

**Physics and Rock'n'Roll :
Expanding to New Audiences**

**Connie POTTER/Chris
THOMAS/Roger Jones
ICHEP2020**



Physics and Rock'n'Roll Expanding to New Audiences

Connie Potter / CERN
Chris Thomas / Iowa State University
Roger Jones / Lancaster University



For ICHEP2020
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- ◆ *Introduction : How we are using the power of music and its personalities to reach new audiences*
- ◆ *The Science Pavilions @ Festivals: Where did it all start?*
- ◆ *The Festivals*
- ◆ *The Content*
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- ◆ *The Numbers, The Feedback*
- ◆ *The Power of Celebrity*
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**"This really is an innovative approach, but I'm afraid
we can't consider it. It's never been done before."**



◆ *Introduction: How we
are using the power of
music and its
personalities to reach
new audiences*

Two 'programmes' in science communication involving music

Special Guest programme at CERN

Inviting well known artists, often musicians for a private visit of CERN

Engaging them with the physicists and as much as possible with the physics

Encouraging them to share posts on their social media about their visit

Maintain contact with some of those that have shown real interest for potential future collaborations with the artists

Festival Programme

Taking science to 'where the people are', i.e. non-traditional venues

Focus on music and culture festivals throughout Europe, possibly further afield

Bringing science into the mainstream

Reaching people whose normal engagement with science is often minimal

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*The Science Pavilions
@ Festivals:
Where did it all start?*

2015 Special Guest visit by C.O.O WOMAD, ex-physicist Mike Large

World **O**f **M**usic **A**rt and **D**ance in several countries, flagship in UK, founded by Peter Gabriel

Thought the WOMAD audience would be “curious” about physics

He was right

First Physics Pavilion in 2016

2019 became a full World of Physics

<https://womad.co.uk/the-world-of-physics-2019-line-up/>

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*The Science Pavilions
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*The Science Pavilions
@ Festivals:
Where did it all start?*

2019 saw Science Pavilions at 3 more European music festivals

Melting Pot at Colours of Ostrava in Czech Republic

<http://ipnp.cz/thebigbangstage/>

Pohoda in Slovakia

<https://www.pohodafestival.sk/en/news/cern-comenius-university-and-the-big-bang-collective-present-magical-science-at-pohoda-2019>

Roskilde in Denmark

<https://www.roskilde-festival.dk/en/years/2019/acts/cern-and-the-niels-bohr-institute/>

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The Festivals

Melting Pot at Colours of Ostrava in Czech Republic



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The Festivals

Magical Science Pavilion at Pohoda Festival, Slovakia



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◆ *The Festivals*

Science Pavilion at Roskilde Festival, Denmark



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◆ *The Content*

Partnership between Connie Potter, Roger Jones, Chris Thomas aka *The Big Bang Collective*

and

Collaborating institutes in the country of the festival

(the request to partner for a Science Pavilion in any particular country has until now always come from physicists in the country)

Basic format:

Talks

Workshops

Live Link (sometimes to CERN, sometimes NASA)

Outside 'hands-on, walk-up' activities

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The Content

Mix of

CERN speakers on CERN programmes / current interest

National speakers on HEP topics / current interest

Well-known science personalities on more general science topics

Samples:

- ◆ What have CERN and the LHC done for you?
- ◆ Build Your Own Solar Charger
- ◆ Creating a black hole for the movie Interstellar
- ◆ Build A Cloud Chamber
- ◆ Relativity: The Strange Nature of Space and Time
- ◆ Live Link (virtual visit) to NASA in Houston, USA

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The Logistics

Shipping equipment (budget, timing, customs), sometimes for up to 4 festivals in 4 weeks

Ordering basic requirements such as electricity, water, wifi in a field

On-site construction work

Finding local suppliers for equipment not shipped from our stock

Accommodation – usually we are in a field far from nice hotels

Close collaboration and communication at distance with event personnel



◆ *The Challenges*

Understanding the available space and logistical set up without ever having been there

Health & safety, appropriate storage and usage for hazardous chemicals

Ensuring sufficient electrical outlets, extension leads etc

Making a homemade setup look professional

Daily scheduling of events to allow adequate changeover time

On-site training of volunteers

One real challenge in programming is the demographic of the audience

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◆ *The Challenges*



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***The Numbers,
The Feedback***



As far as visitor engagement is concerned
the festival programme has been hugely successful

First Science Pavilion at WOMAD welcomed 4500 people over 2.5 days

The total number of visitors to all four festivals in 2019 was just over 20'000

Financially the cost is spread between
the Festival who provide the infrastructure and some accommodation
And us (CERN) with the local institute teams who cover all event materials, speaker
travel costs, shipping etc.

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The Numbers, The Feedback

Regularly distribute feedback forms to all who come to events
and/or engage for more than approx. 15 minutes with one of the team

WOMAD2017 'THE LAB' Feedback Form

Please give us your feedback on your experience at The Lab. We want to hear your thoughts, good or bad. Thanks!

Title of Workshop
Cloud Chamber

Did you enjoy your visit to The Lab? YES NO

Was the activity as you expected? YES NO

Was the duration and level of the talk/activity?
 Just right Too complicated/too long, I didn't understand any

Could you please indicate your age range?
5-10 11-15 16-18 19-24 25-39 40-64 65+

Would you come back to The Lab? YES NO

E-mail (optional)

Any comments or suggestions you'd like to give us please include here.. Really fab - this injection of joyous scientific objectivity ~~is~~ a beauty & totally made our WOMAD visit!

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Any comments or suggestions you'd like to give us please include here.. I didn't understand physics, but at all at all, but really enjoyed this

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***The Numbers,
The Feedback***

“Having your mind blown at a music festival in a cool educational way is AWESOME”
Feedback from a Roskilde festival-goer

“It was amazing! Only thing which I would improve is simpler explanation of physical phenomena - Physics For Dummies :)
I want to see you next year!!!” *Feedback from Ostrava festival-goer*

“Very clear, nice & funny talk. Thank you. Not just for it but also for the whole stage – very nice opportunity to extend knowledge in between concerts” *Feedback from an Ostrava festival-goer*

“I didn't understand physics at all at school but I really enjoyed this” *Feedback from a WOMAD festival-goer*

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*The Power of
Celebrity*



For many years have invited 'well-known' artists to CERN, but infrequently

Early visitors – actor Tim Allen, musician Will.I.Am

Around 2015 began inviting artists more regularly

Invitations often snapped up

Carefully put together visit programme, with specially selected guides

Logistically challenging – group size changes, travel plans change, private planes, families

Social media posts on visit by artists can have tens of thousands of views

Relationships built between us and them – sometimes resulting in future collaborations

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◆ *The Power of Celebrity*




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The Power of Celebrity



 **rogerwaters** • Siguiendo
CERN

 **rogerwaters** Today we made a day trip to @cern, weirdly surreal and even a bit meta-physical. To be a hundred meters underground in the presence of lots of serious work about what might have happened and what might be happening now, all that extraordinary work being undertaken in a collective spirit of international collaboration and co-operation and goodwill is very

   
51,121 Me gusta
14 DE MARZO DE 2019

blobtower @blobtower · Jul 9, 2019
Still absolutely reeling from our trip to the biggest, most important machine on the earth! So many thanks to @cern + @conniepotter1 for the exhaustive and NOT Exhausting tour of the most amazing project in the world!!!!!! - this is 1/2 of the cpus the internet was invented on!



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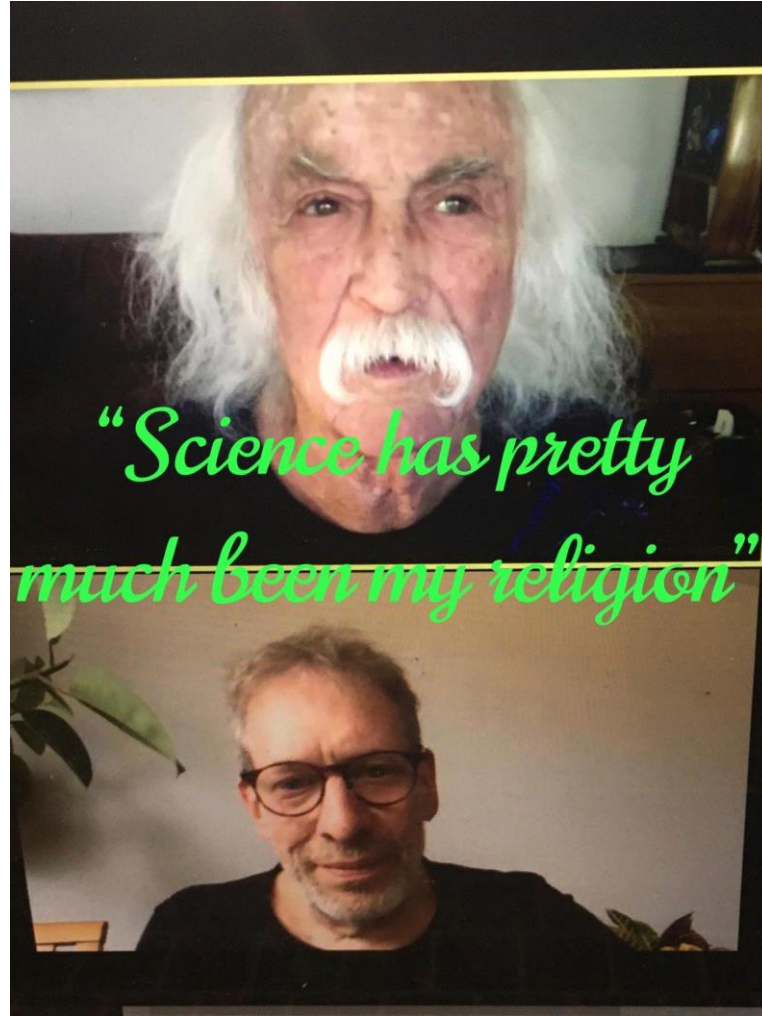
◆ *The Power of
Celebrity*

Most recent collaboration

David Crosby in conversation with Jeffrey Hangst, ALPHA experiment

WOMAD World of Physics 2020

<https://athome.womad.co.uk/world-of-physics-at-home/>





Conclusion



IMPRESSIONS AND IMPACT of the Festival Programme :

FROM OUR COLLABORATING TEAMS : surprise, pride, enthusiasm and a strong desire to return

FROM THE GENERAL PUBLIC : surprise, delighted, awestruck in having these 'close encounters' with real scientists.

FROM THE PHYSICIST SPEAKERS : come away feeling they have learned better how to interact with the general public, how to talk about science with them on a simple yet engaging level. They speak enthusiastically about how they have 'grown' from the experience.

REPEAT VISITORS

And there are other, less immediately obvious, but hugely positive outcomes (particularly for me). Most importantly is that the collaborations with the local institutes is incredibly rewarding – a great deal can be learned on both sides, and the experience of doing this kind of outreach can be developed further with their institutes afterwards.

I've discovered some amazing individuals quietly doing terrific sci comm work in their countries – Voitech & Martin with Science to Go in

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Here's a snapshot of physics at music festivals...

<https://videos.cern.ch/record/2712006>

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More info:

<https://www.lancaster.ac.uk/physics/outreach/big-bang-collective/>

<https://www.youtube.com/watch?v=L7U0K4nww6E> Roskilde festival video

<https://www.facebook.com/meltingpotforum/videos/2571915019540817/>

Colours of Ostrava Melting Pot festival video