

OUTREACH

cross-disciplinary
science engagement
networking & education



WHY outreach HOW

Objectives:

We need to attract the attention of various audiences :

Politicians

Politicians

Students

Parents

Teachers

Stakeholders

Industry

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”

What Can 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.

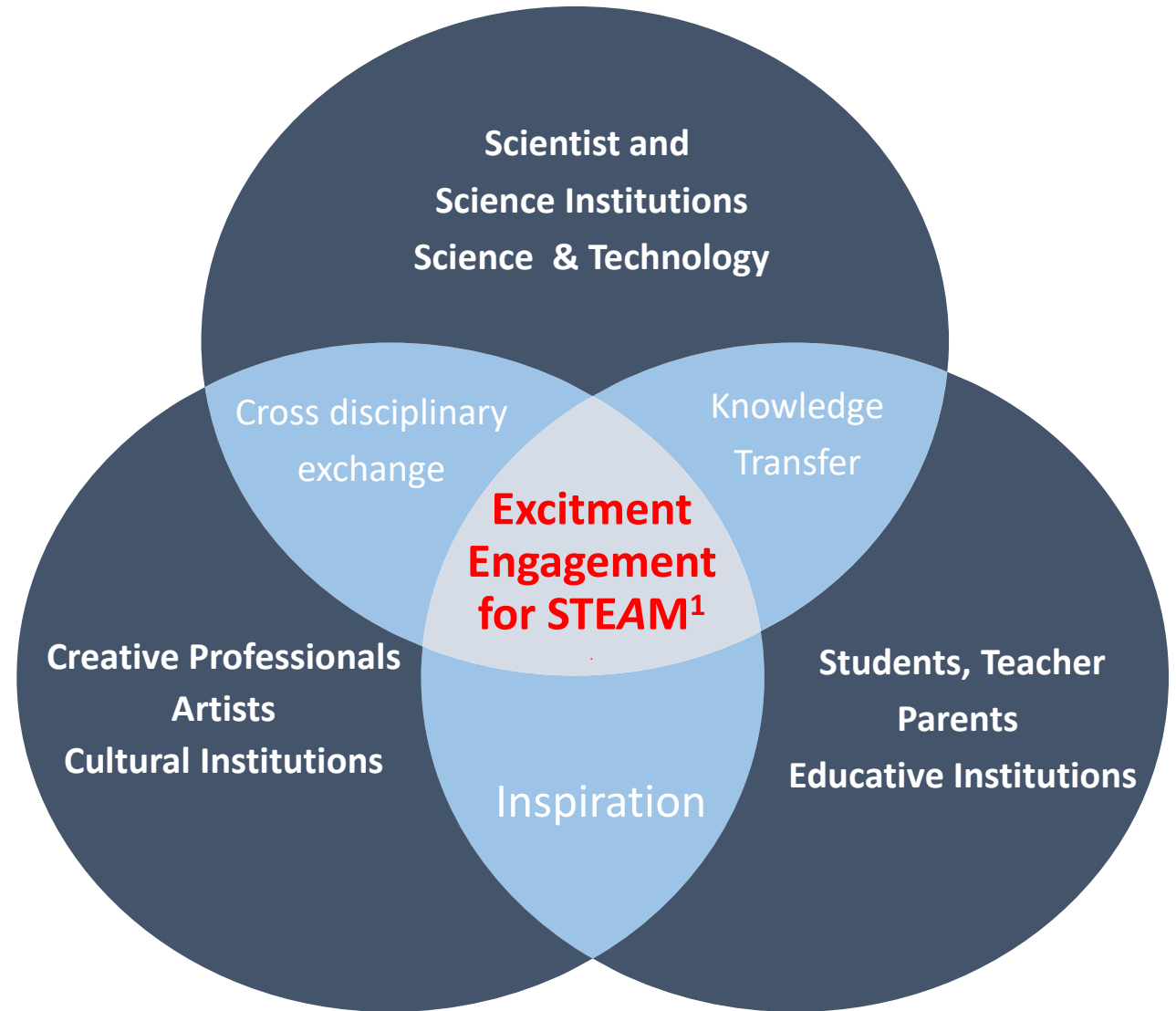
science learning (masterclass) followed by philosophic discussion and creative art production

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**

• STEAM

- Science, Technology, Engineering, Art and Mathematics



Cross disciplinary EDUCATIONAL Formats

3 models for different implementation scenarios

© Michael Hoch

1) sciARTmasterclass ⁽¹⁾

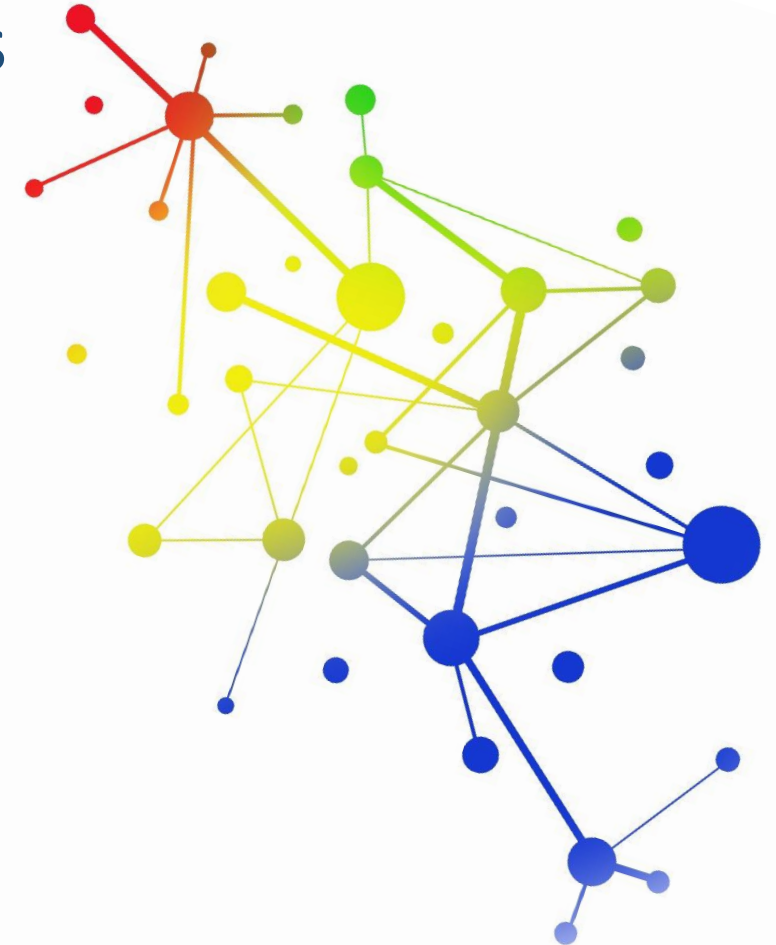
- short engagement scenarios e.g. science festivals

2) Science&Art@School ⁽²⁾

- authentic school student engagement & inspiration

3) Cultural Collisions ⁽³⁾

- full cross disciplinary science engagement inspiration & research




sciARTmasterclass

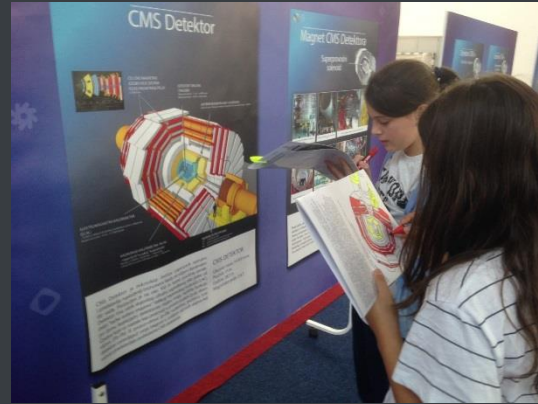

one day event e.g. science festival or science day,..



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



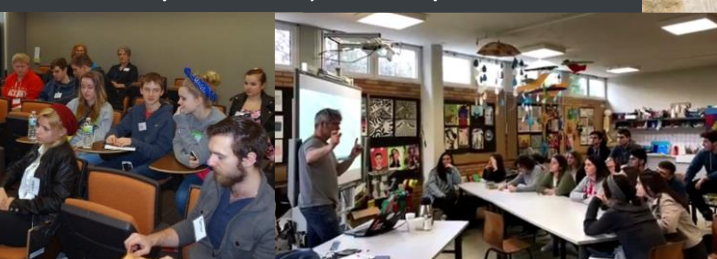
Graz/ AT 2012, 2013, 2014



Sofia Bulgaria 2015, Vienna/ AT 2016



FERMILAB/ US 2015, Athens/ GR 2017



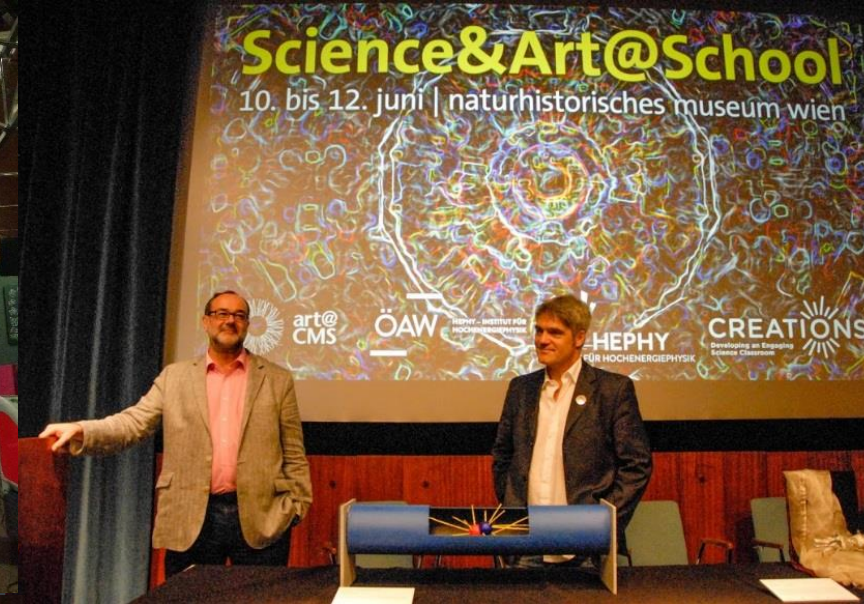
Best National dissemination : Science & Art across Italy <https://web.infn.it/artandscience/index.php/en/> 2016 - 2017 - 2018,

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



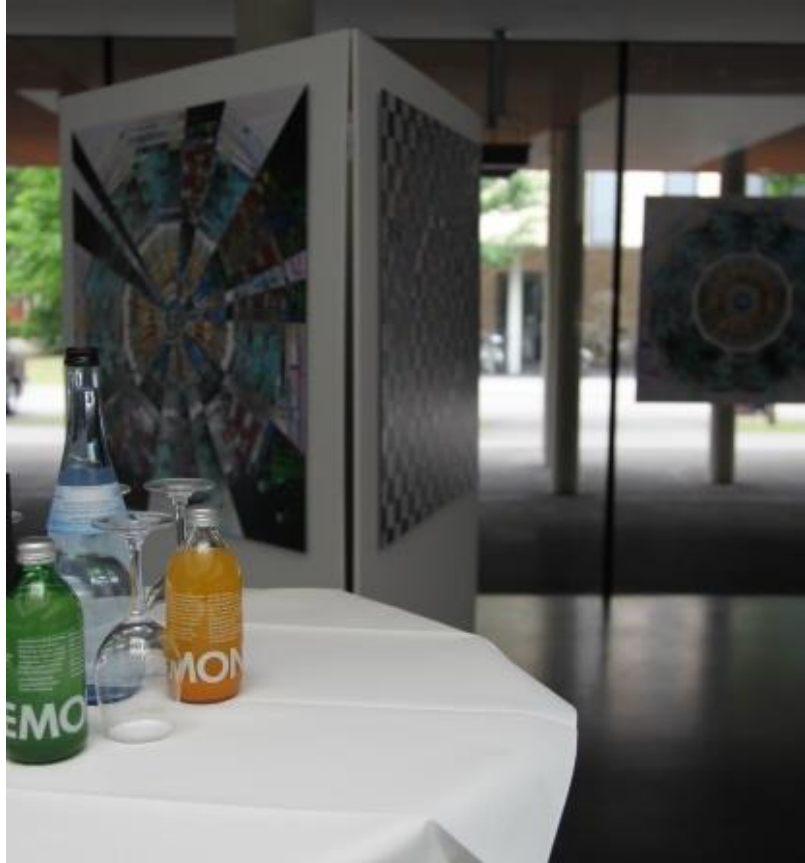
CERN Meyrin Bldg 40 February 24th 2017

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



KIT 2015 art@CMS

Cross-Disciplinary Science & Art program 4 Education: - Cultural Collisions ©



Cultural Collisions Canada CCC – Toronto 2018

Venue: **Ontario Science Centre, OSC**

Cross disciplinary exhibition April 9th – 15th 2018

Work at School April 16th – May 28th

Student exhibition: May 29th – June 3rd

entire project followed and formal evaluated by the Ministry of Education

Organization by **ORIGIN CANADA**

Ontario Ministry of Education: budget and coordination
general and education organization, evaluation

Exhibition curation by Michael Hoch

ORIGIN CANADA: Scientific advisory board

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

Evaluation Report 2018: https://mhoch.web.cern.ch/Art@CMS/CulturalCollisionsCanada_EvaluationReport.pdf

Cultural Collisions Canada **Received the REALM Award 2020** – ORIGIN / Ontario Ministry of Education / Toronto Science Centre



video walk through the exhibition -- Ontario Science Centre
<https://www.youtube.com/watch?v=4Hkrr1mCz7o&t=184s>

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 Hooh	Robin Kingsburgh	Dave Vrolyk et Nathan Chow	Tom McCauley	Michael Hooh	Robin Kingsburgh	Dave Fish and Damian Pope	Tom McCauley	Michael Hooh	Robin Kingsburgh	Olga Michalopoulos	Tom McCauley	Michael Hooh	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 Hooh 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 Hooh 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 Hooh and Brigitte Tessier	Antoine Gittens-Jackson	Martin Hendry	Scott Wilson	Michael Hooh	Antoine Gittens-Jackson	Carl-Johan Haster	Tom McCauley	Michael Hooh	Antoine Gittens-Jackson	Heather Fong	Scott Wilson	Michael Hooh	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



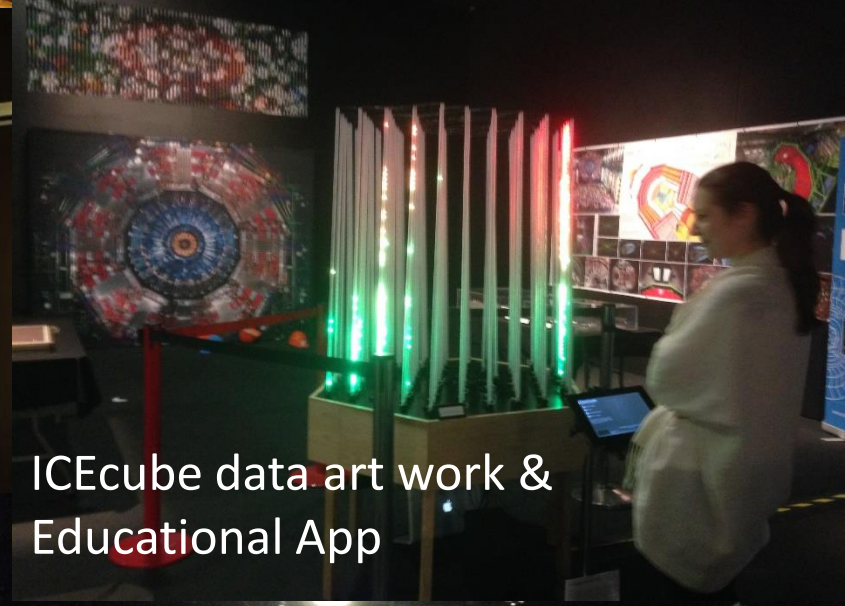
Rap Workshop



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



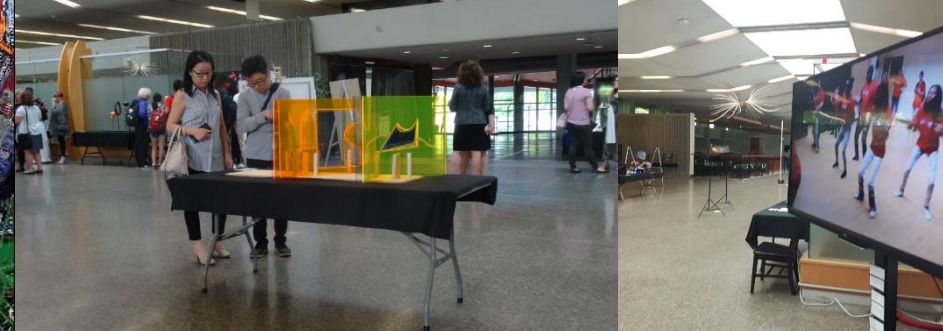
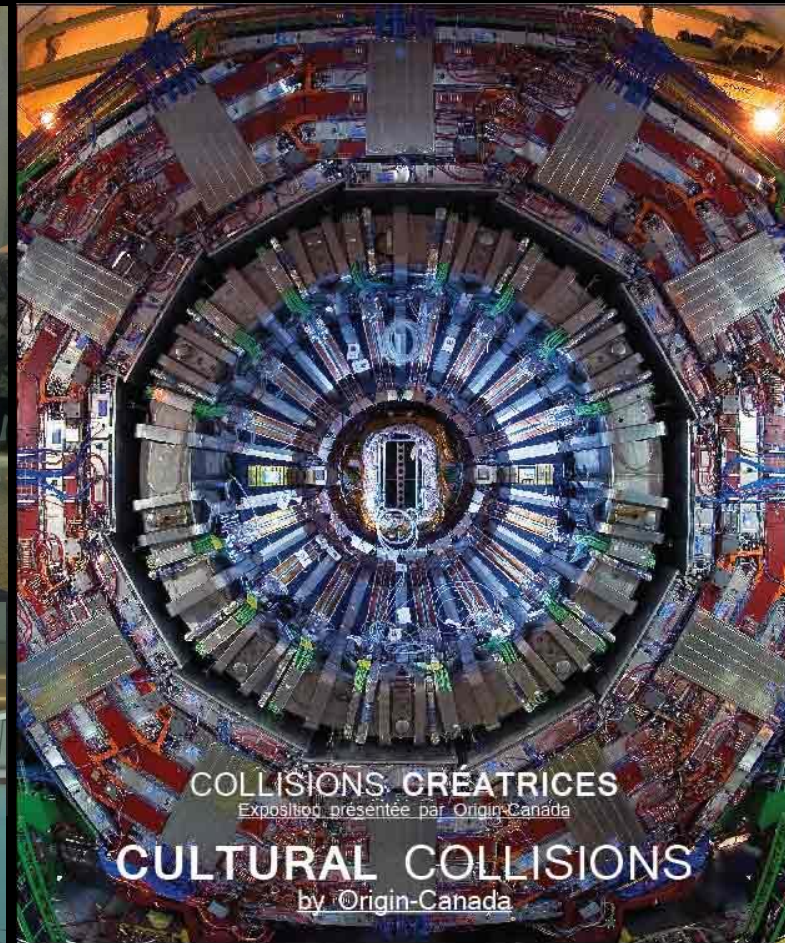
Pre Concert Conversation



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



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



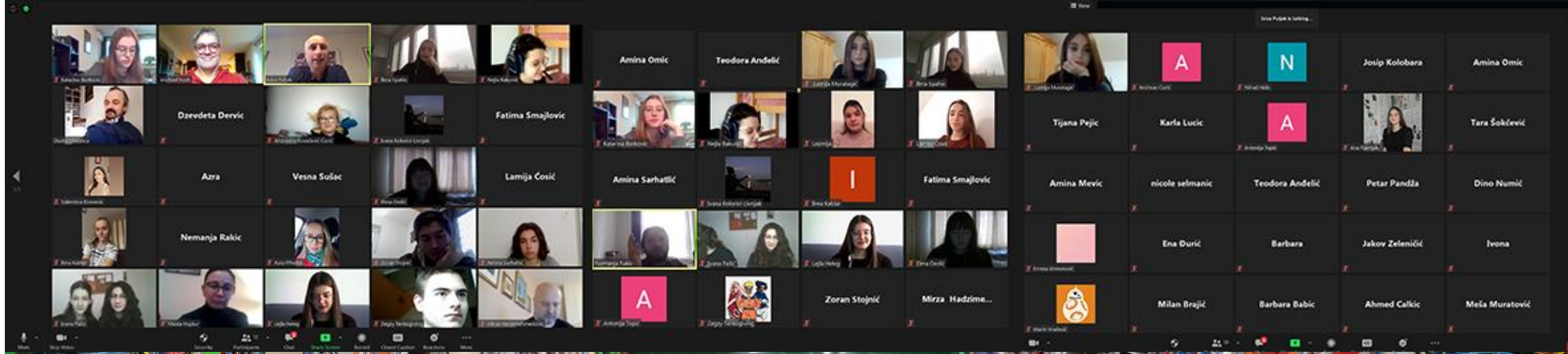
Schedule & Planning:

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].



Poster design: Michael Hoch@cern.ch

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



- 1) University of Mostar, Mostar, Bosnia and Herzegovina
- 2) Master, Science & Art, University Applied Arts, Vienna, Austria
- 3) University of Sarajevo, Sarajevo, Bosnia and Herzegovina
- 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 events should be offered: ideas exchange rehearsal sessions, mentoring and discussion sessions with 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 Hasdraba 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

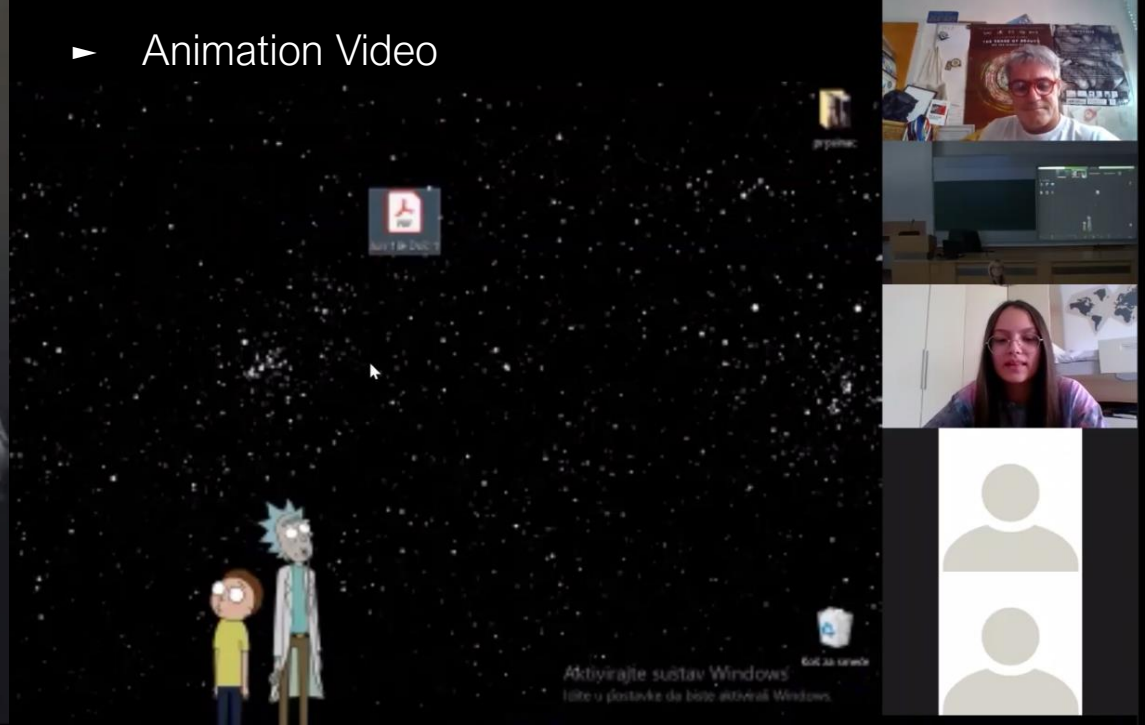


▶ Round Table Discussion

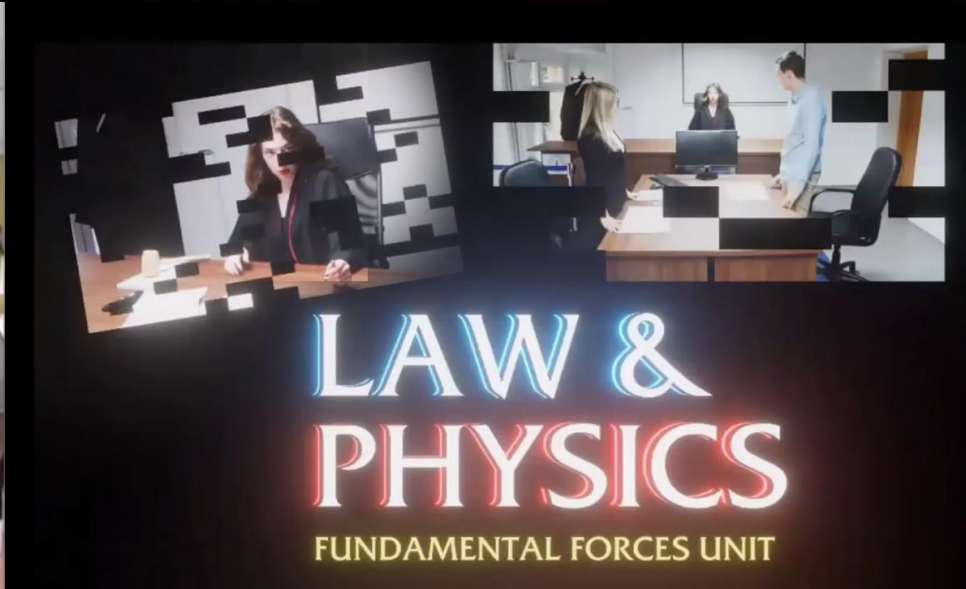


Mira-I research the black holes and that's what attracted me to this project.

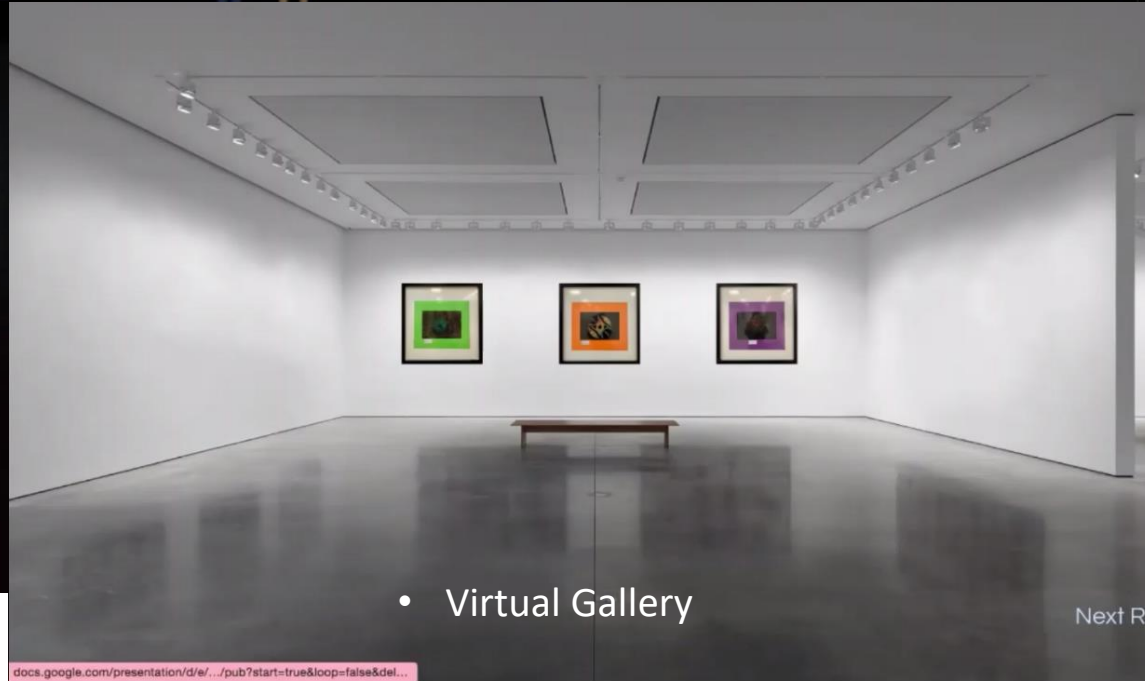
▶ Animation Video



▶ Creative Production



▶ TV Serie Law & Physics Court Room



• Virtual Gallery

Next R



Participatory
art & Science
Practice with
young Children



Theatre Play & Poems



Stop Motion Film



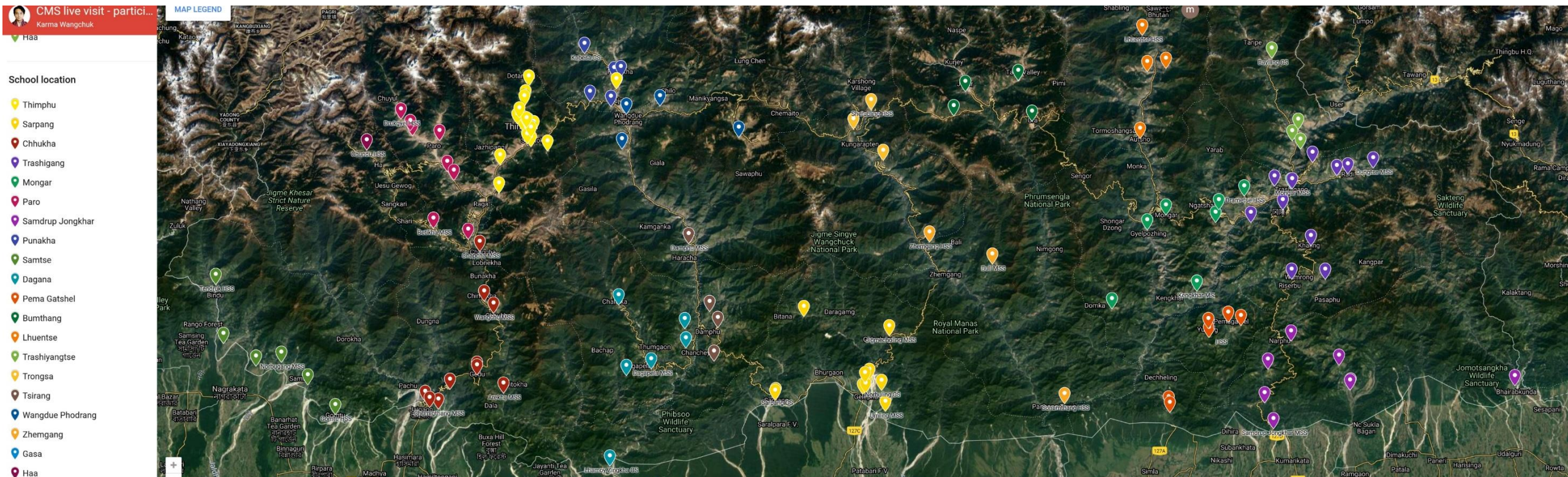
Dance Performance Video

CMS virtual visit for Bhutan December 2021



INDICO: <https://indico.cern.ch/event/1101596/>
VIDEO: <https://www.youtube.com/watch?v=nv80ko5A7z4>

Record for CMS virtual visits: **12 792 participants**
693 teachers 12099 students grade 10 and grade12



CMS virtual visit - a science Engagement & Networking tool



- Initiated by the **Austrian Bhutan Society ABS** in contact with the **Bhutan Ambassador in Geneva**
- Locally organized by the **Royal Society of STEM** and the **Bhutan Ministry of Education**
- run by the **CMS virtual visit team** and **CMS TC** : Dawn Hudson/ Noemi Beni / Zoltan Szillasi at CERN P5
- Supported by **ABS** Michael Hoch, Wolfgang Adam and **CERN IR** representative Archana Sharma

ཀྲུལ་འཛིན་ཚན་རིག་སློལ་ཚོགས།
Royal Society for STEM
(RSSTEM), HMS



Thanks to CMS technical Coordination and the CMS Virtual Visit Team



Organized in collaboration with



CMS virtual visit for OMAN

March 15th 2022

4934 participants: 267 teacher , 4676 students

Governorates	No. teachers	No. Students	No. Schools
Muscat	108	2011	39
Ad Dakhiliyah	29	410	17
Al Batinah North	29	410	14
Al Batinah South	29	470	13
Ash Sharqiyah North	13	348	10
Ash Sharqiyah South	10	215	8
Ad Dhahirah	17	337	17
Dhofar	21	283	18
Al Buraymi	9	173	5
Al Wusta	2	19	2
Total	267	4676	143

INDICO: <https://indico.cern.ch/event/1137853/>

VIDEO: <https://www.youtube.com/watch?v=nv80ko5A7z4>



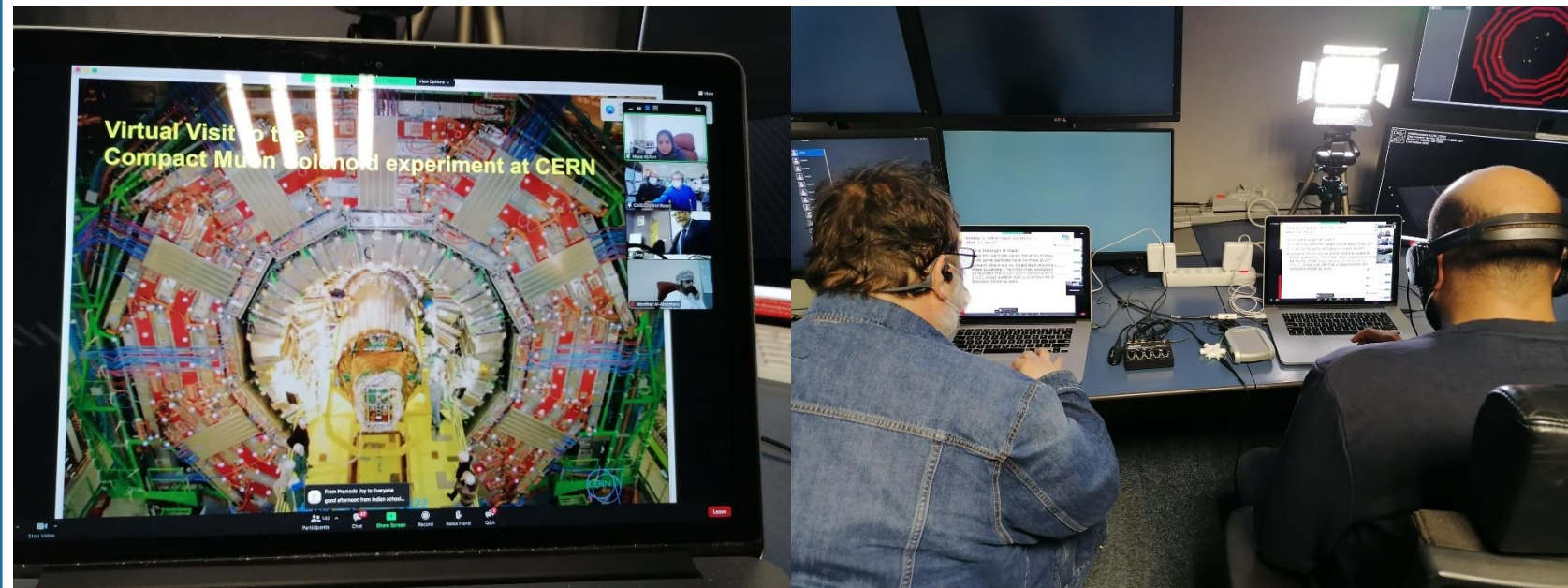
SULTANATE OF OMAN
MINISTRY OF EDUCATION



CMS virtual visit - a science Engagement & Networking tool

- Initiated by the **ORIGIN CMS**
- Locally organized by the **OMAN Ministry of Education**
- and the **CMS institute** at the **SQU University** in Muscat

Thanks to CMS technical Coordination and the CMS Virtual Visit Team





Cross-Disciplinary Exhibitions



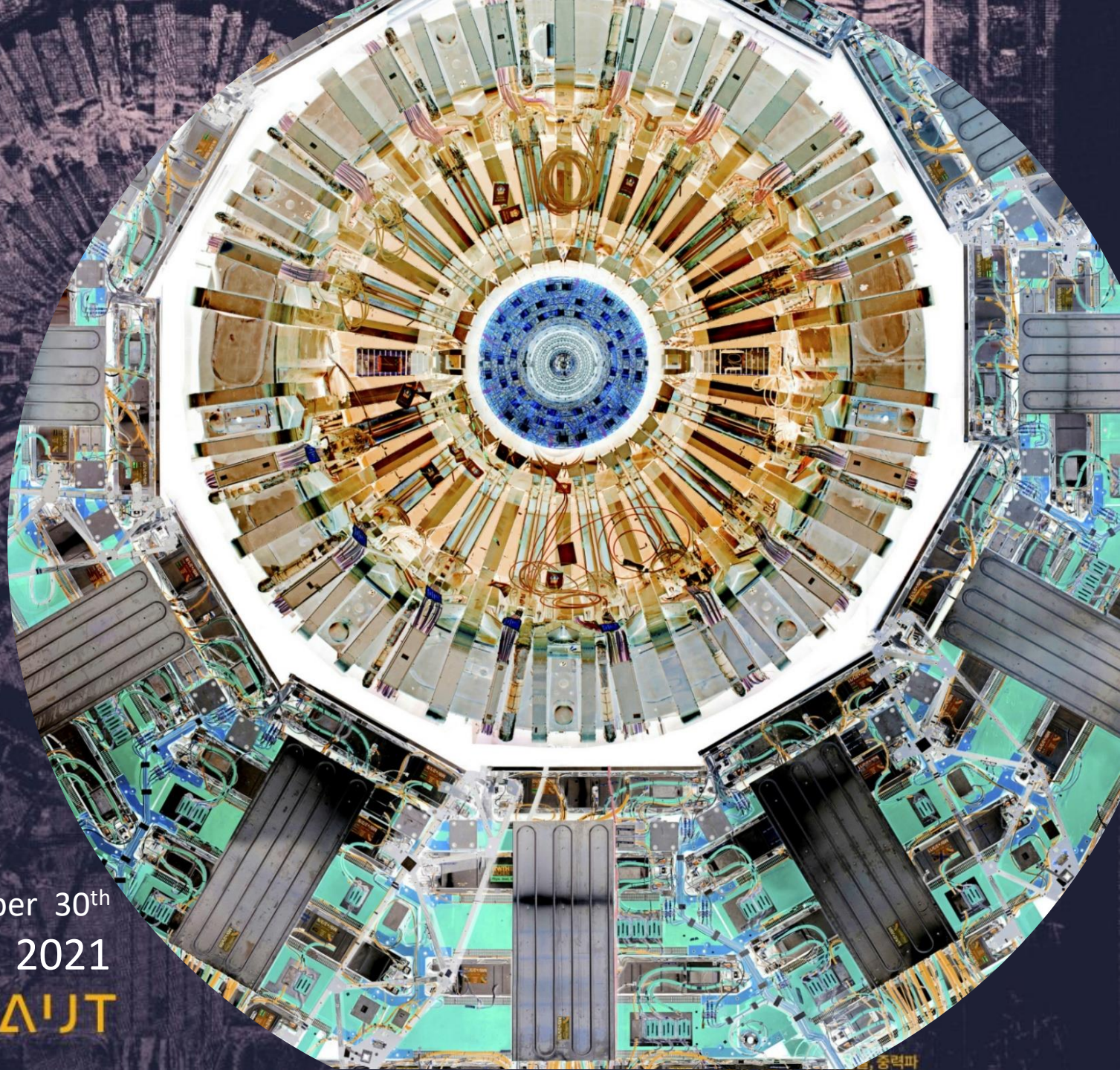
- Where: Seoul /South Korea
- Venue: Hanyang Museum, ~ 800m² exhibition
- When: opening 20th May– 30th October 2021
- Topics: from particle physics to astrophysics
- Who: CMS, ALICE, CERN, LIGO, ICEcube
= regional ORIGIN network
- Artists: 4 artist, local and international
- Local responsible: Tae Jeong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

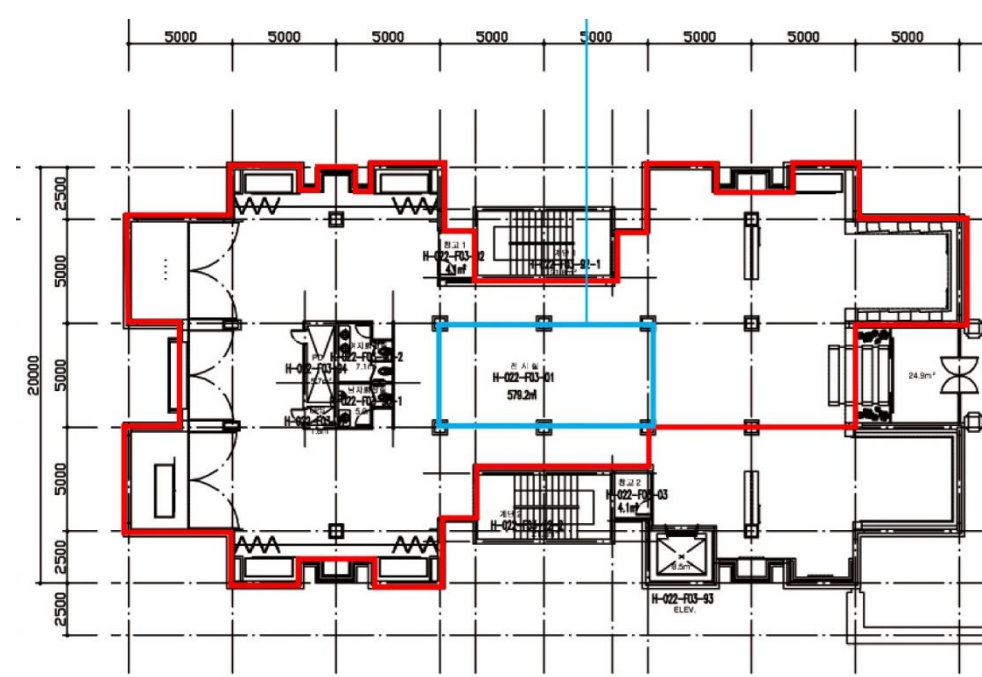
Web Site:

<http://www.hy2021cosmonaut.com>

May 20th – October 30th

THE
COSMONAUT



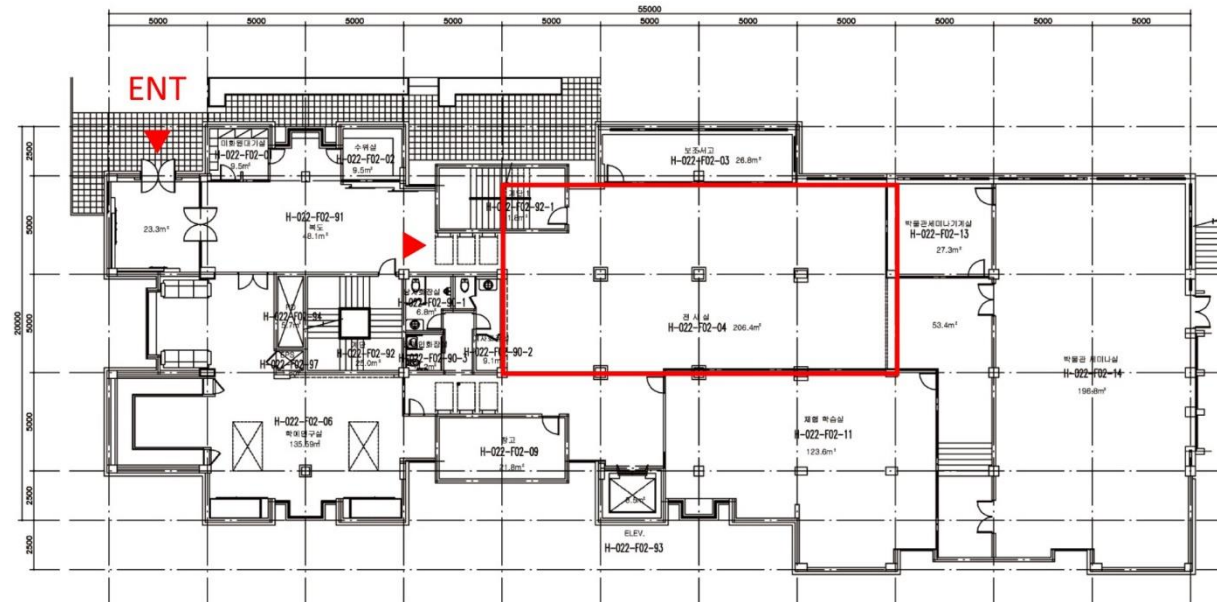


Floor plan

3rd floor science path

Exhibition space: 518 m²

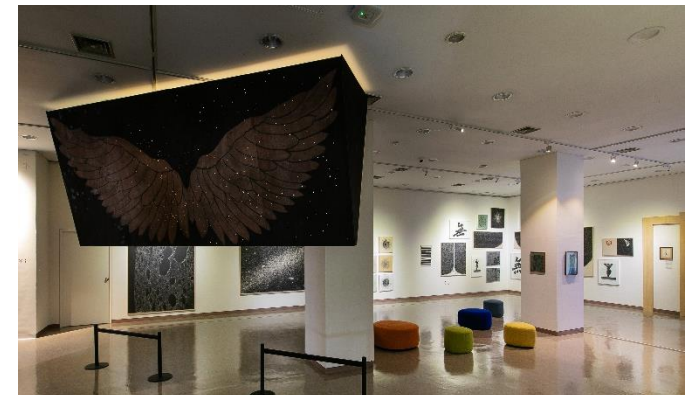
Floor Height: 270cm



2nd floor art space

Exhibition space: 217m²

Floor Height: 350cm

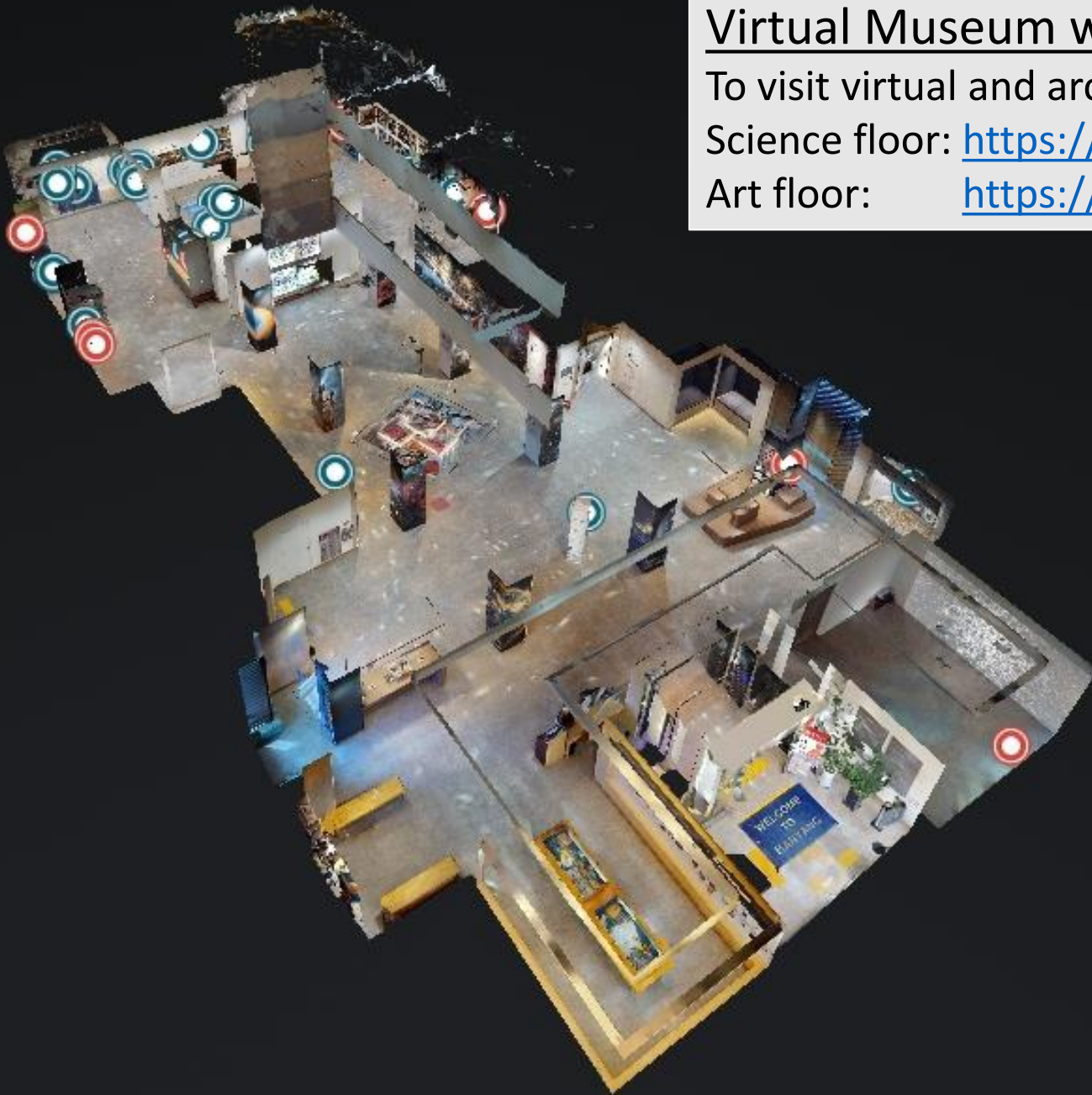


Virtual Museum with Augmented Information:

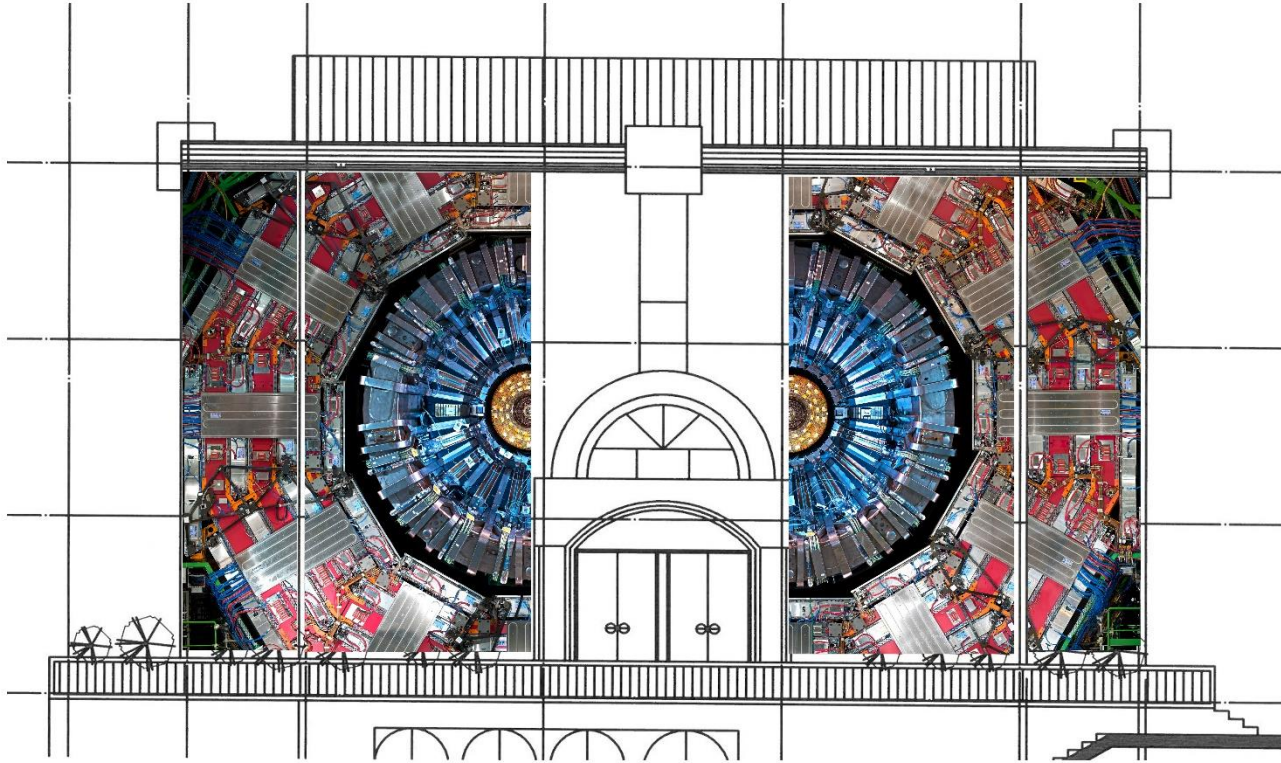
To visit virtual and archive the exhibition

Science floor: <https://my.matterport.com/show/?m=nsafzyhGnic>

Art floor: <https://my.matterport.com/show/?m=cCZF48ZqEyF>



Museum becomes CMS



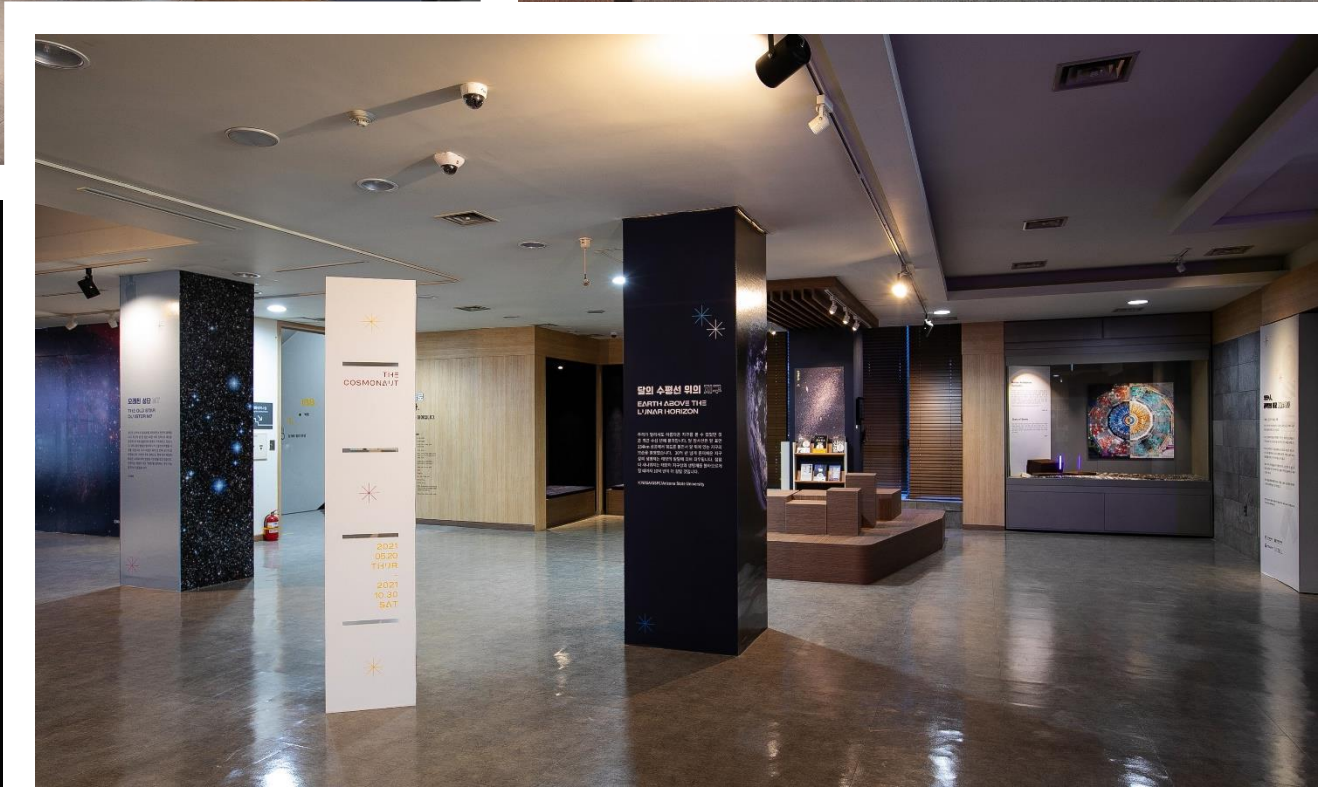
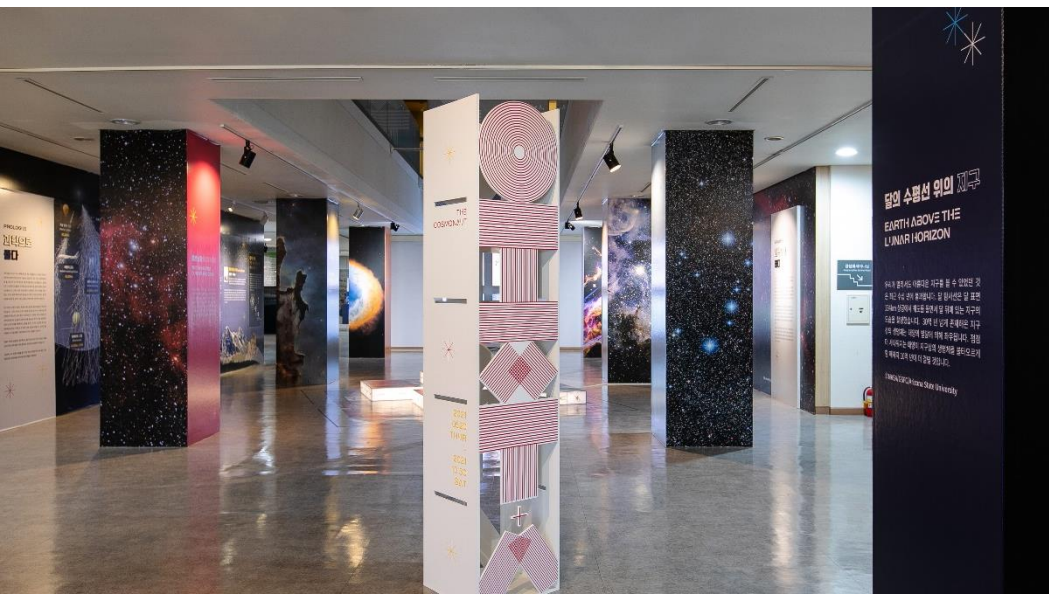
Video: "MUSEUM becomes CMS":

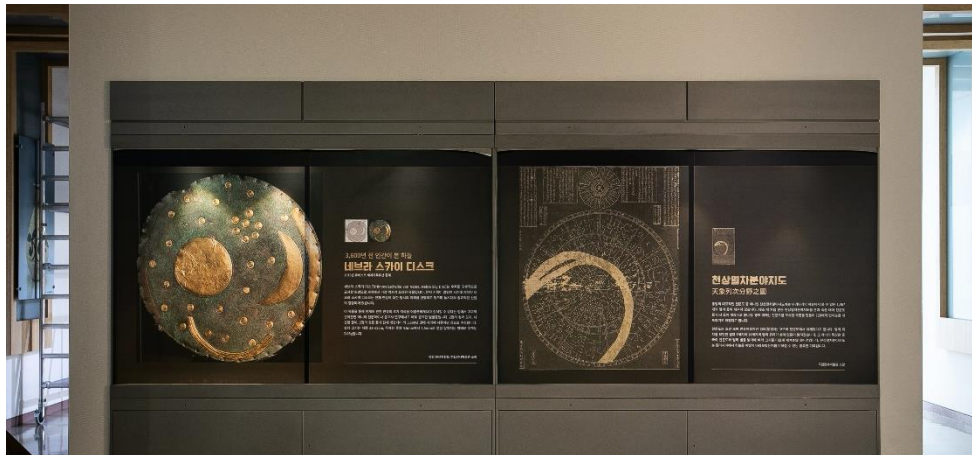
<https://youtu.be/91rQ2irmsjo>

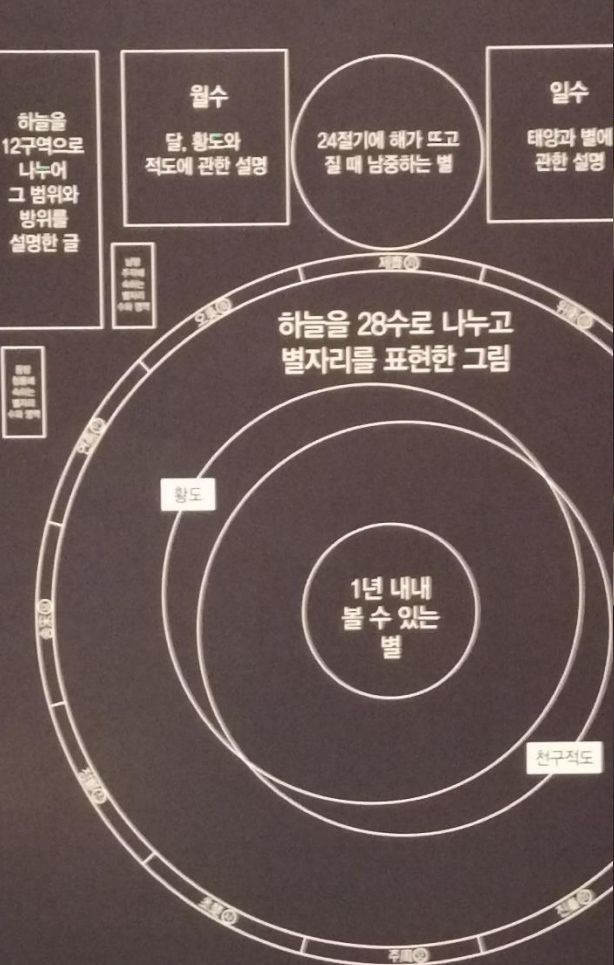
Art Teaser Video

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









천 상 열 차 분 야

북극을 기준으로 한 28수의 위치와 영역

각석 제작에 참여한 학자들의 관직과 성명 제작 시기



CMS&ALICE Virtual Tour

방구석 1열에서 유럽입자물리연구소 CERN의 대형강입자충돌기 LHC로 떠나요!
LHC의 대표적인 입자검출기인 CMS와 ALICE를 집에서도 실시간으로 만나볼
실 수 있습니다.

실험 소개

양윤기 교수(한국 CMS 실험팀 대표)
윤진희 교수(한국 ALICE 실험팀 대표)

현지 진행

김태정 교수(한양대학교 물리학과)
김도원 교수(분당서울대학교병원 연구행정팀)

생겼을까? 없을까?

과학워크숍

안개 속 입자를 찾아라!

김태정 교수(한양대학교 물리학과)

안개상자(Cloud Chamber)의 원리를 이해하고 직접
안개상자를 만들어 보며 이온화된 입자의 궤적을 관찰해봅시다.

일시: 6월 12일(토) 오후 1시
장소: 한양대학교 박물관
인원: 총 20명(선착순 접수)



우주, 우주, 어떻게 보여줄까?

과학역사
예술로 보는 우주



Michael Hoch 박사와 함께하는

art@CMS

유럽입자물리연구소(CERN)의 과학자이자 예술가인 마이클 호치 박사님이
핵심 입자를 발견한 입자검출기 CMS를 색깔로 알아보는
art@CMS 워크숍을 진행합니다.

아인슈타인의 마지막 선물, 중력파를 찾아서!

대상 중학생 이상 관심 있는 누구나
진행 2021년 10월 30일 토요일 14:00~16:00(온라인 14:30~16:00)
오프라인 특별전 관람(30분), 중력파 강연 및 시연(60분), 질의응답(30분)
온라인 중력파 강연 및 시연(60분), 질의응답(30분)
*온라인 신청자는 휴대전화와 이메일로 ZOOM링크 발송

신청방법 구글 폼으로 신청서 제출(QR코드)
신청인원 오프라인(7명 선착순 접수) + 온라인(제한없음)
장소 한양대학교박물관 3층 전시실, 2층 강성의 세미나실
문의 한양대학교박물관 학예연구실 02-2220-1394



한양대학교박물관과 함께 아인슈타인의
마지막 선물의 중력파를 찾아 떠나요!
중력파에 대한 강연과 함께 중력파가 검증되는
과정을 실시간으로 만나보실 수 있습니다.

강공영 교수
(중앙대학교 미래융합원 교에너지물리센터)

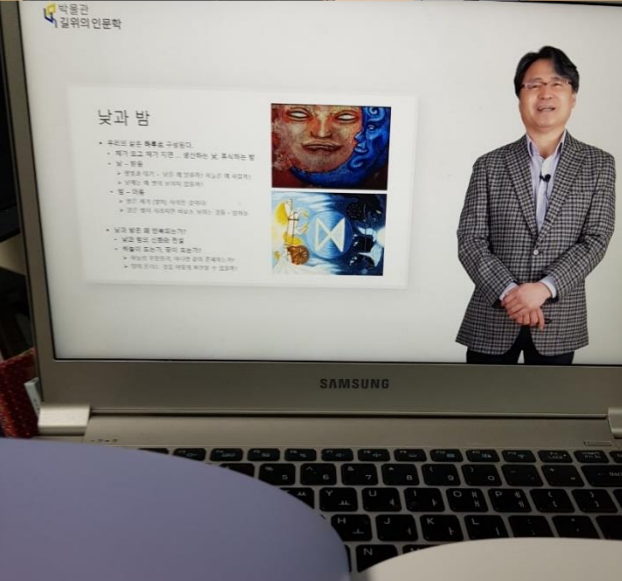
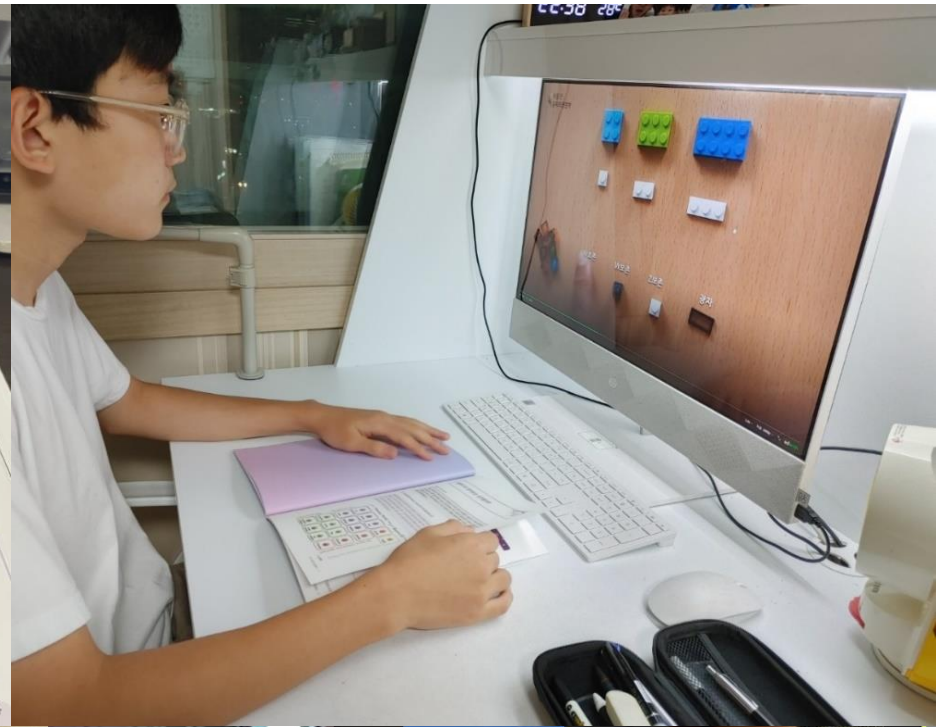
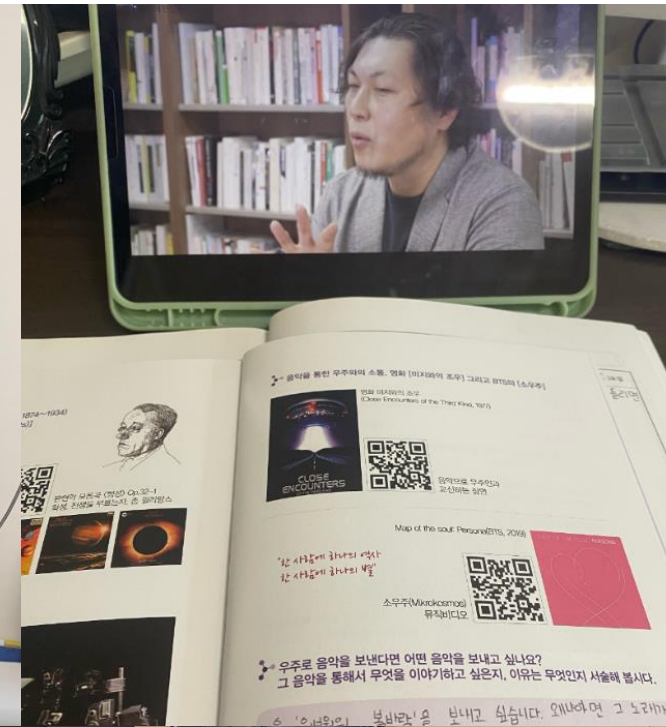
박준규 박사
(한국천문연구원 천문우주 기술센터)



유럽입자물리연구소(CERN)의
과학자이자 예술가

Science engagement

Online Science lectures combined with workshops of all topics presented in the exhibition by Korean scientists of the ORIGIN network



Collaborations Art Universities



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



Hosted by



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

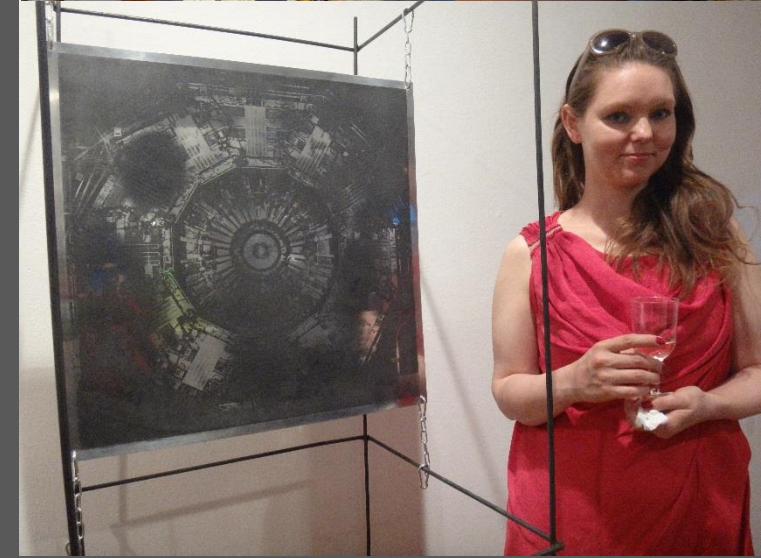
fourcorners CMS art@CMS ual: central saint martins

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



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

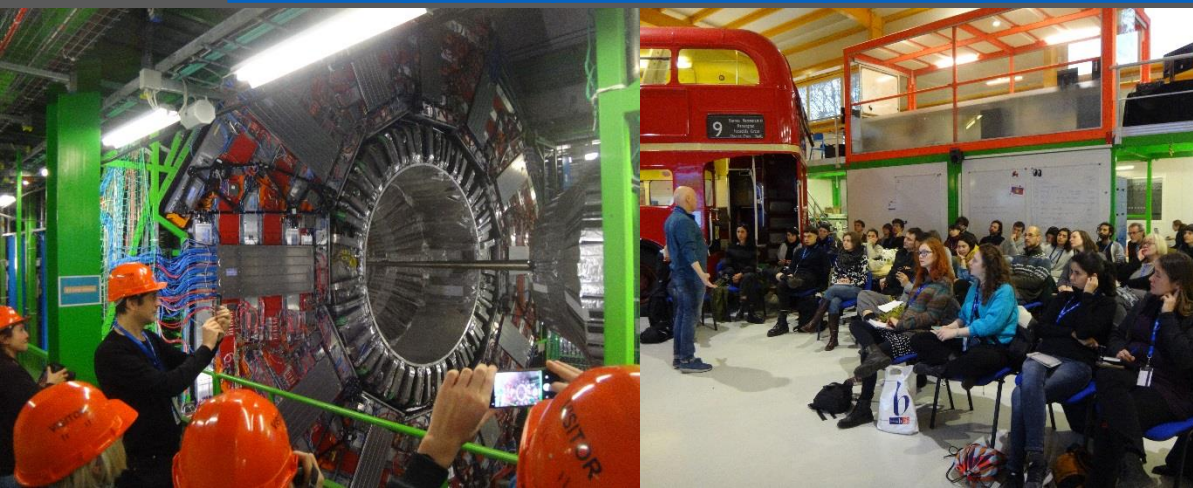
CIRCUIT TRAINING

A FORAY INTO THE WORLD OF THE LARGE HADRON COLLIDER

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

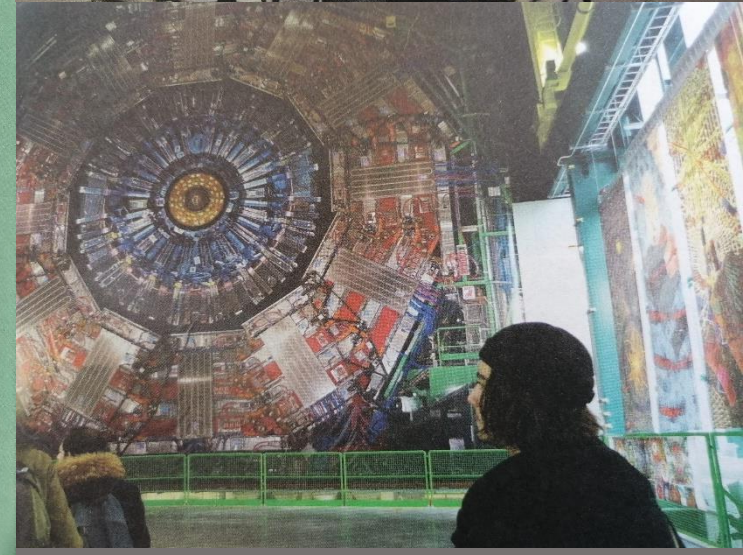
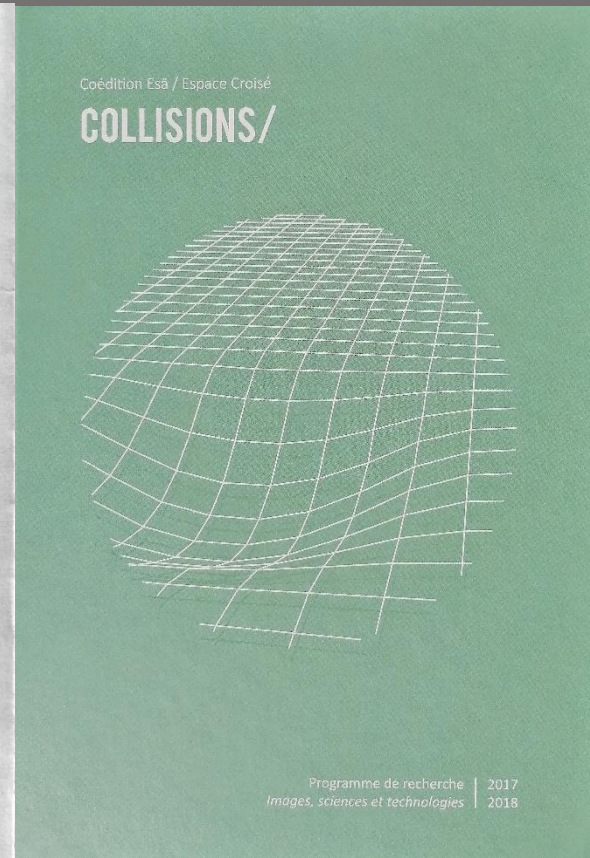
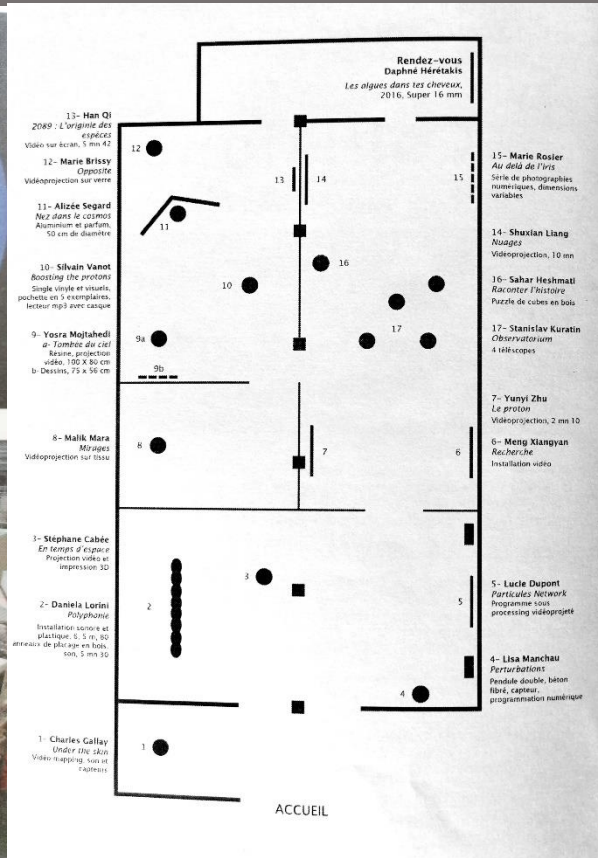
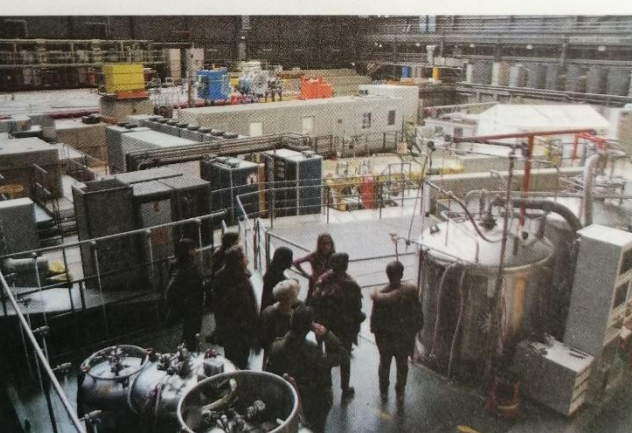
Natalia Goreva
Carmelia Tarilante Rodriguez
Denise Schellmann
Athanasios Grammosis
Lukas Gritznier
Benedikt Melzl
Rosie Beem
Rafael Lippuner
Galnaz Bashiri
Julia Mag
Nora Drumeva
Andreas Budak
Johannes Falkmann
Marko Markovic
Lela Nomada
Marina Rebhandl
Canan Ergin
Andrea Vesgo
Francesca Aldigiani
Daniela Brill
Frederique Neuts Leroy

W
di:angewandte
HEPHY
art@CMS
CMS



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

Collisions est une co-réalisation de l'esa, école supérieure d'art du Nord-Pas-de-Calais, l'Espace Croisé et art@CMS au CERN, l'institut Paul Scherrer, l'Ecole Polytech Lille.



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

Diversifying partnerships with professional creative and education institutions allows us to profit from their **expertise**, their **network** and their own **aim to connect** to society

Thank you for your attention!

