



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

Cultural Collisions Bosnia and Herzegovina - 2020/2021

Organized by **ORIGIN-CMS**

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# Objectives

Demonstrate how **science & art enables** connecting people

**stimulate curiosity** on science,  
**foster** critical & creative thinking process;  
**engage** in science via art practice

**Engage, Network and Inspire** all generations, particularly **young people**

**Regional Involvement** of Schools, Universities and local cultural Institutions

**Network & Connect** Students **local** scientists, artists, educators and real people with **international** partners in science & art

**Foster digitalisation:** bring **Big Science** experiments such as those at **CERN**, **gravitational waves** interferometers, **space telescopes** live into the class room and disseminate how **global science collaborations** networking works.

**Sustainability:** Transfer methodology knowledge, materials tools to local partners

# Format – Cultural Collisions

Cultural Collisions is an educational interdisciplinary art & science engagement and **networking** format that allows students to gain **authentic and personal access** to the world of science and to **approach complex topics** through artistic exploration.

## 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.

The process that the students go through during the workshop allows them to **acquire scientific skills**, as well as to discuss and express **creative approaches to solutions** in an **artistic dialogue**.

The **direct contact with real scientists and artists**, who are perceived as identification figures and can give the students direct, **real-life and professional insights**,

# Connect teams from all over B&H

Duration: Nov. 2020 - June 2021

## 11 teams in 6 towns:

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

## Every team consists of at least:

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

Planning: **new** Cycle 2021/2022



# Schedule

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. 16<sup>th</sup> 2021; <https://indico.cern.ch/event/1005605/>
  5. Virtual Visit to CERN / CMS: - March 25<sup>th</sup> 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. 3<sup>rd</sup> General Rehearsal session: - May 26<sup>th</sup> 2021: <https://indico.cern.ch/event/1041786/>
  7. Closing Hyrid-Vernissage: - June 18<sup>th</sup> 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



- permanent local exhibitions





# Kick Off Symposium

Web Link: <https://indico.cern.ch/event/970862/>



6-7 November 2020  
Europe/Zagreb timezone



Overview

Timetable

Registration

Participant List

ZOOM link

## PAST, PRESENT AND FUTURE OF THE UNIVERSE

### SCIENCE & ART CONNECTING PEOPLE

Inspiring teams of young people to work on **scientific topics** for several months supervised by scientists and artists to create **artistic videos** or **digital artworks** that illustrate their interdisciplinary **dialogue**. The **target audience** for these digital artworks are other young students, of similar age, as well as members of the general public.

supported by: [Austrian Cultural Forum Sarajevo](#), [ORIGIN](#), [DAADconnect2020](#)

Sessions Video recorded :

6th Nov. morning session: <https://videos.cern.ch/record/2743874>

6th Nov. afternoon session: <https://videos.cern.ch/record/2743875>

7th Nov. brainstorming session: <https://videos.cern.ch/record/2743876>

# Kick Off Symposium 11/2020

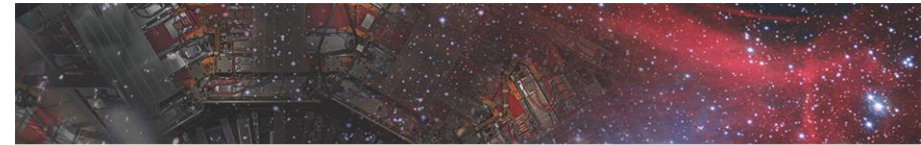
# Participation

Program: 2 Days

Participants: 132

Teams: 4

Cities: 4



## Cultural Collisions Bosnia and Herzegovina

November 2020 - May 2021

## PAST, PRESENT & FUTURE OF THE UNIVERSE

### Topics:

The Big Bang and Early Universe  
The Evolution of the Universe  
Black Holes and Gravitational Waves  
The End of the Earth, the Sun and the Universe  
Physics and Art  
Science Communication

### Schedule

6<sup>th</sup>, 7<sup>th</sup> November 2020: Kick Off online symposium  
November 2020 to May 2021: Work in teams with help from mentors  
May 2020; Closing Symposium: final exhibition and presentation, contest and awards

### Goal

Inspire teams in each city to work on scientific topics during the year to create digital artworks in which students present their interdisciplinary dialogue. The participants will be supervised by scientists and artists during the whole process. The target audience for these digital artworks are other young students, similar age.

### Organisation

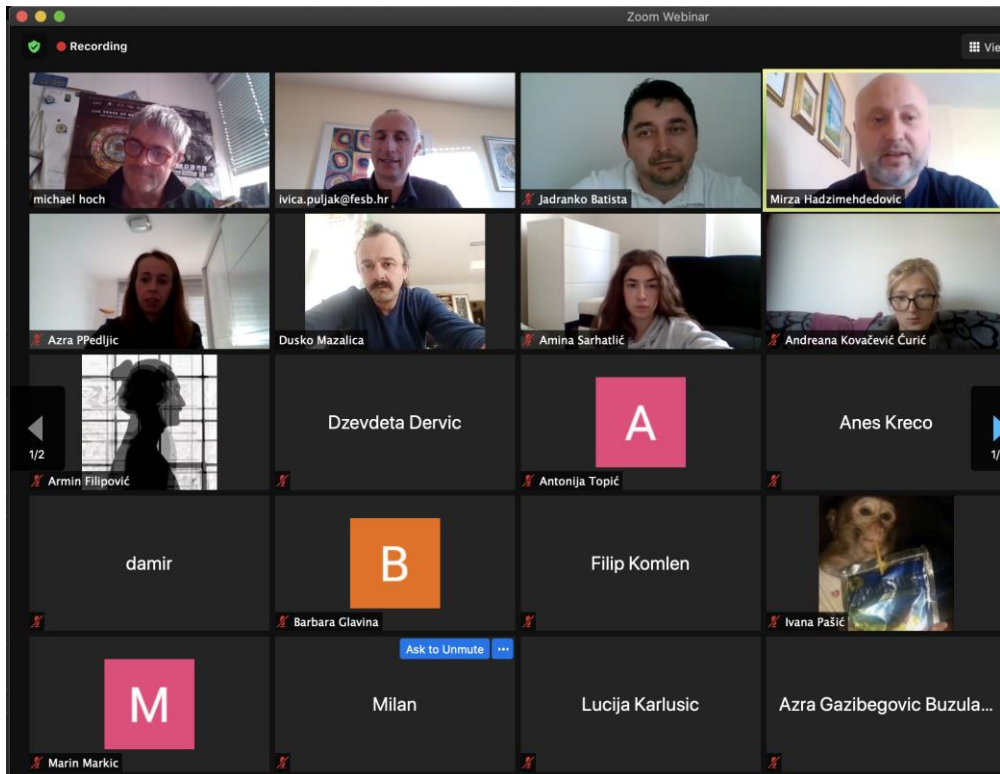
Jadranko Batista (Mostar), Daniela Brill (Vienna/Bogota), Azra Gazibegović Busuladžić (Sarajevo), Saša Ceci (Zagreb), Nikola Godinović (Split), Admir Greljo (Bern), Mirza Hadžimehmedović (Tuzla), Martin Hendry (Glasgow), Michael Hoch (Vienna/ CERN), Sabine Kernthaler (Vienna/ Sarajevo), Predrag Milenović (Beograd), Tijana Prodanović (Novi Sad), Ivica Puljak (Split), Nemanja Rakić (Banja Luka)



for registration and more information:

<https://indico.cern.ch/event/970862/>

SCIENCE & ART CONNECTING PEOPLE



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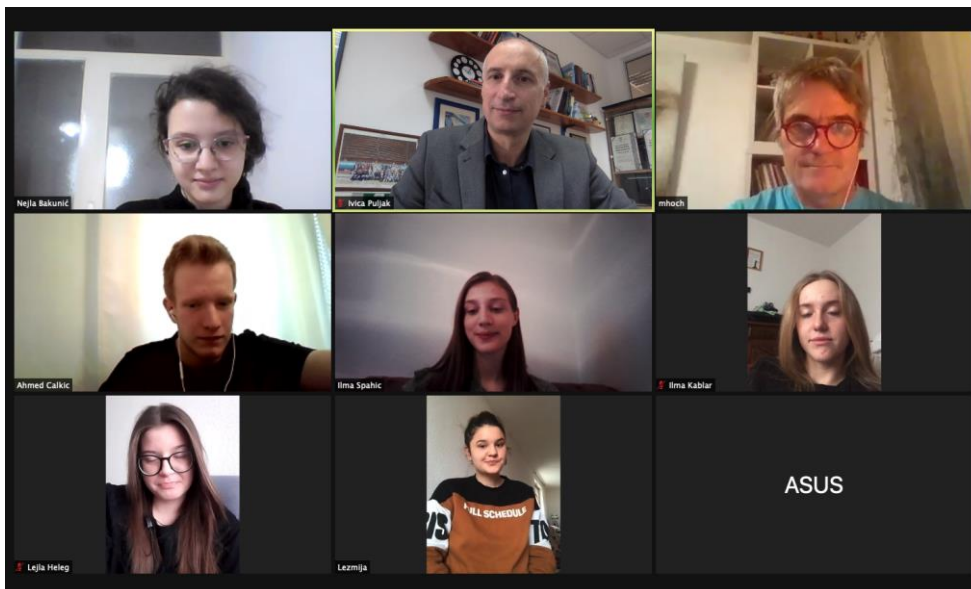


# Two new group joined

## Team GRADAČAC



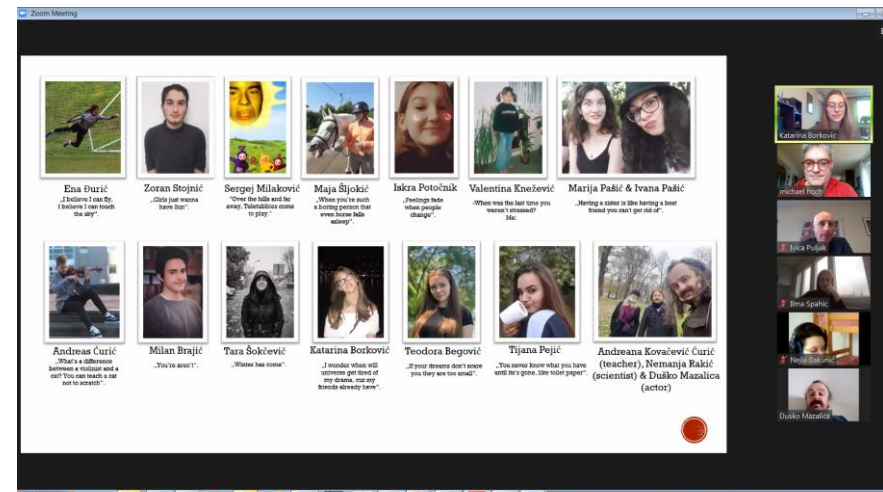
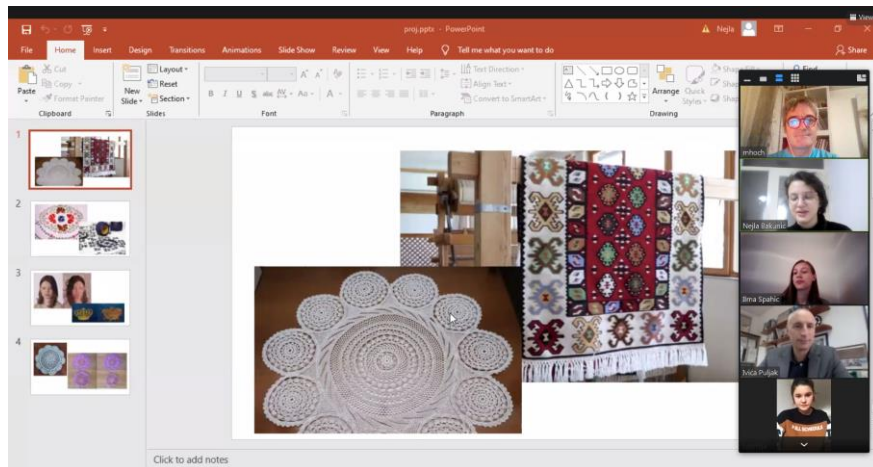
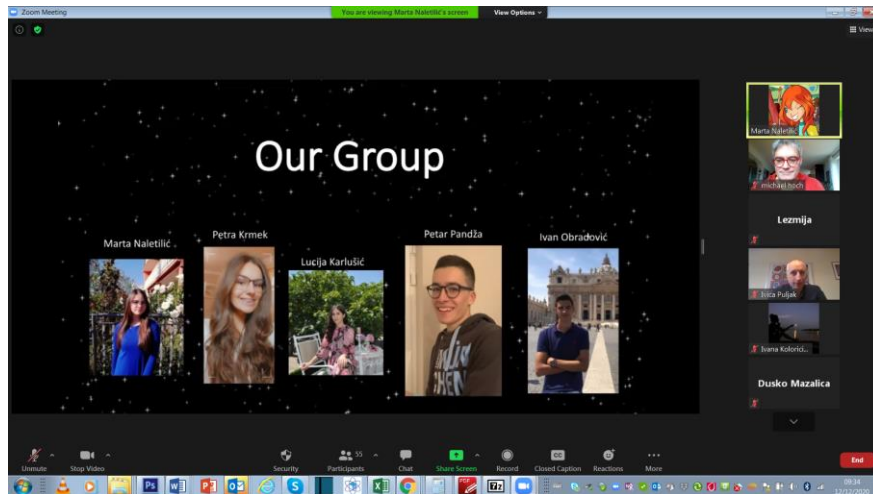
## Team ZENICA



# Ideas Exchange & Rehearsal Sessions

Students present their Ideas research or progress and discuss with scientists

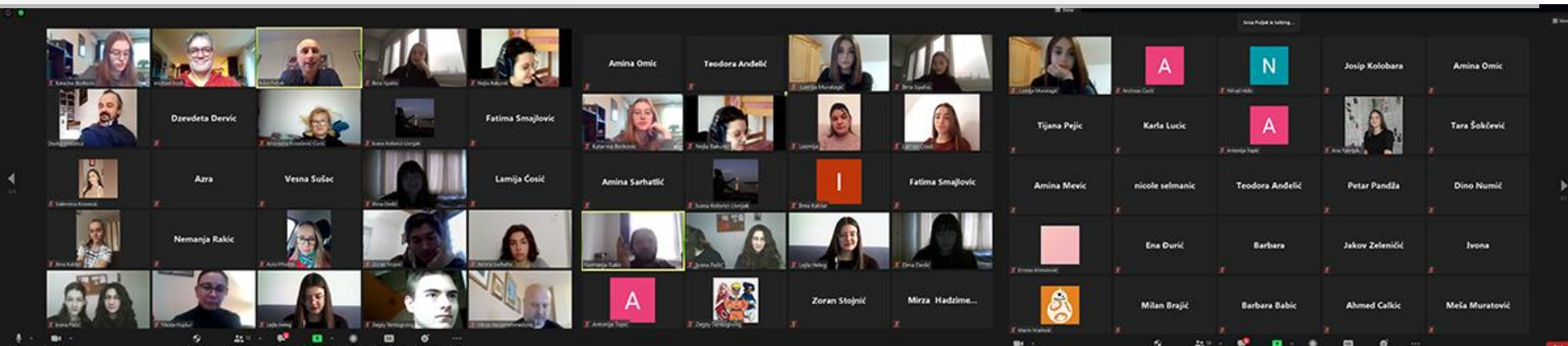
**Dates:** December 12<sup>th</sup> 2020, **First Ideas Exchange Session:** <https://indico.cern.ch/event/1015445/>  
February 16<sup>th</sup> 2021, **Second General Rehearsal Session:** <https://indico.cern.ch/event/1005605/>





# Virtual Visit to CERN / CMS

**Dates:** March 25<sup>th</sup> 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**



# Final Hybrid Vernissage (Sarajevo/ Banja Luka/ Zoom online) June 18<sup>th</sup> 2021

## Cultural Collisions Bosnia & Herzegovina

Hybrid Vernissage June 18<sup>th</sup> 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=dU13dG9mOVNLT0FVc052NHJicjZFcqUT09>



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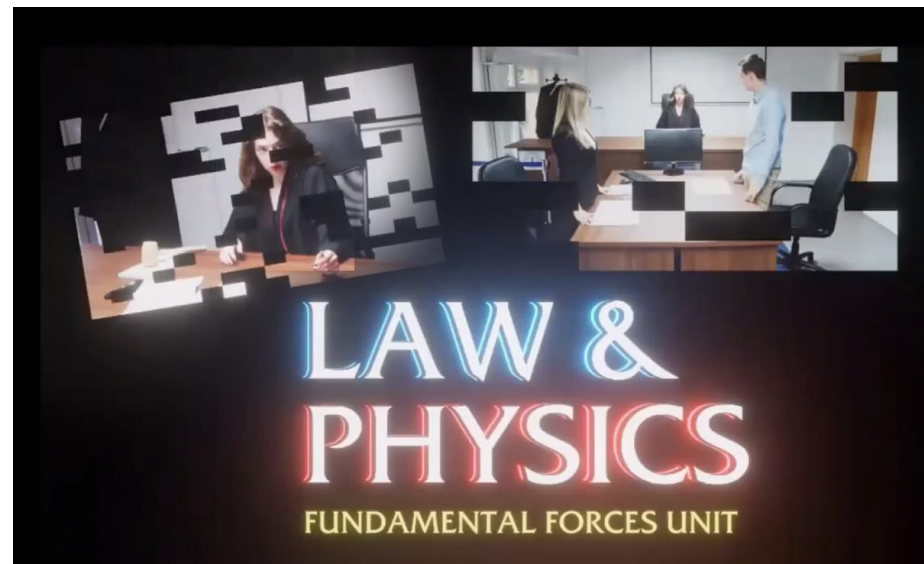




# Some creative results:

Original challenge to all 11 student working groups in 6 different cities was to:

- ▶ *learn about the scientific topic*
- ▶ *continue your own research*
- ▶ *connect to local and international researchers*
- ▶ *start a dialogue with local creative community*
- ▶ *create a novel artwork which is dedicated to communicate the scientific topic to your peer group or younger students.*
- ▶ *All creative expressions are allowed.*



- ▶ TV Serie Law & Physics Court Room

► Round Table Discussion



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

► Stop Motion Film



► Philosophical Animation Video



# Some creative results:

## ► Theatre Play

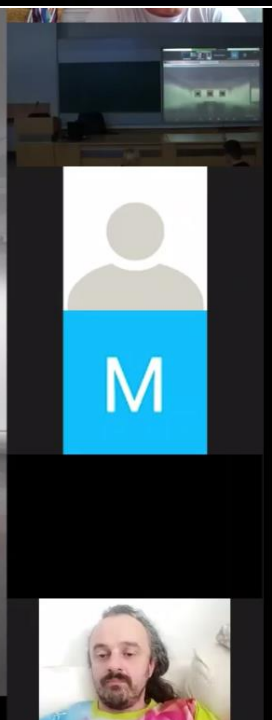
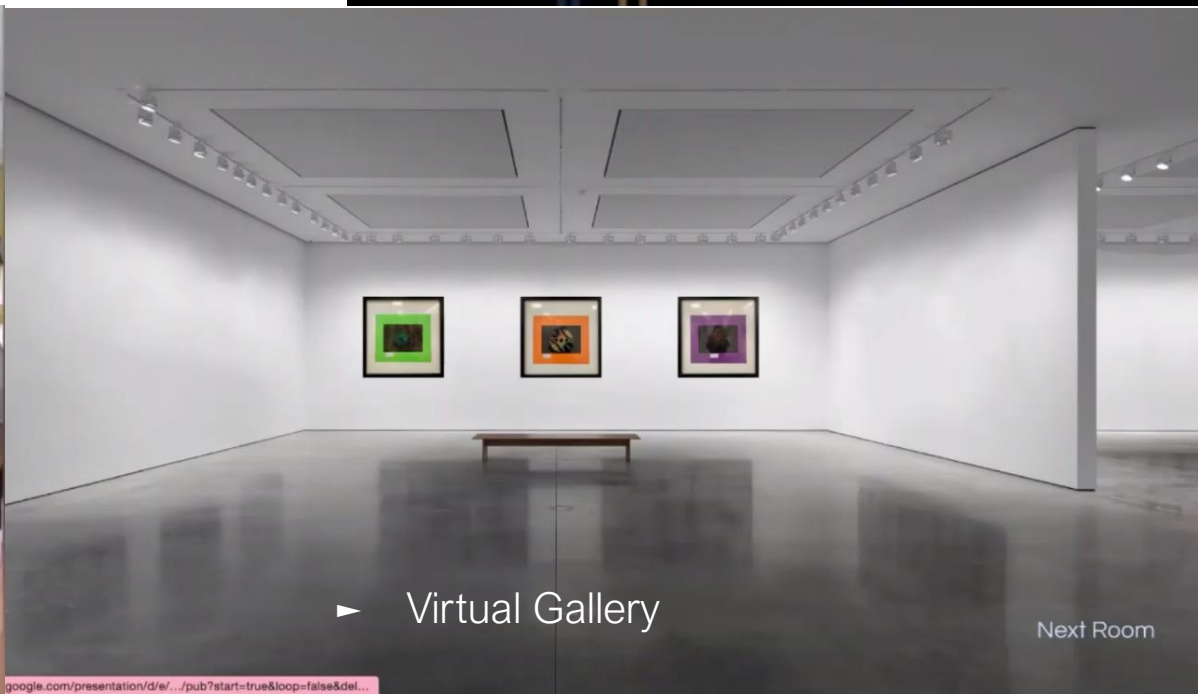


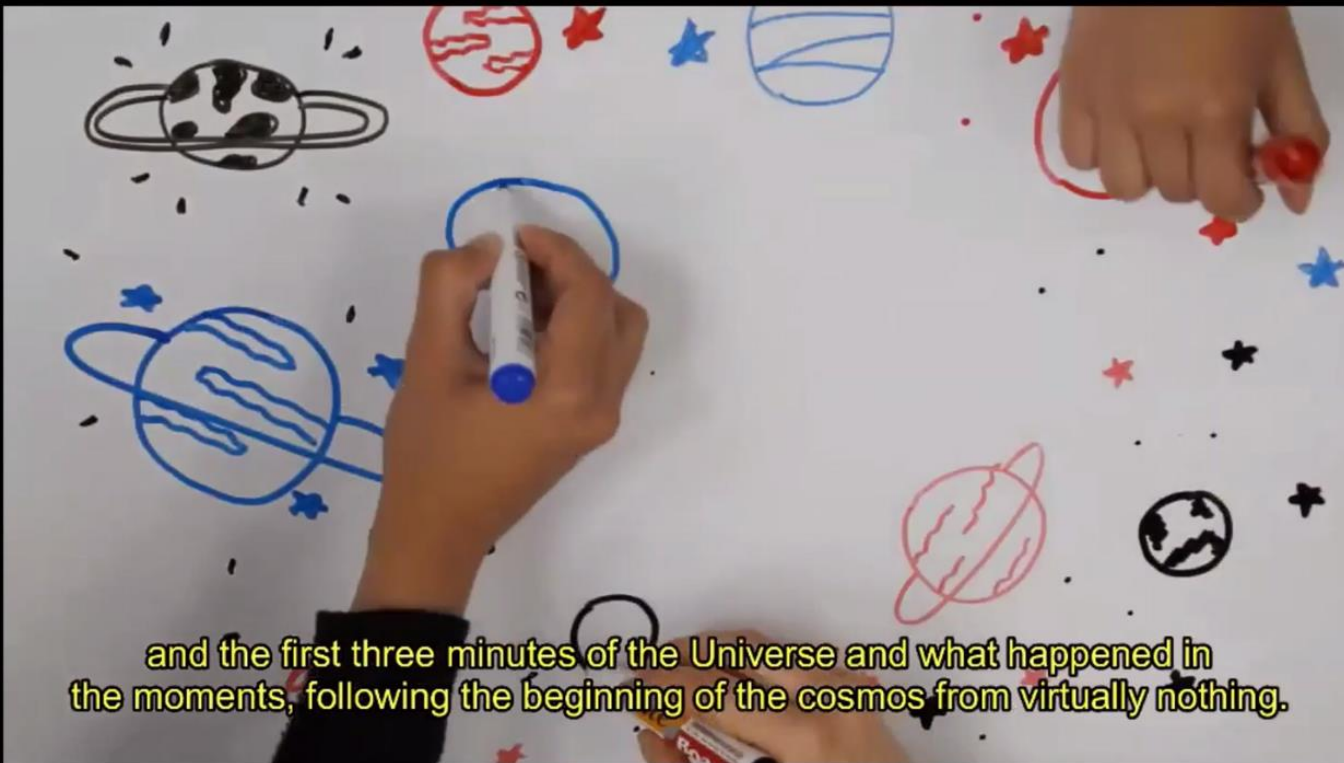
## ► Social Media Participatory art piece with Small Children

► Animation Video

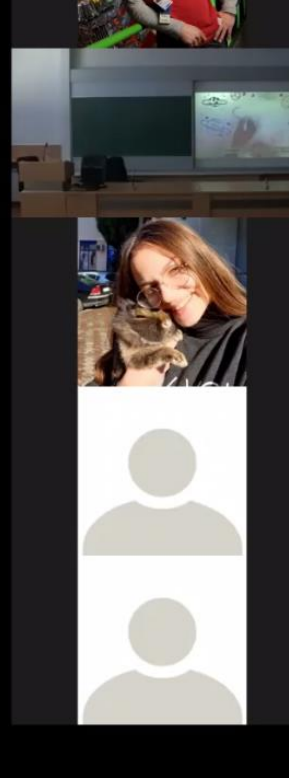


► Creative Production





and the first three minutes of the Universe and what happened in the moments, following the beginning of the cosmos from virtually nothing.



► Dance Performance

► Animation Video

► Presentation













## European Physical Society Conference on High Energy Physics

Online conference, July 26-30, 2021

- Our team contributed a poster
- one of our students, Lamija Muratagic helped to make the design
- Scientific paper is under preparation

# CULTURAL COLLISIONS

Bosnia and Herzegovina

A creative approach to engage on scientific topics.

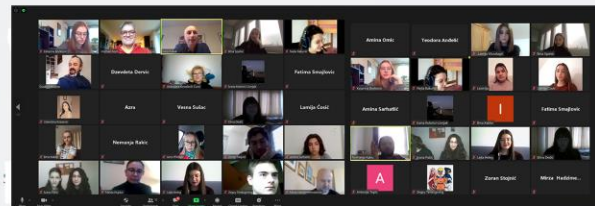
**November 2020. - June 2021. Authors** Jadranko Batista<sup>1</sup>, Daniela Brill<sup>2</sup>, Azra Gazibegović Busuladžić<sup>3</sup>, Nikola Godinović<sup>4</sup>, Mirza Hadžimehmedović<sup>5</sup>, Michael Hoch<sup>6</sup>, Ivica Puljak<sup>4</sup>, Nemanja Rakić<sup>7</sup>, Christoph Schafer<sup>8</sup>

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 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/1041786/>

**June 18th, 2021** - Closing Hybrid-Vernissage: - <https://indico.cern.ch/event/1047913/>



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DAADCONNECT2020







<https://www.connect2020.online>

time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	Arrival	Registration and Testing from 6:00				
09:00 - 09:30		Opening and Introduction Marcus Blecher / Mirza Madamedmadovic	Video editing and camera motion tracker Mirza Madamedmadovic	Science communication during pandemics Jelena Kalina	Education system reform Jasmina Batina	Online Science Communication Tijana Prodanovic (online)
09:30 - 10:00		Project writing Sara Caci	Augmented reality technology in education Armin Vido	the Mica Boban (online)	Multidisciplinary approach for science popularization Nenad Rado	International Networks Marcus Blecher
10:00 - 10:30		How to write a project proposal and get funds Elisa Ahmetovic	Can theatre help with science popularization? Dulka Marasovic	Hands-on session 3	Hands-on session 5	art@CMS Michael Hoch
10:30 - 11:00		Coffee	Coffee	Coffee	Coffee	Coffee
11:00 - 11:45		Introduction to Science Communication Anita Vogel	Storytelling Bradley van Putten	Hands-on session 4	Hands-on session 6	Future of Science and Humanity Irena Puljak
11:45 - 12:30						Presentation preparation Martina Marasovic
12:30 - 14:00		Lunch	Lunch	Common excursion	Lunch	Lunch
14:00 - 16:00		Dialogue Forum, Preadjuting Groups for hands-on sessions	Dialogue Forum		Dialogue Forum, Preparation for final presentations	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 8<sup>th</sup> – 14<sup>th</sup> 2021**



# Summary

- ▶ 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

# To make it sustainable:

We kindly ask you for suggestions and contacts to possible institutions who are interested to support and create a **sustainable regional cross disciplinary science and art engagement and networking hub for education.**

**Cultural Collisions 4 Creative and Prosperous Europe**

Thank you for your attention!

[Michael.Hoch@cern.ch](mailto:Michael.Hoch@cern.ch)

**art@CMS/ORIGIN** programm leader

Visiting Professor FSU Tallahassee, US

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