

Outreach Lab

Introductory meeting

Coordinator: Krzysztof Pawłowski
(Center for Theoretical Physics PAN)

Demonstration of Quantum Key Distribution: Jacek Szczepkowski
(Institute of Physics PAN)

What is „Outreach”?

- Wiki

Science outreach, also called Education and Public Outreach (EPO or E/PO) or simply public outreach, is an umbrella term for a variety of activities by research (..) institutions (..) aimed at promoting **public** awareness (and understanding) of science and making informal contributions to science education.

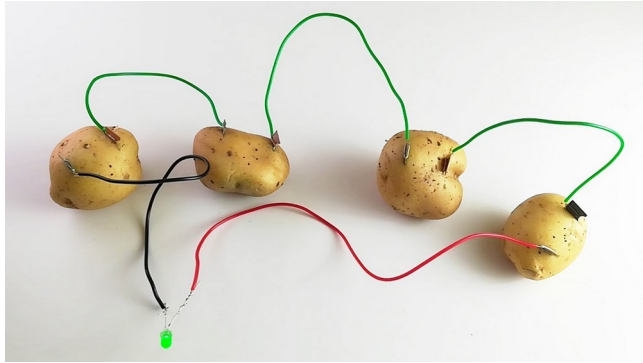
- Outreach in Projects (= grants): Presenting results of a project to a **broad** audience

- Outreach in PhD School, according to EU. PhD students:

(i) can communicate with their peers, the **larger scholarly community** and with **society** in general about their areas of expertise,

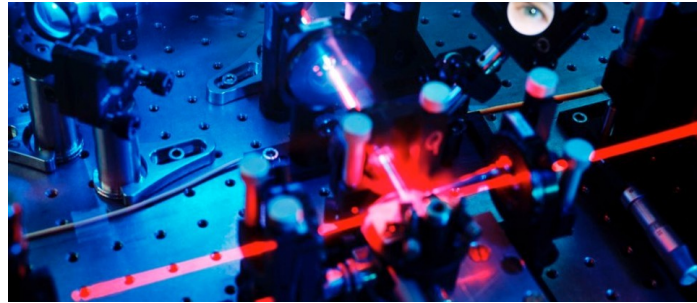
(ii) can be expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge based society,

„Popularization” vs „Outreach”



Classic demonstration: potato battery

Probably only popularization



Demonstration of current research,
for **general public**

Probably Outreach

Here we need scientists

Mechanism
Importance
Difficulties

„Outreach Laboratory”

I. Popular Science text (or comics or movie or website or channel ..)

? Publication ?

II. Experiment

a) cheap simple demonstration, more popularization

or

b) Well.. there is a bias on the demonstration of the Quantum Key Distribution

Expositions,
Science
Festivals,
Conferneces

My motivation and initial idea

Let's do something useful!

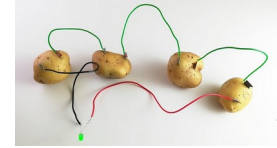
Program Committee of the journal "Delta"
Lack of text from physics, lack of outreach

Initial idea: Let's award people doing
Outreach with ECTS

Second thought:
Maybe together we can do better

Our Workshop

My Experience



As coordinator: Science Festival,
Falling Walls.
Articles
Talks popularizing science

Your motivation?!

Tell something about yourself:
Field?

What are your expectations?

What is your experience in popularizing science?

Popular Science Article

I. Popular Science article (or comics or movie or website or ..)

1. Read a good outreach article OUTSIDE Physics (Biology, Medicine, COVID?, ..).

[Example1](#) [Academia](#) [Delta](#)

2. Present it (5 – max 10 minutes) in front of the group **(in two weeks!)**
3. Choose a topic (your field of research, recent developments) **(title in two weeks)**
4. Start writing (not more than 2 pages, 1 is fair enough!)
5. Discuss the text with tutor (= me)
6. Your text will be sent to random two people from the group, some Wednesday morning , in mid May.
7. We will discuss the texts you wrote and received on Thursday.

Your effort: Reading 3 article popularizing science (1 prof., 2 of your colleagues)
Writing text popularizing science

Deliverables

Try to publish in a journal! Which journal?

Delta (in Polish) <http://www.deltami.edu.pl/>

for mathematicians, physicists, astronomers, informaticians.
for researchers, students, talented teenagers

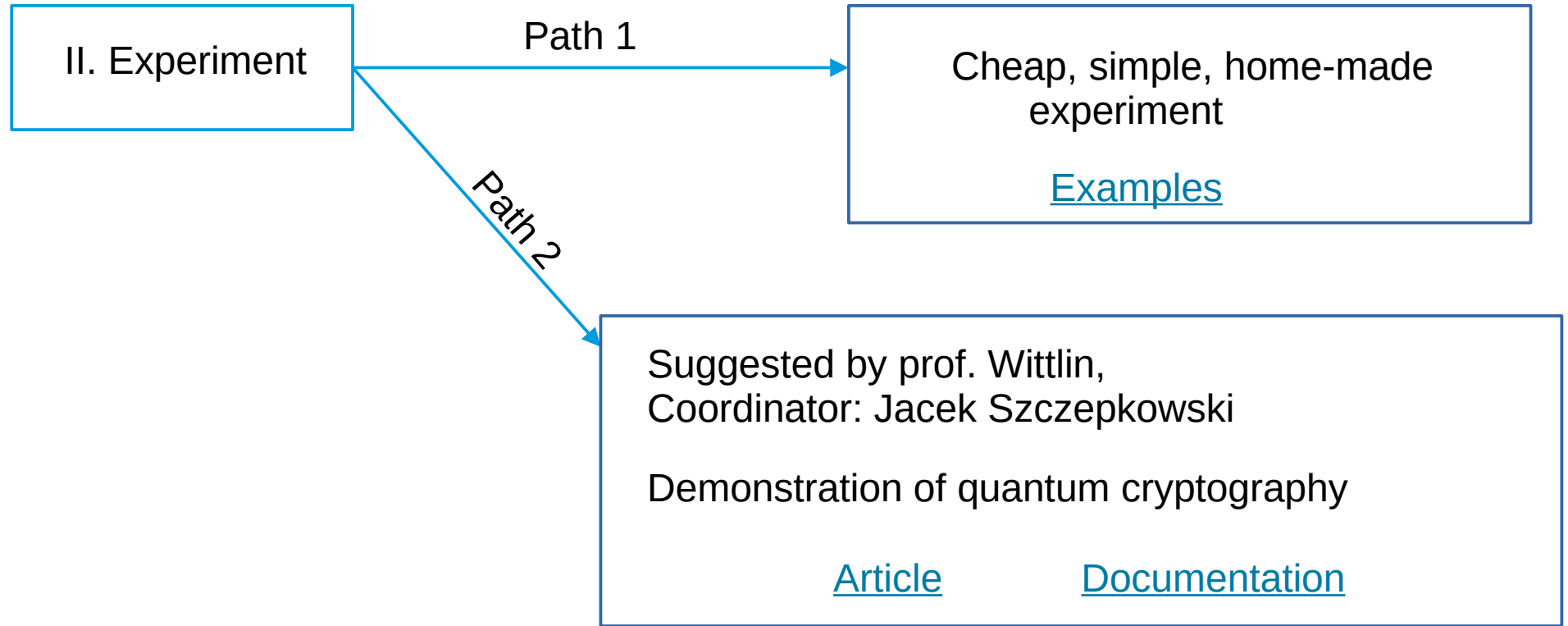
Młody Technik (Young engineer, _in Polish) <https://mlodytechnik.pl/>
gadgets, popular science, general public

Short texts: Angora

Portals?

+ ?? Extend the list!

Experiments



Cryptography - key

Vernam cipher

message:

T A J N A | W I A D O M O S C

letters of message to
numbers:

19 1 10 14 1 | 21 9 1 4 15 13 15 18 3

key = sequence of numbers:

9 2 5 8 1 | 17 2 5 3 15 24 99 1 10

encrypted message=
message + key,
letter by letter

28 3 15 22 2 | 38 11 6 7 30 37 114 19 13

[Article](#)[Documentation](#)

Cryptography-key – real example



Erensto Che Guevara



Fidel Castro

Target events

Festiwal Nauki (Science Festival) <https://festiwalnauki.edu.pl/>
End of September, Declaration in May

Science Picnic (Piknik Naukowy) <http://www.pikniknaukowy.pl/Opikniku24.aspx>

Local conferences: e.g. 40+1 anniversary of CFT



Queues at the National Stadium
To enter the Science Picnic

Next step

Email to

pawlowski@cft.edu.pl

- Confirm that you take this course
- Would you like to participate in building the experiment devoted to „Quantum Key Distribution”?
- Do you have experience in optics/electronics/QKD theory? (not obligatory)
- What article you would like to read?