Science and art for connecting people in south-east Europe

Ivica Puljak

University of Split – FESB

with special thanks to Michael Hoch and the CMS Collaboration
and very active participation: Daniel Denegri, Ludwik Dobrzynski, Nikola Godinović, Goran Đorđević, Sanja Damjanović, Ilja Doršner, Chiara Mariotti, Tiziano Camporesi, Mick Storr and many other colleagues

LHCP Paris, 29 May 2020
Driving ideas for cross disciplinary engagement

► Educate, engage and motivate kids, youngsters and adults

► Ignite and maintain interest for science

► Create dialog between different communities

► Stimulate exchange of people and ideas

► Create networks and connect people through science & art

► Offer an optimistic look at the future

ORIGIN a network of top science collaborations in the fields of particle physics, astrophysics, gravitational waves, neutrino physics and cosmology. ATLAS, ALICE, CMS, LHCb, LIGO, VIRGO, ICExctube, DUNE, Muography, Perimeter Institute, Canadian Light Source, and other international partners
Cultural Collisions – Split /Croatia by ORIGIN
Old City Hall – Sept. 17th -22nd 2018

► Exhibition art & science
► Lectures
► Round table discussion
► Workshops:
  - Physics and Music *Arduino Explora*
  - Gravitational waves *Torino interferometer*
  - Playing with data ‘mini masterclass’ - *CMS tool developed for Cultural Collisons Canada*
Cultural Collisions – Split /Croatia by ORIGIN

Exhibition

First floor: Science exhibition

Walk through exhibition Split ➔ https://youtu.be/XYlDehGg4Xs

Ground floor: art exhibition
Train the Trainers - During the main exhibition

second floor: lectures and workshop room
Cultural Collisions – Split /Croatia by ORIGIN

Exhibitions and lectures in schools

► **Format:** exhibition and lectures, one day
  - Exhibition presented by *trained students*
  - Lectures given by *CMS scientists*

► **Audience and participation**
  - **Primary School:** ~100 students
  - **Secondary School:** ~500 students
Cultural Collisions – **Imotski /Croatia** by ORIGIN

**Exhibition, lectures and workshops**

- **Format:** exhibition, lectures, workshops, masterclasses
  - Including concert of French and local orchestra
  - Lectures given by **CMS scientists**

- **Audience and participation**
  ~ 400 secondary school students
Program:

- **art exhibition** results of the art University collaboration/ 2 semester course art&science 2017/2018 and art@CMS collaborative artists

- **Public lectures**

- **Cultural Collisions workshop**

Participating schools: 3 schools 85 students

Video walk through the exhibition: [https://youtu.be/UUnBDYhiSlk](https://youtu.be/UUnBDYhiSlk)
Science & Art, Sarajevo /Bosnia by ORIGIN
Fine Art Academy, 15th -22nd October 2018

Program:
  • cross disciplinary exhibition ORIGIN,
  • public lectures in the exhibition

Audience:
  • General public and
  • ~400 high school students attending lectures
LHC workshop & cross disciplinary exhibition
Akademia Shkencave Tirana / Albania October 2018

Program or the 2 days science workshop enhances by “light art exhibition”,
  ▪ Inspire students and general public and build up interest in our science

Audience:
► 3 guided tours with High School students & general public conference
Lectures, workshops, seminars
From small kids to adults

> 600 lectures
> 80 cities
> 50 000 kids, youngsters, adults
South-East Europe is very active in Masterclasses

- More than 50 of them in the region since 2013
# Teachers trainings

## Bosnian Teacher Programme
- **4-8 February 2020**
- CERN

## Croatian Teacher Programme
- **14-18 April 2019**
- CERN

## Serbian Teacher Programme
- **10-15 September 2018**
- CERN

## Slovenian Teacher Programme
- **5-9 February 2019**
- CERN

- Science Fairs and Festivals in **collaboration** with teachers
New phase

Creating the network of organisations and people
- Already involved or interested: UNESCO, Austrian Cultural Forum Sarajevo, Western Balkan Funds, Regional UN Department Montenegro, IRC-ISpra
- We may want to involve: COST, RYCO, RCC, Council of Europe, OSCE

Widening the participation
- Strengthen participation of all the countries from the SEE region

Structuring activities

Particular emphasis: schools and teachers!

Project applications: COST, Erasmus, Citizen Science, WFB …
- Particular thanks to Manolis Chaniotakis and Sofoklis Sotiropoulos from Ellinogermaniki Agogi

ORIGIN project in Bosnia & Herzegovina in 2020
Authors: Daniel Denegri (Saclay, France), Michael Hoch (HEPHY, Austria), Ivica Puljak (University of Split, Croatia)

Objective
1) Connect, engage and motivate young people, stimulate their curiosity and interest for science, widen their general interests for global problems and challenges and orient them toward future, using connection and interplay between various forms of art and Big Science experiments such as those at CERN, gravitational waves interferometers, huge ground and space telescopes, South pole experiments, dark matter and dark energy searches etc.
2) Make the project objectives sustainable: perform the project in close collaboration with local teachers, scientists and artists. Transfer the knowledge, materials and tools to them, so that they can continue and widen all the activities in the future.

Timeline
Sarajevo, 5 – 9 October 2020
- In parallel with the “Sarajevo School of High Energy Physics”, which is... XXX EUR
Total travel XXX EUR
Local expenses
To be estimated XXX EUR
Total local XXX EUR
Grand total XXX EUR

ORIGIN project in Bosnia & Herzegovina in 2020
Authors: Daniel Denegri (Saclay, France), Michael Hoch (HEPHY, Austria), Ivica Puljak (University of Split, Croatia)

Objective
1) Connect, engage and motivate young people, stimulate their curiosity and interest for science, widen their general interests for global problems and challenges and orient them toward future, using connection and interplay between various forms of art and Big Science experiments such as those at CERN, gravitational waves interferometers, huge ground and space telescopes, South pole experiments, dark matter and dark energy searches etc.
2) Make the project objectives sustainable: perform the project in close collaboration with local teachers, scientists and artists. Transfer the knowledge, materials and tools to them, so that they can continue and widen all the activities in the future.

Timeline
Sarajevo, 5 – 9 October 2020
- In parallel with the “Sarajevo School of High Energy Physics”, which is... XXX EUR
Total travel XXX EUR
Local expenses
To be estimated XXX EUR
Total local XXX EUR
Grand total XXX EUR
Augmented Reality Applications for the ORIGIN Projects
Developed by the Georgian ORIGIN team for educational projects.

Demo [http://cadcamge.ch/st/lhc/](http://cadcamge.ch/st/lhc/)

Conclusions

In collaboration with

**art@CMS, ORIGIN, CERN**

*and many other partners*

we are building a sustainable and integrative system for **promotion of science** in South-East Europe, which will

- Educate, engage and motivate
- Create **dialogs** and **networks**, stimulate **exchange** and **connect people** through science & art