

M. POLETTINI, UNIVERSITY OF LUXEMBOURG

# SHARING THE VALUES OF SCIENCE

**SCIENCEGROUND: A SPACE  
FOR SCIENTIFIC CONVERSATION**

CERN, Geneve, 19/09/2018

*Open Workshop on Effective Outreach*



# FESTIVAL LETTERATURA

- ✘ Most important literary festival in Italy
- ⦿ Held in Mantova (UNESCO World Heritage Site)
- ~ 22<sup>nd</sup> edition: September 5 • 9, 2018
- > Organizing committee (8 members),  
secretariat (8 permanent, 40 during festival)
- + More than 5000 volunteers (“blue shirts”)  
since 1997\*



# FESTIVAL LETTERATURA

- ◉ **72%** private sponsors, **10%** public sponsors, **18%** tickets\*
- ✕ **Total audience: 135 000**  
(70 000 tickets + 65 000 estimate for free events\*)
- **Archive of past editions: <https://www.festivaletteratura.it/en/archive>**

\* 2016 edition. See Ponzoni, “Fully booked”:  
*Audience analysis and engagement at Festival Letteratura*

# SCIENTIFIC COMMUNICATION

@ Festivalletteratura 2005 • 2017:

✘ Frontal conferences

⦿ Blackboard talks

~ Climate change info point

> Hackspace

→ from frontal to shared

→ from narrations to methods and details

















## **THE PROBLEM OF COMMUNICATION**

***“The greatest problem of all is dumbing down. Everything in the media is robbed of any scientific meat, in a desperate bid to seduce an imaginary mass that aren’t interested. And why should they be? Meanwhile, the nerds, the people who studied biochemistry but now work in the middle management, are neglected, unstimulated, abandoned. [...] The indulgent and well-financed “public engagement with science” community has been worse than useless, because it too is obsessed with taking the message to everyone, rarely offering stimulating content to the people who are already interested. [...] Unmediated access to niche expertise is the future, and you know, science isn’t hard [...] – it just requires motivation.”***

**Ben Goldacre, *Bad Science***

## **THE PROBLEM OF IDENTITY**

***“Science no longer has the unquestioned authority it had when it was winning wars and promising power too cheap to meter [...] But is science worth preserving? Like a teenager, today’s science is continually borrowing from others’ cultural repertoires to gain attention. We have science-as-Hollywood with its superstars, their vanity bolstered by the media industry and a new style of scientific publishing. We have science as religion [...] science as the slick player in the market [...]. Maybe this is the fate of science – to be a secular religion servicing the economy and the entertainment industry. But science has the potential to lead not just follow. It has the potential to provide an object lesson in how to make good judgments in a society beset by technological dilemmas.”***

**Harry Collins, *Science as a Reflection of Society***

## **THE PROBLEM OF CREDIBILITY**

***“There is increasing concern that most current published research findings are false. The probability that a research claim is true may depend on study power and bias, the number of other studies on the same question, and, importantly, the ratio of true to no relationships among the relationships probed in each scientific field.”***

**J. P. A. Ioannidis, *Why most published research findings are false***

***“A little knowledge of statistics is not an excuse to reject all of modern science. A research paper’s statistical methods can be judged only in detail and in context with the rest of its methods: study design, measurement techniques, cost constraints, and goals.”***

**A. Reinhardt, *Statistics done wrong***

# SCIENCEGROUND

Festivaletteratura 2018

**PLAYGROUND.** A temporary research group composed of university and Ph.D. students + researchers, open to paying audience.

**BACKGROUND.** Science in society and social aspects of science. Main theme: “data”. Data-mining, big data, data digging, machine learning, data analysis, use and abuse of statistics, etc.

**UNDERGROUND.** A channel for scientific discourse without filters. Communication mostly via word-of-mouth.



Per l'intera durata del festival una piccola comunità scientifica temporanea composta da studenti universitari, dottorandi, ricercatori occuperà Santa Maria della Vittoria per animare scienceground. Un po' playground in cui giocare con la **probabilità**, la **statistica** e la **logica matematica**. Un po' luogo di incontro in cui comprendere il background e i dilemmi di chi già fa o si prepara a fare ricerca. Ed un po' canale underground in cui intercettare il discorso scientifico senza filtri: un segnale altrimenti difficile da captare nel rumore di fondo della società dell'intrattenimento, in cui anche la scienza è ridotta a notizia passeggera. Laboratori, giochi matematici e informatici, gruppi di lettura, interviste dal vivo, videointerviste online (tra gli ospiti **Carlo Rovelli, Harry Collins, Peter Woit, Alex Reinhart, Sabine Hossenfelder**), una stazione podcast, una biblioteca ragionata: solo alcuni degli strumenti con cui i giovani della Piccola Comunità Scientifica faranno autoformazione e guideranno il pubblico nei loro percorsi di ricerca.

Il punto di partenza? La parola **DATO** in tutte le sue accezioni dal data mining a big data,

## I FUORIPROGRAMMA DI SCIENCEGROUND

### MERCOLEDÌ 5 SETTEMBRE

- 16<sup>00</sup>** **Conversazione:**  
*L'informazione è fisica, o la fisica è un'opinione?*
- 19<sup>00</sup>** **Laboratorio di statistica:**  
*I piselli verdi rugosi fanno cadere in skateboard?*

### GIOVEDÌ 6 SETTEMBRE

- 10<sup>00</sup>** **Elementi:**  
Presentazione delle attività quotidiane
- 11<sup>00</sup>** **Conversazione:**  
*"Uno studio americano dice che...".* Gli articoli scientifici, questi sconosciuti
- 15<sup>30</sup>** **Gruppo di lettura:**  
*Armi di distruzione matematiche* di Cathy O'Neal
- 20<sup>00</sup>** **Web interview with Peter Woit:**  
*Quo vadis theoreticalphysics?*

### VENERDÌ 7 SETTEMBRE

- 10<sup>00</sup>** **Elementi:**  
Presentazione delle attività quotidiane
- 10<sup>30</sup>** **Gruppo di lettura:**  
*Lost in Math* di Sabine Hossenfelder
- 12<sup>15</sup>** **dyson**  
*L'approccio ingegneristico di Dyson: risolvere problemi a cui gli altri non hanno pensato*
- 16<sup>00</sup>** **Conversazione con Massimiano Bucchi:**  
*Non chiamiamole tutte fake news*
- 18<sup>00</sup>** **Web interview with Sabine Hossenfelder:**  
*If we can't test it, is it science?*

### SABATO 8 SETTEMBRE

- 10<sup>00</sup>** **Elementi:**  
Presentazione delle attività quotidiane
- 10<sup>30</sup>** **Gruppo di lettura:**  
*Sette brevi lezioni di fisica* di Carlo Rovelli
- 11<sup>30</sup>** **Videointervista a Carlo Rovelli:**

## ATTIVITÀ PERMANENTI

- > **Biblioteca scientifica ragionata**
- > **Stazione Podcast:** *le voci degli scienziati*
- > **Laboratorio di probabilità:** *Il banco vince sempre*
- > **Laboratorio di machine learning:** *Ma come ha fatto a capirlo?*

**mercoledì** > dalle 16.00 alle 20.00 | **giovedì** > dalle 10.00 alle 20.00  
**venerdì** > dalle 10.00 alle 20.00 | **sabato** > dalle 10.00 alle 20.00  
**domenica** > dalle 10.00 alle 18.00



## GLI APPUNTAMENTI IN PROGRAMMA

Tutte le attività sono a cura della  
Piccola Comunità Scientifica Temporanea

**2 2** giovedì 6 settembre • ore **12.15**

### QUANTI ANNI HA STEFANO LACAPRARA?

Laboratorio di data mining per ragazzini accompagnati  
\* dai 10 ai 15 anni

**2 3** giovedì 6 settembre • ore **14.00**

### QUANTI ACCORDATORI DI PIANOFORTE VIVONO A CHICAGO?

Laboratorio di data mining per adulti accompagnati  
\* adulti e ragazzi dai 15 anni

**7 3** venerdì 7 settembre • ore **13.00**

### NON FAR SAPERE ALLA MAESTRA...

Laboratorio di crittografia \* dai 9 ai 12 anni

**1 2 8** sabato 8 settembre • ore **13.00**

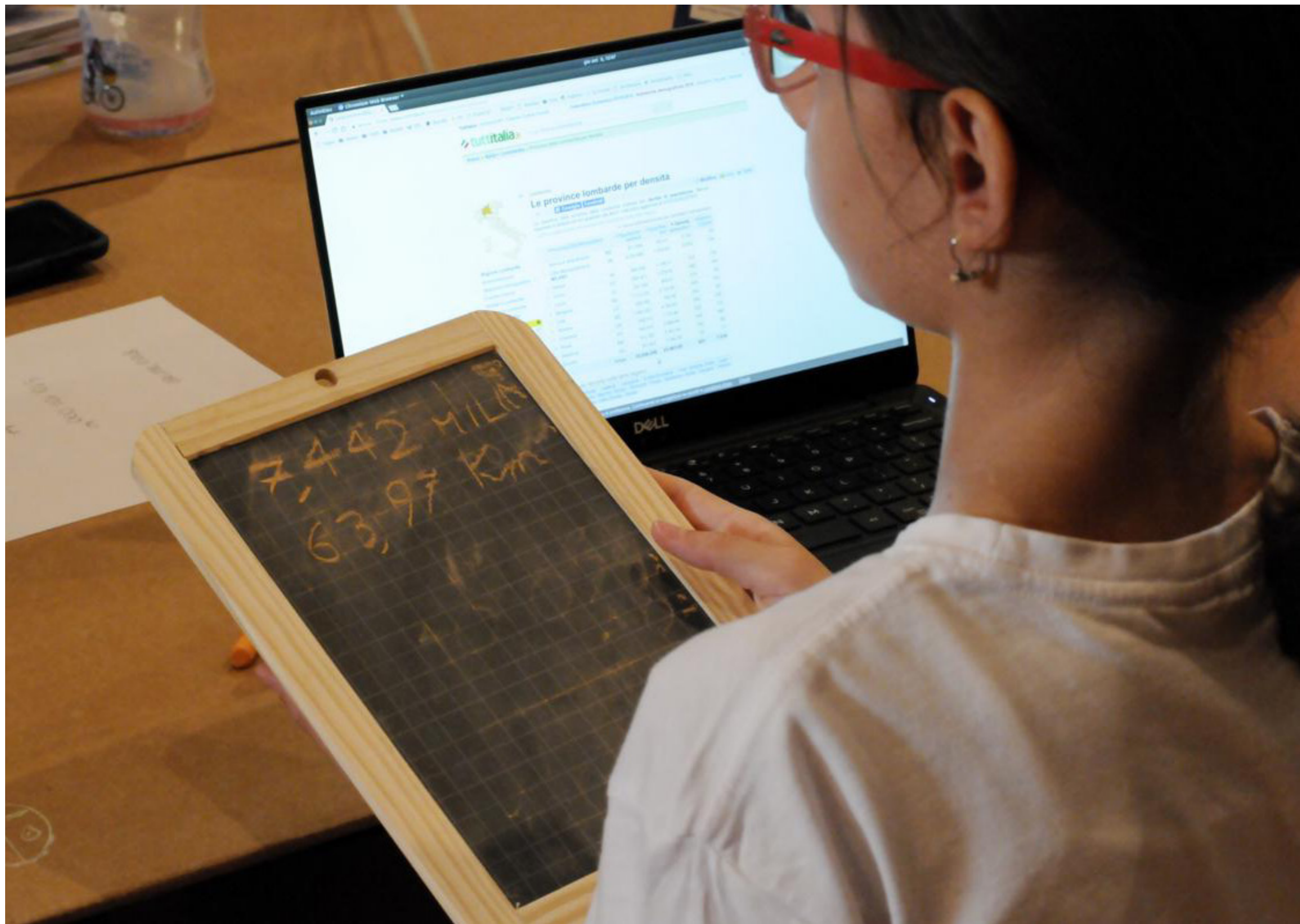
### NON FAR SAPERE ALLA MAESTRA...

Laboratorio di crittografia \* dai 9 ai 12 anni































***Uomini e particelle***

*Intervista a Tommaso Dorigo*

<https://www.spreaker.com/show/scienceground>



***“I work with scientists that are on the soil. This is completely different. Now you need these guys to understand what the soil is. What the viruses are doing in it, what the likens are doing in it. And these are sciences which have been sometimes dispised by... you guys! This is why studying physics you still can remain in the xx<sup>th</sup> century. Not the people who are in [earth] sciences, because they are everywhere being disputed. In the xx<sup>th</sup> century the physicists were the one on the top of the ladder. Remember the time when people said that you need the ultimate particle of physics and that the rest will be explained by dududududu? No one would believe in that now. So this is a great time for science, but not necessary the same science.”***

**Bruno Latour, Interview at Scienceground**

# CONCLUSIONS

**Festivaletteratura and science both need:**

- ✘ A big dose of skepticism and critical inquiry about their own goals
- ⦿ An "ethnographic" understanding of the communities of people involved
- ~ Young and talented guys, brought together by passion, not by "narrations"
- + Interdisciplinarity in the sense of methods
- > Funding...



# REFERENCES

**N. Ponzoni**, *"Fully booked": Audience analysis and engagement at Festivalletteratura*. Master Thesis, School of economics, management and statistics, University of Bologna. Advisor: Luca Pareschi (2016).

**H. Collins**, *Gravity's ghost and big dog. Scientific discovery and social analysis in the XXI<sup>st</sup> Century* (Chicago Univ. Press, 2013).

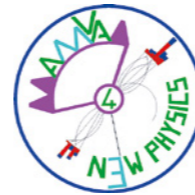
**B. Goldacre**, *Bad science. Quacks, hacks, and big farma flacks* (Farrar, Straus and Giroux 2008).

**J. P. A. Ioannidis**, *Why most published research findings are false*, PLoS medicine 2.8 (2005): e124.

**A. Reinhardt**, *Statistics done wrong* (No Starch Press, 2015)



dyson



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreements No 675440 – AMVA4NewPhysics and No 765710 - INSIGHTS, the innovation programme No 674979 – NANOTRANS, and the project NanoThermo, ERC-2015-CoG Agreement No. 681456

<https://www.festivaletteratura.it/en/tales/scienceground-the-complete-programme>

<https://www.festivaletteratura.it/en/archive>

<https://tomate.wordpress.com/>

Graphic Design **Pietro Corraini Studio**