

art@CMS / ORIGIN
global
science engagement & networking
via
Science & Art



We (scientific community) are not the only one who ask **THE BIG** questions mankind is interested in since the **beginning of time**.

Obvious solution:

TEAM up with other Communities

Communities outside Particle Physics

astrophysics, gravitational waves, neutrino physics, ...

Communities outside Science Community

Creative- **Art**- **Music**- **Lyrics**- **Dance**- **MultiMedia**- **Community**

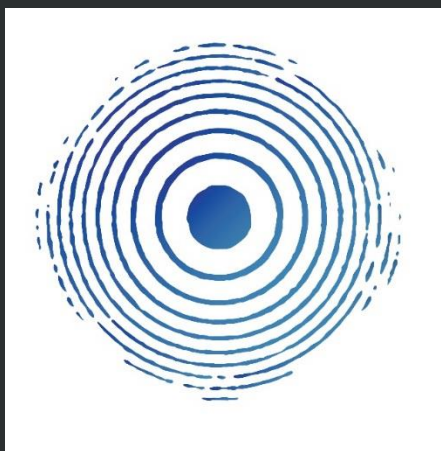
Cross-Disciplinary Engagement



Since 2017

Since 2012

TEAM Up – create synergies in the storyline



ORIGIN

Supported by

ATLAS, ALICE, CMS, LHCb,
LIGO, VIRGI, ICEcube,
Muography, Perimeter Institute,
Canadian Light Source, and other
international partners

Particle Physics
Astrophysics
Gravitational Waves
Neutrino-Physics
Muography
Accelerator
Technology

Methology develped & disseminated since 2012

By CMS collaboration via art@CMS

Global Cross Disciplilnary science engagement & networking program



ORIGIN program **Mission**



Interdisciplinary science **engagement** & **networking**

Help our science community to reach out to **especially school students**, general public and policy makers to relate and engage actively with various science topic via the arts or creative involvement.

“Arts as a tool to engage actively –

Empower them to own the topic and allow them to contribute”

Scientific Methodology triggers Critical Thinking

Art fosters Creative Thinking



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

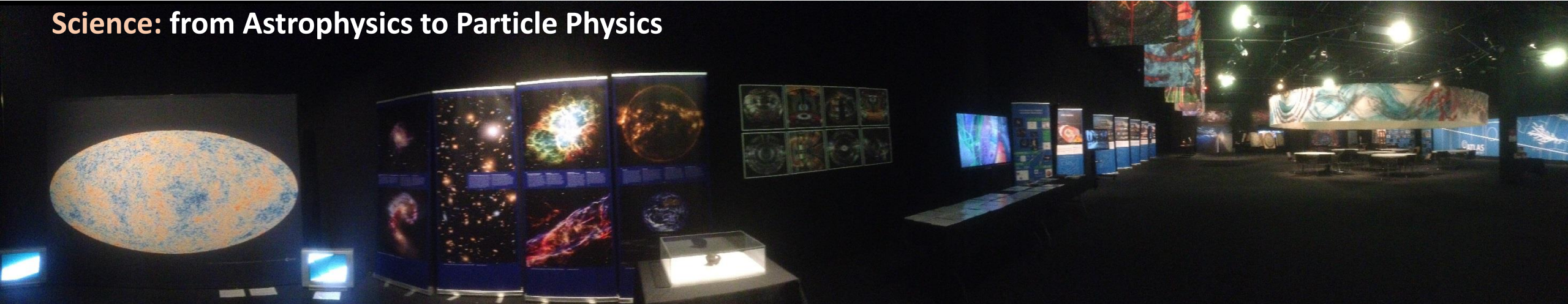
The **exhibition** serves always as **framework to support** activities like : presentations, round table discussions, science and creative workshops, meet real artist or scientists,

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

Cultural Collisions by ORIGIN - Canada



Science: from Astrophysics to Particle Physics



Art: International art@CMS collaborative artists and local artists

Venue: **Ontario Science Centre, OSC**

First exhibition April 9th – 15th 2018
student research and inspiration

Second exhibition: May 29th – June 3rd at OSC :
students art-works presentation

Organization: creation of ORIGIN

Toronto Ministry of Education: general and education organization, evaluation

ORIGIN: Scientific curation

art@CMS, ATLAS, CLS, CMS, LIGO/VIRGO, Muography, Perimeter Institute
More institutions are interested to join: TRIUMF, Snowlab





Cultural Collisions Canada — week schedule

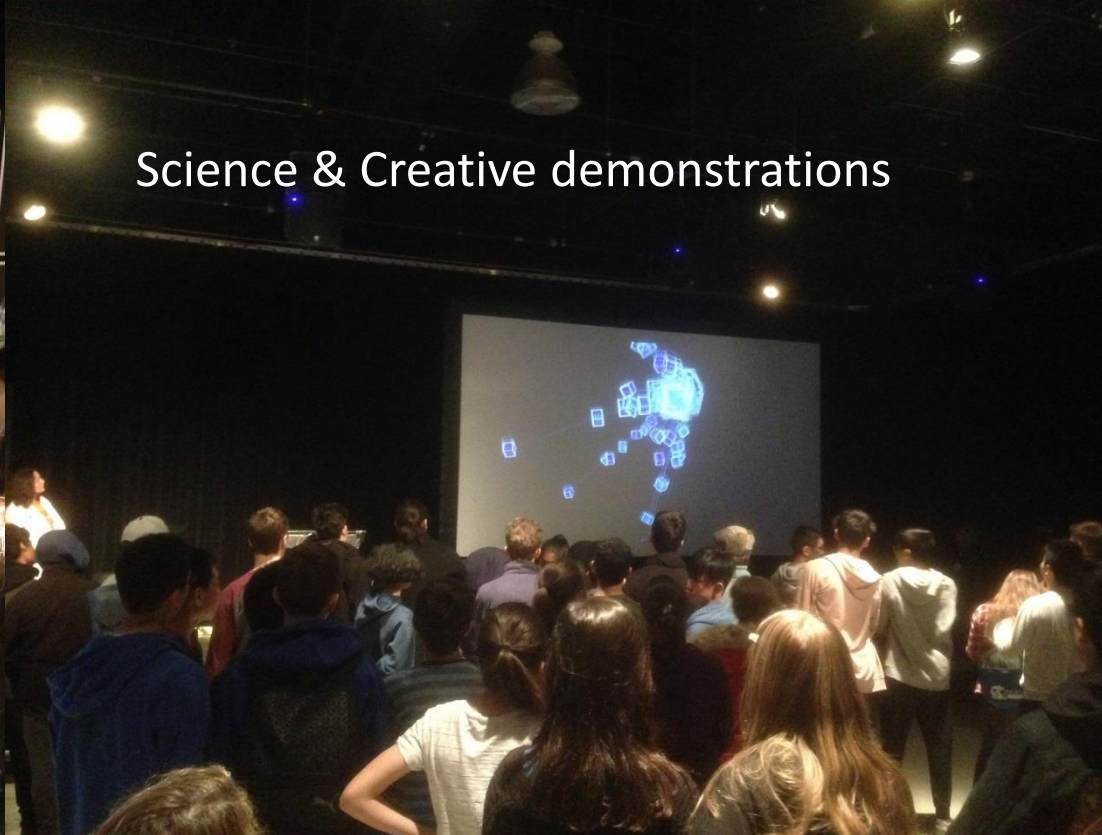


Cultural Collisions Project with Origin - Maximum number of students per day (Tuesday - Friday) is 100 to accommodate workshops - Exhibit can always handle visitors

	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



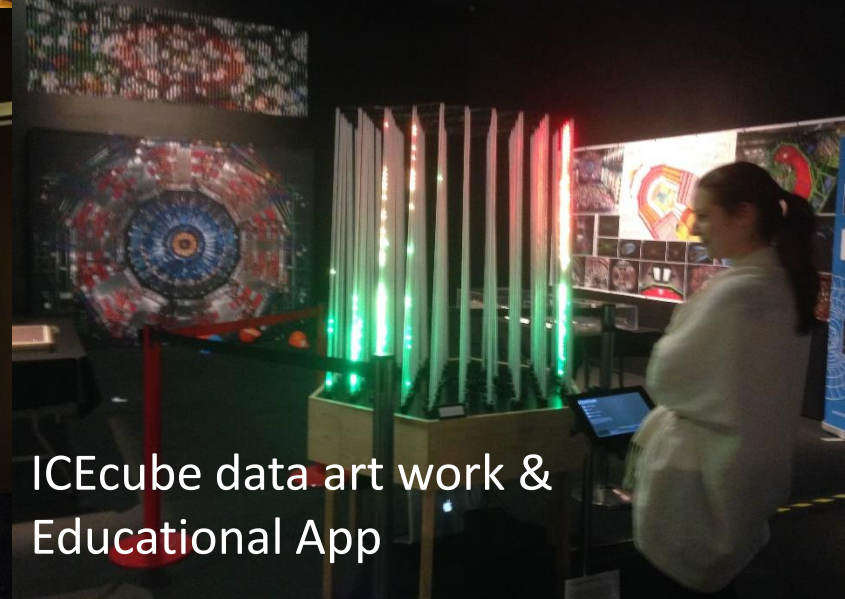
Rap Workshop



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



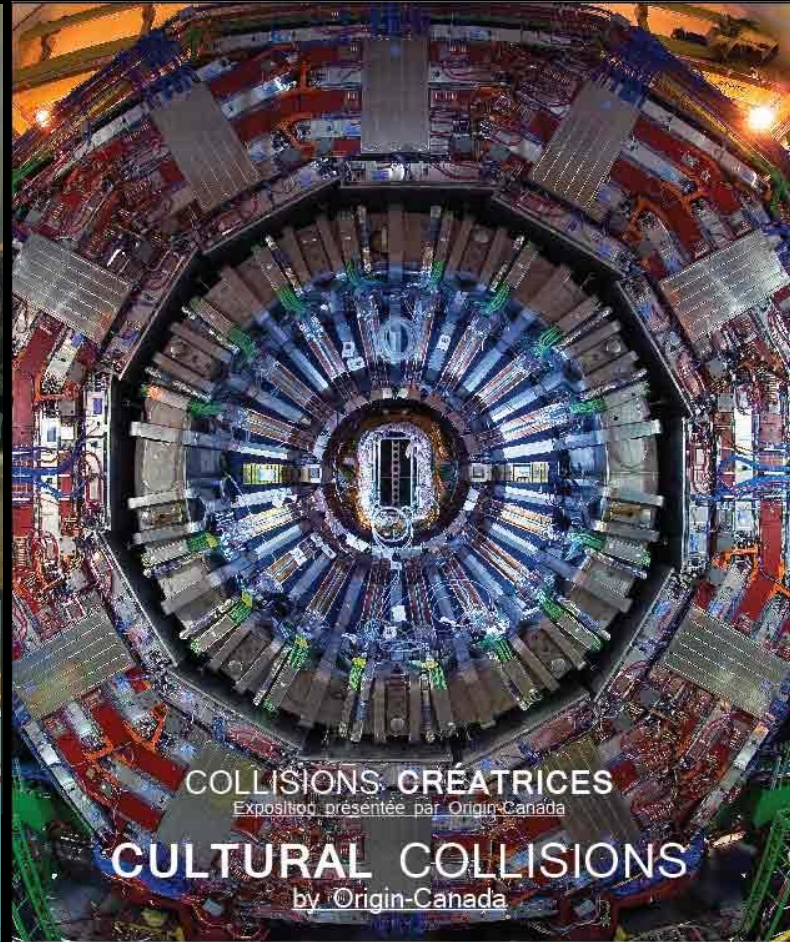
Pre Concert Conversation



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



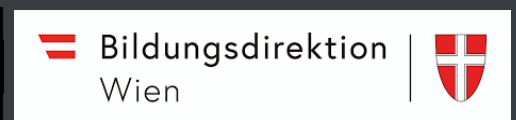
Rap performance & HipHop



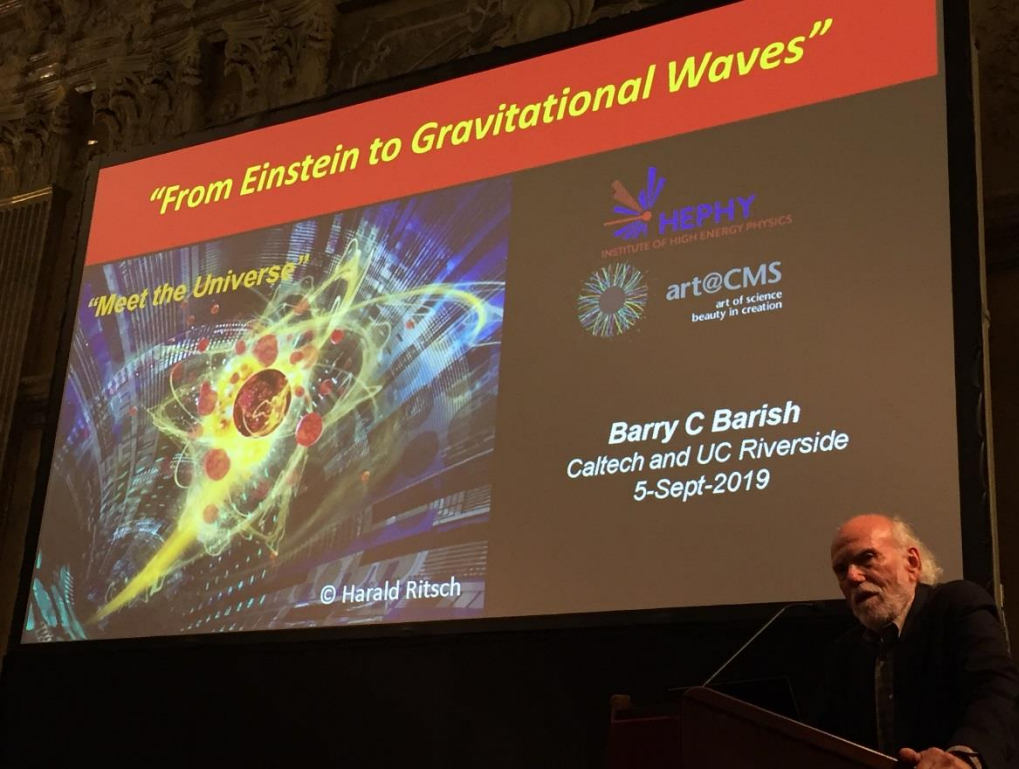
Ausstellung: "Meet the Universe", 60th Jahre Österreich am CERN- Aula der Wissenschaft Sept. 2019

Workshop: CulturalCollisionsVienna 2019/ 2020 - Aula der Wissenschaft 2019 / mumok 2020

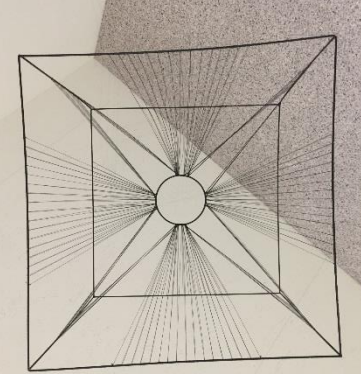
Michael.Hoch@cern.ch
HEPHY/CMS & art@CMS/ORIGIN team







mumok vernissage Wintersemester 2019/2020 – 28. Februar



Direktor mumok: Karola Kraus & Team Christine Schelle
Lehrer: Norbert Metz, Anna Scheer, Maria Wambacher



Cultural Collisions Vienna outlook 2020/ 2021

Sustainable Collaboration established for the following years with:

- 1) HEPHY – High Energy Physics Institute – Austrian Academy of Science
- 2) MUMOK – Museum for Modern Culture
- 3) Bildungsdirektion Wien BDW - Vienna City School Council

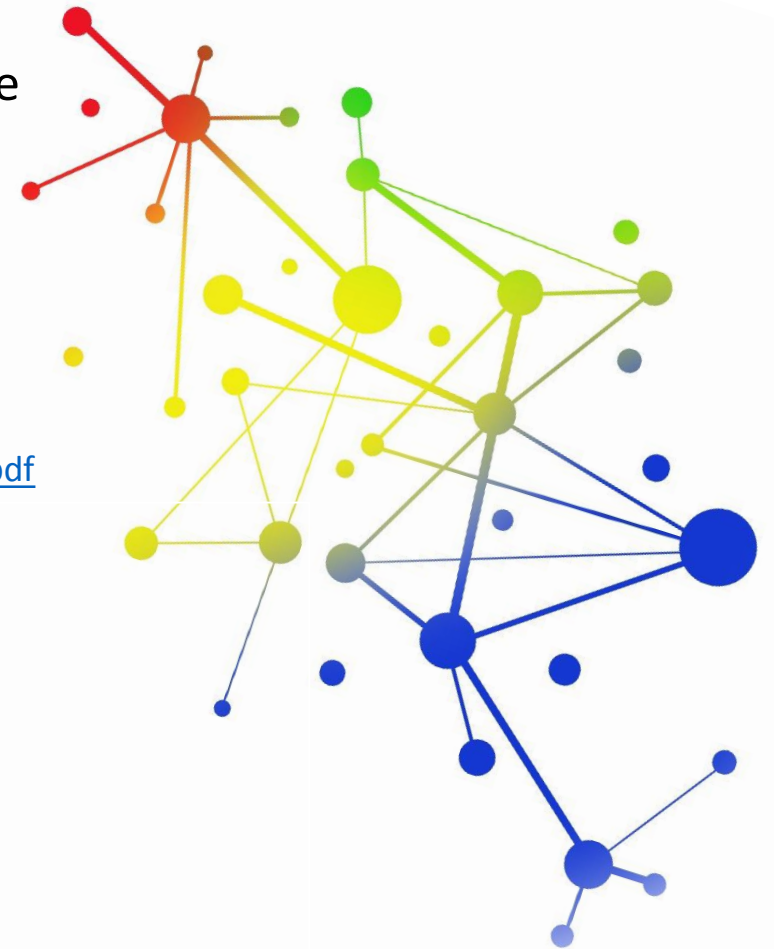
Cultural Collisions Vienna Cycle: winter semester / summer semester

http://www.teilchenphysik.at/fileadmin/user_upload/Infoblatt_Cultural_Collisions_Workshops_Oktober2020.pdf

Program is still ongoing adapting to current and regional **Covid19** regulations

Announcement for WinterSemester 2020/2021:

http://www.teilchenphysik.at/fileadmin/user_upload/Infoblatt_Cultural_Collisions_Workshops_Oktober2020.pdf





Cultural Collisions Prague 2020

Belnspired@ICHEP2020

Educational program for >120 high school students
Visit/ Masterclass/ Art WS/ Could Chamber WS/
Science Flash Mob/

- 1) end of school year exhibition - online June 2020
- 2) ICHEP2020 student exhibition – online July/August 2020
- 3) Exhibition during 20th Czech Physics Conference September 2020





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 _



IdeaS



CONTACT

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 suratmica@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 Suratónica / CMS Experiment /
 Ideasquare at CERN / ConcueroPmov Collective / Queer Architectures and the Virtual Body
 Workshop. Artist Santiago Tavera. / Colorful Spaces of Transformation. Artist Martin Roth.





Art University Collaborations - 2 semester sciART course

Applied Arts University Vienna [AT] 2016/ 2017, 2018/2019

KASK, Ghent [BE] 2017/2018, ESA, Lille [FR], Art University Montenegro [MO] 2017-2019

Always in collaboration with local science Institute like, HEPHY [AT], Univ. Ghent [BE], ...

- Group size: 8 – 24 students
- Program:
 - Weekly lectures at the Arts University
 - Visit & Lectures from local science partner
 - Working Visit at CERN ~ 5 to 10 days
 - Artwork rehearsal
 - Science workshops
 - Final show in local Gallery or Museum

Opening
June 6th 2017, 19.00

Accompanying Program
June 9th 2017

das weisse haus
Hegelgasse 14
1010 Vienna

EXHIBITION
JUNE 7th-17th 2017

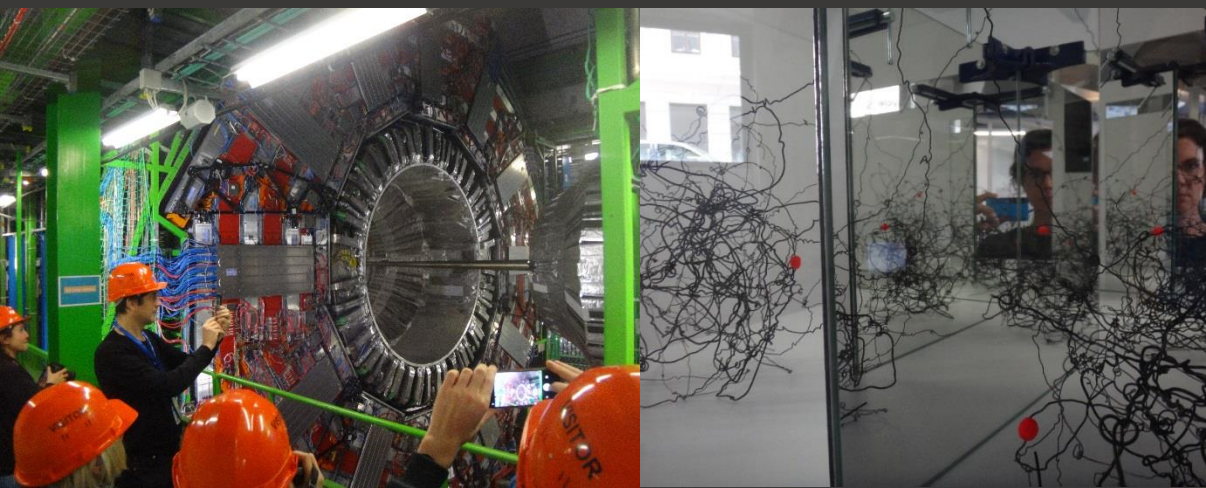
CIRCUIT TRAINING

A FORAY INTO THE WORLD OF THE LARGE HADRON COLLIDER

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

Artists listed: Natalia Gurava, Camilla Tarfonse Rodriguez, Denise Schallmann, Alhanoua Gramani, Julia May, Lukas Grizner, Benedek Meisz, Róse Benn, Johanna Fellmann, Marko Markovic, Lala Namada, Marina Rebbandi, Camu Ergin, Andrea Veago, Nora Drumovc, Francesca Aldagani, Daniela Bull, Frederique Neuh Leroy.

Logos at the bottom: W, dr:Angewandte, HEPHY, art@CMS, CMS.





Art University Collaborations - 2 semester sciART course

University of the Arts London (UAL) Prof. Nathan Cook, Poof4Head, BOMET, DOA7, 2018, 2019, 2020
Chelsea College 14/15, 15/16, Central Saint Martins 16/17, 18/19, 19/20

- Group size: 8 – 24 students
- Additional Program:
 - 2 CERN visits
 - Art workshops at CERN given by Art Students
 - Art performances and presentations at CERN
 - Additional Symposiums organized by Art University
 - Photos: <https://goo.gl/photos/VfSSqkg7cN7Ejzs97>
- 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



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/entangledscmcms

fourcorners CMS art@CMS ual central saint martins

design by Victoria Westerman



aSmotherPebbel

<https://asmotherpebble.fsu.edu/>
Tallahassee University /US



Cross-Disciplinary project of the Tallahassee University- Florida

- Start: Summer 2020
- Duration: 5 years
- Number of artists in the first year 22

Due to Covid19

- regular dialogue working online meetings, since June 2020
- CERN working visit and presentations June 2021





In Search of A Smoother Pebble

"I do not know what I may appear to the world; but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me."

Sir Isaac Newton

[Calendar »](#)[Press Release »](#)[News »](#)

Conclusion

Reaching out to, **Engaging**, **Networking** and **Collaborating** with
non-scientific professional partners
in the South East Europe region
Creates big advantages for our regional scientific community

SCIENCE & ART connecting PEOPLE

Sustainable and **strong IMPACT** is achieved by providing
Science & Art dialogue to next generation
Cultural Collisions – Science&Art@School
Critical Thinking & Creative Mind Set

- We look forward for to create an inspiring science & art dialogue
In Bosnia and Herzegovina and the South East Europe Region –

michael.hoch@cern.ch

