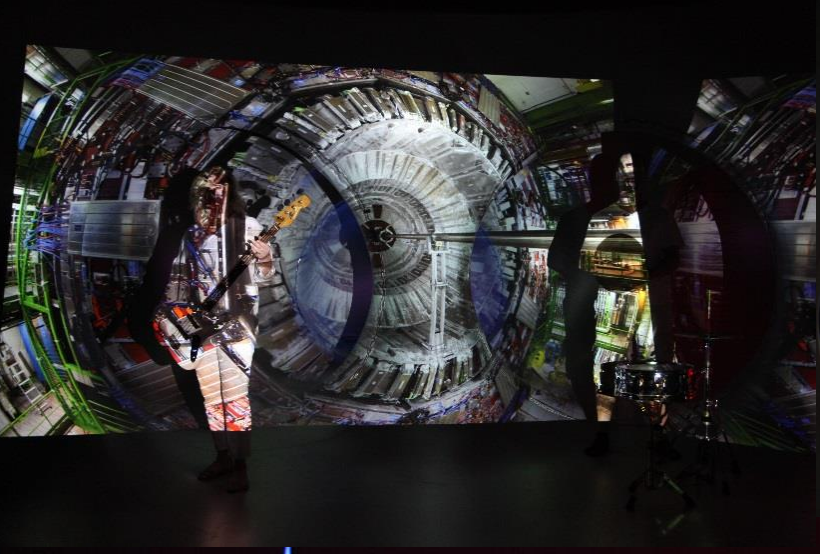


art@CMS
&
Architects of Air

is a synthesis of 2
unique partners whose
core activity address the
wonder of light and the
wonder of the universe.

Combining the
imageries of the
machinery of CERN
with the curvilinear
environment of the
Architects of Air dome
creates an incredibly
intriguing layer of
visual experience.

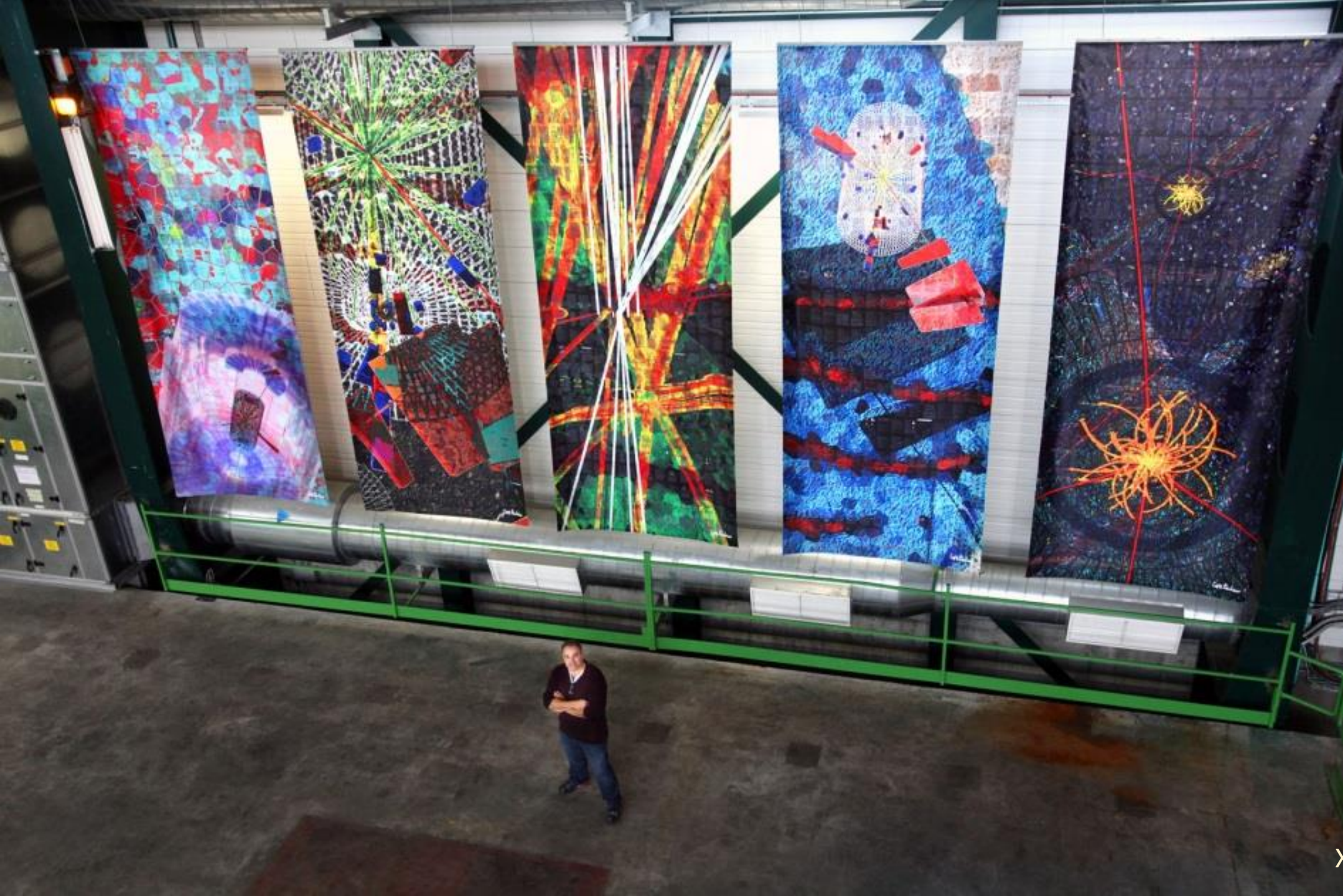




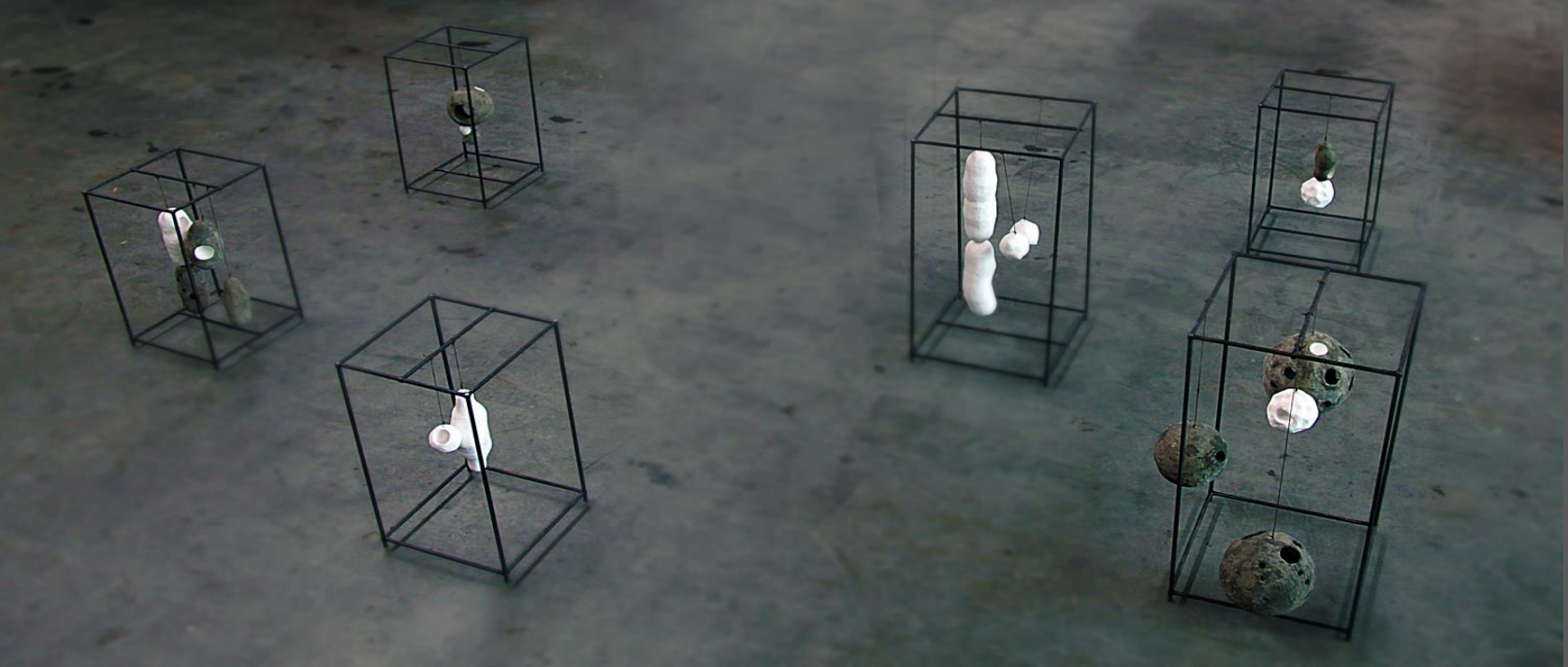
Collaborative Artists

Some examples :

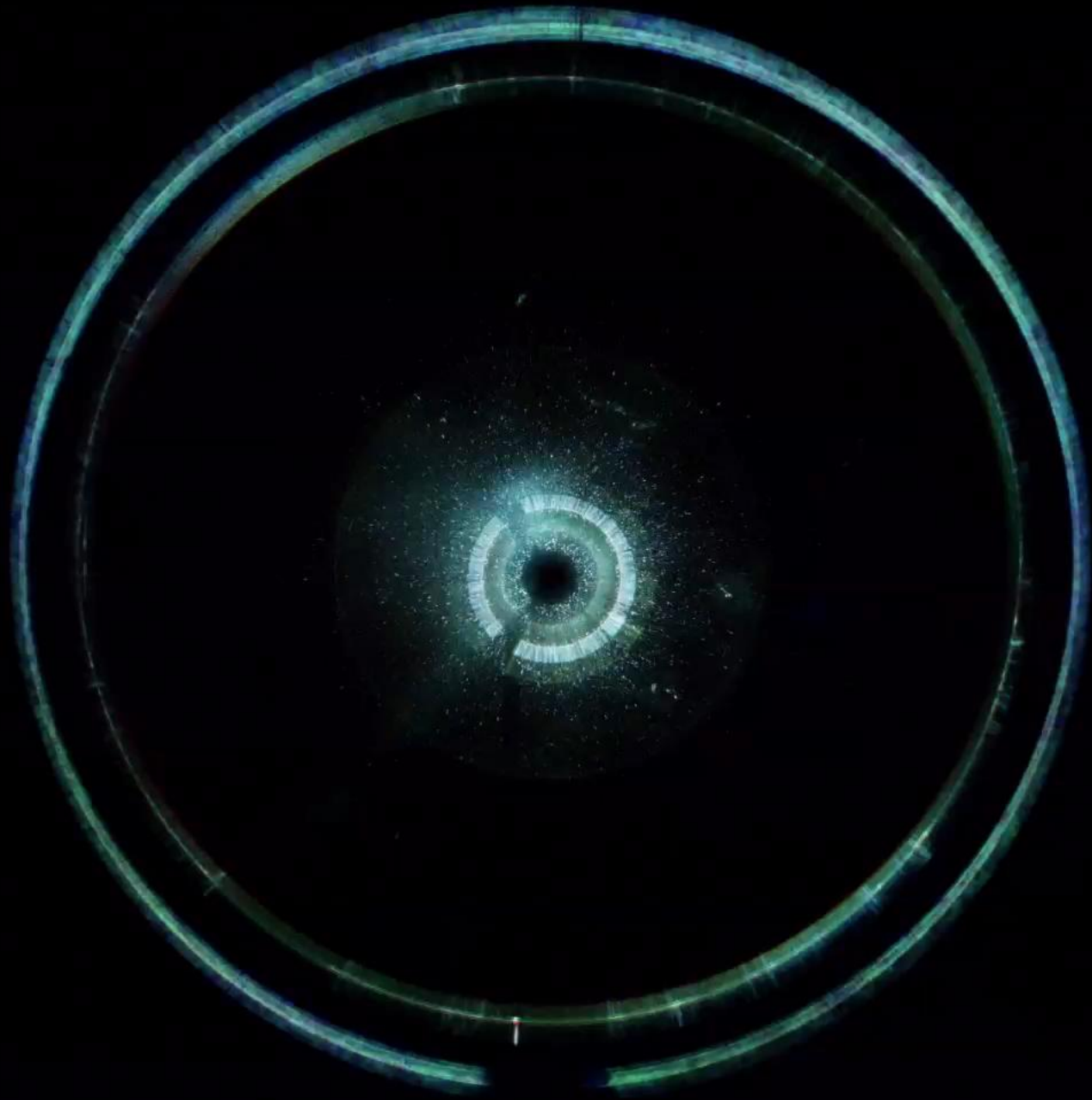








Alison Gill / UK



art@CMS: collaborative artist CONSENSUS

CONSENSUS participates as well in science & art workshops



*UK Rapper launches album **CONCERNED***

after 2 years of collaboration his science rap album ConCERNed.

CERN Article (all info): <http://cms.cern/news/concerned-using-his-hsp-engage-new-audiences-particle-physics>

FERMILAB talk: <http://events.fnal.gov/acts-lecture-series/events/event/rapper-consensus-free-lecture-demonstration/>

More Infor & Links:

Interview on the Financial Times 2018 : <https://www.ft.com/content/b4ed4d8-d940-11e8-aa22-36539487c3d0>

BBC interview 2018 : <https://www.bbc.co.uk/sounds/play/p06qfhr5>

The BBC interview of ConSensus and Sudan 2017 [the sequence starts at 1:11.18 until 1h26.26]

- <http://www.bbc.co.uk/programmes/b04xvq0f#play> <https://www.youtube.com/watch?v=M1x8q2VTNc>

Press article in the journal "The Voice" and "ProBeta magazine" 2017 :

- <http://www.voice-online.co.uk/article/south-london-geneva-hip-hop-science-lessons>
- <http://www.probetamagazine.com/en/typical-collisions-rap-meets-particle-physics>

Music videos of his 9 tracks album "conCERNed" on youtube :

- Method to the Madness <https://www.youtube.com/watch?v=13B-Az4Bg&feature=youtu.be>
- CMS [Grim Music] <https://www.youtube.com/watch?v=1ju3fn37v1E&feature=youtu.be>
- Antimatter <https://www.youtube.com/watch?v=2Uup9Cf4-IA>
- Dark Matter <https://www.youtube.com/watch?v=0keA2eP1G08>

- Science Rap videos by students after his StudentsRapWorkshop 2016 "Particle Love": <https://youtu.be/5d829vd3Uv8>





Lindsay OLSON
Discoveries, 2015
100% silk, embroidery thread, cotton, acrylic on linen





ENRICO

MAGNANI

DARK
MATTER

BOX

Searching the Unknown





inspire public and especially the next generation with science methodology, art practice, critical & creative thinking or the importance of science and the arts for humanity we need to collaborate between professional communities.

Diversifying 'languages' to communicate via
Cross-Disciplinary Engagement & Networking
is a very powerful way to reach out to
Society

Thank you for your attention!

Michael.Hoch@cern.ch

phone: +41 754115720

art@CMS/ORIGIN program leader

Visiting Professor FSU Tallahassee, US



Feynman inspired art

a construction manual

Andy Charalambous in collaboration with CERN HST Programme 2017



Fig.1: Coreen, 2012

1. Introduction

When I left school I went to work as a technician for the Physics and Astronomy department at a university in London. I trained as an engineer and spent many years designing and building equipment for the research groups there. My interest in science grew as I worked with these groups and got a better understanding of the science they were researching. I loved my job because it gave me so much insight into the science involved.

When I left that job and started as an artist I found that the excitement of science was something I didn't want to move away from. So, I decided to use science as the inspiration for my art. Most of the art I make comes from some bit of science that has seeded an idea. Science is a tool for letting us see our world more clearly, and for me it also inspires my work. By the way, I have not moved very far from the university I worked at. I am Artist in Residence for the Astronomy group and the High Energy Physics groups there, as well as being part of the art@CMS project run by Michael Hoch at CERN.

sciARTbooklet

a manual for an art and a science teacher to re- create and create topical artworks

art@CMS 2017

UK collaborative artists :
Rachael Nee , Andy Charalambous

in preparation:
"data sonification" by Federico IT,
"particle detection" by Ch. Henschke AU

Orders of Magnitude – Potato Powered Cosmos

a construction manual

Rachael Nee in collaboration with HST Programme 2017



1. Introduction

This booklet is written for science and art teachers with the aim of interdisciplinary learning. It assumes no knowledge of the other disciplines subject. In it you will read about the art installation from both the science and art viewpoints and how to reconstruct it. This becomes a jumping off point for the development of new artworks by High School students, with questions along the way.

Science and contemporary art have different end goals; however, they also have a lot in common. Both contemporary art and science have similar methodologies involving; investigation, research, testing out of ideas and theories through experiment. They share imagination, curiosity, quest for knowledge and are forms of inquiry. When successful both allow the world to be seen in new ways.

