

Title: Science communication and engagement for basic science in Africa: Where do we stand?

Speakers: Stéphane Kenmoe

Series: Colloquium

Date: October 04, 2023 - 2:00 PM

URL: <https://pirsa.org/23100056>

Abstract: In this colloquium, the communicative boundary between science and society in Africa will be explored, using physics as an illustration. Different types of contact zones and scenes will be discussed, as well as the societal impact of staging and narrative formats. Based on our ongoing engagement project Making Science the Star, an overview of the relationship between sender and receiver will be presented, and recipes for tuning this interaction to unlock untapped potential in predominantly non-scientific communities will be analyzed.

Bio: Stéphane Kenmoe got a Ph.D. in Physics from the Max Planck Institute for Iron Research in Germany in 2015. He is presently a habilitation candidate at the Faculty of Chemistry at the University of Duisburg-Essen, Germany. He is also a science popularizer on TV and on social media, a science writer and a novelist. In 2020, he produced the movie "Science in the City" (Science dans la Cité) in Cameroon. He is very active in networking for the promotion of early career African scientists and for connecting science and society. He has won many awards for his engagement, among which the 2020 Diversity Prize for Academic Leadership at the University of Duisburg-Essen, the Falling Walls Award for Science Engagement in 2021 and the Award for Prototypes of Humanity of the Dubai Authority for arts and culture in 2022. Since 2022, he is the chief editor of the African Physics Newsletter, an electronic quarterly about physics in Africa published by the American Physical Society.

---

Zoom link: <https://pitp.zoom.us/j/92725978684?pwd=Yys0ci9JdE0zS054SGxyYWoxZkdUUT09>



## SCIENCE COMMUNICATION IN AFRICA : WHERE DO WE STAND?

October 4<sup>th</sup>, 2023  
Waterloo, Canada

Stephane Kenmoe

Theoretical and computational chemistry, Duisburg-Essen University, Essen, Germany

4



# HOW TO EXPLAIN THE SCIENTIFIC AND TECHNOLOGICAL LAG?

## LAGOS, NIGERIA 1980

Kwakye, E.B.

Implications of the Lagos Plan of Action for science...

UNESCO Regional Office for Science and Technology for Africa

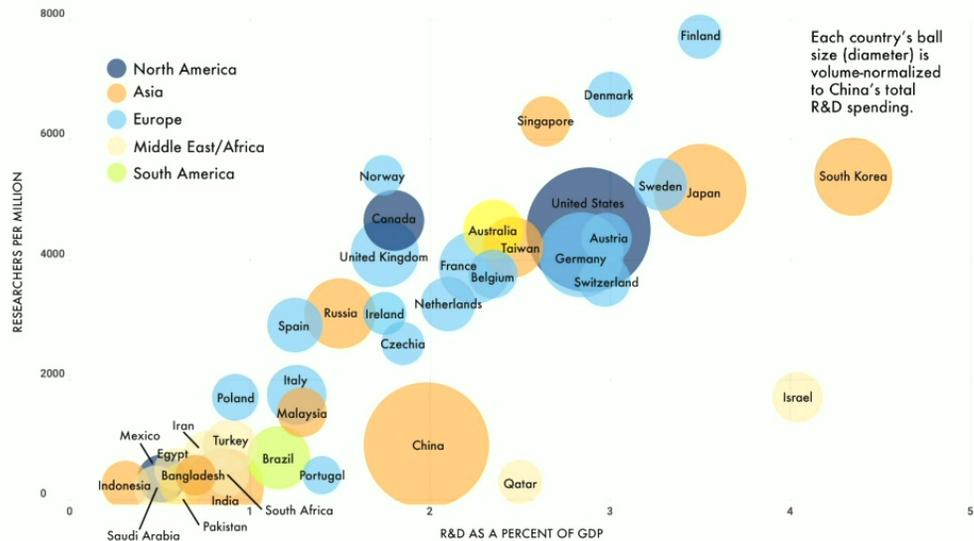
**1% GDP to R&D**



**200 scientists / million inha.**  
vs.  
**1500 in average in the world**



## WORLD OF R&D 2021



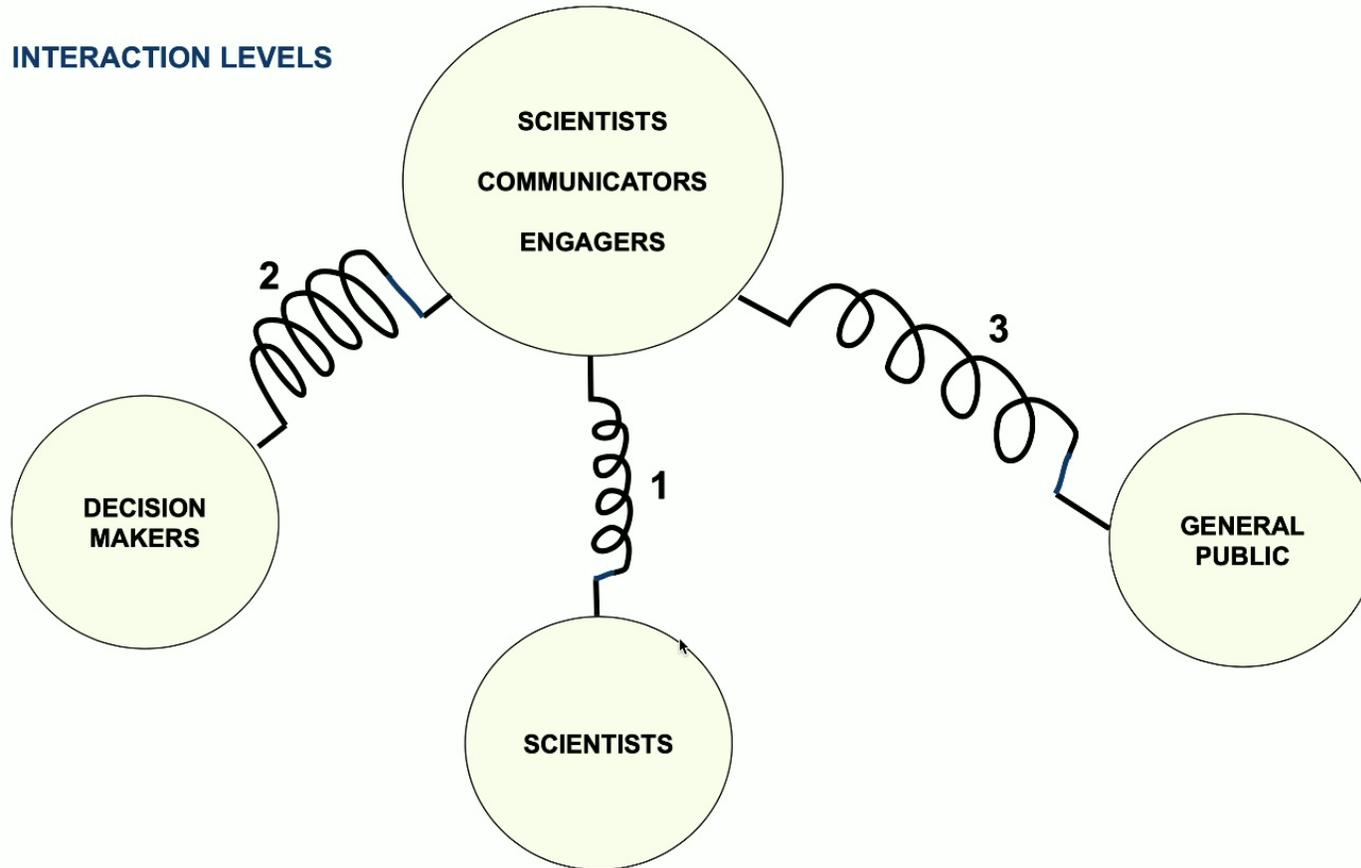
R&D World magazine 62<sup>nd</sup> annual global R&D funding forecast



**Important to build a strong scientific culture in Africa**

# CONTACT ZONES AND CONTACT SCENES

## INTERACTION LEVELS



# VEHICLE OF INFORMATION AMONG SCIENTISTS

## THE AFRICAN PHYSICS NEWSLETTER (APN)



Quarterly published by APS

Launched in 2019

Open to everyone

News gathered, elected and edited by an editorial board of African physicists

Hosting, copyediting, formatting and distribution from APS

Subscribe here: <https://go.aps.org/africanphysics>

## APN AT WORK

An advisory board → 1 editor-in-Chief



10 regional editors in the 5 regions of Africa



Junior editors



© 2017, Sahel and West Africa Club Secretariat (SWAC/OECD)

## More info here

[nature](#) > [nature reviews physics](#) > [q&as](#) > [article](#)

Q&A | [Published: 19 September 2023](#)

## Connecting physicists across Africa and the world

[Zoe Budrikis](#) & [Stéphane Kenmoe](#)

[Nature Reviews Physics](#) (2023) | [Cite this article](#)

# VEHICLE OF INFORMATION AMONG SCIENTISTS

Capacity building: ASP, ASESMA  
 Regional networks: CEPAMOQ  
 Infrastructures: UB-CeDD, Cameroon



**When Women Build Bridges**  
 Stéphane Kenmoé

In the last issue of the African Physics Newsletter, Dr. Maryse Nkoua of the Nanomaterials and Nanotechnology Research Unit at the Marien Ngouabi University described the struggle to complete the establishment of a laboratory at the university and the National Institute for Research in Exact and Natural Sciences located in Brazzaville, Republic of Congo. Following this article, which was relayed by the online news site Africotech [1], two important personalities reacted positively.



Figure 1: Dr. Maryse Nkoua  
 © International Center for Theoretical Physics (ICTP)



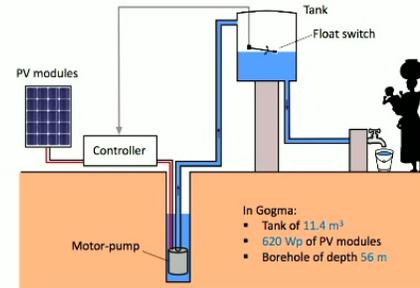
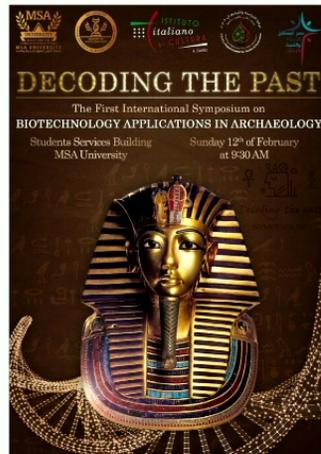
Figure 2: Dr. Bakkar Mulu  
 © Next Einstein Forum



The rhisotope project



The sickle-cell patient who became a space physicist.



Turning Sun into Water in Burkina Faso

**54 AFRICAN STATES**

**APN IN 38 AFRICAN COUNTRIES**

**16 NATIONAL SOCIETIES**

Suscribers	1008
In Africa	600
South Africa	113
Cameroon	98
In US	202

**Gabon, Tchad, Somalia, Mauritius**

**Central African Republic  
 Gambia, Liberia, Eritrea  
 Comores**

# SCIENCE AND SOCIETY EVENTS

THE WEEK OF SCIENCE AND TECHNOLOGY  
IN DEMOCRATIC REPUBLIC OF CONGO

## AU leadership



## Theatre



Efficient contact zone

Diverse contact scenes

Knowledge sharing

Boost the scientific culture

Strategic decisions

Inspire vocations

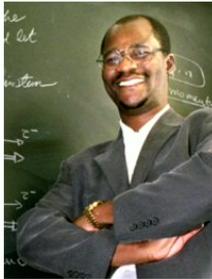


## Soccer





## African Strategy for Fundamental and Applied Physics



Kétévi A. Assamagan  
(Brookhaven NL)



Simon H. Connell  
Univ. Johannesburg



Farida Fassi  
Univ. Mohammed V



Shaaban Khalil  
CFP, Zewail City



Fairouz Malek  
CNRS, Grenoble Univ.

### Mission

**Strategic directions** for physics education and research to achieve a sustainable future

Mobilize Africans and serve as a **roadmap** on key initiatives.

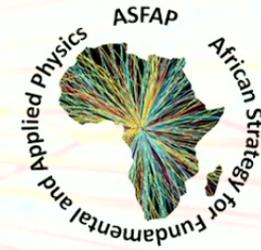
Help African policymakers, educators, researchers, communities and international partners to set **efficient agendas**

### Support





## African Strategy for Fundamental and Applied Physics



### PHYSICS GROUPS

- Accelerators
- Astrophysics & Cosmology
- Atomic & Molecular Physics
- Biophysics
- Computing & 4IR
- Earth Science
- Energy
- Fluid and Plasma
- Instrumentation & Detectors
- Light Sources
- Condensed Matter & Materials Physics
- Medical Physics
- Nuclear Physics
- Particle Physics
- Optics and Photonics
- Complex Systems

### ENGAGEMENT

- Community Engagement
- Observers
- Ethics
- Physics Education
- Women in Physics Forum
- Young Physicists Forum



2019

I

2024

Brainstorming	Committee & Conveners	Letters of intent	Interim report	Final report
---------------	-----------------------	-------------------	----------------	--------------

**3.**

**SCIENTISTS – GENERAL PUBLIC**

I

# SOFT SKILLS TRAINING

## MASTER CLASS ON PUBLIC OUTREACH



**3MT** THREE MINUTE THESIS

**AURORA**

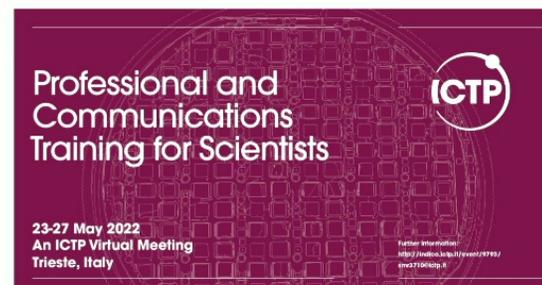
**PhD Impact**

Aurora Master Class on Public Outreach for Doctoral Candidates including 3 Minute Thesis Competition

**UNIVERSITY OF ICELAND**

5-8 June 2023  
University of Iceland

Alliance of European Universities



**Professional and Communications Training for Scientists**

**ICTP**

23-27 May 2022  
An ICTP Virtual Meeting  
Trieste, Italy

Further information:  
http://indico.ictp.it/event/9792/  
info@ictp.it

Communications skills, professional inter- and intra-personal skills, and career management skills are all much easier to learn and benefit from when taught explicitly, rather than picked up casually in the course of technical training. This workshop is designed for scientists, at all stages of their careers, interested in being more successful scientists, colleagues, and mentors.

### Topics:

- Scientific Presenting
- Scientific Writing & Editing
- Communications Barriers
- Emotional Intelligence in the Workplace
- Mentoring
- Decision Making & Leadership
- Career Planning & Advancement
- Networking
- Cross-Cultural Collaboration
- Social Media for Scientists
- Gelling & Giving Feedback
- Building Effective Work Cultures
- Customizing Messaging for Audiences
- Conflict Management
- Science Diplomacy & Policy
- Science Outreach & Engagement

### Directors:

S. JENSEN, University Duisburg-Essen, Germany  
A. NAGARAJAN, ICTP Italy  
K. CAHILLON, ICTP Italy

### How to apply:

Online application  
<http://indico.ictp.it/event/9792/>

### Registration:

There is no registration fee.

Female scientists are encouraged to apply.

### Deadline:

6 May 2022



ICTP is the long time support of physics in the developing world.

# MASS COMMUNICATION - DIGITAL EDUCATION

## MASSIVE ONLINE OPEN COURSES (MOOC)

MAGNETIC

INSPIRING

CONVINCING

LACK OF FUNDING

RELUCTANCE

SERVICE TO SCIENCE  
IS NOT REWARDED



European Spallation Source

@essneutron 518 subscribers 67 videos

European Spallation Source (ESS) is a multi-disciplinary research facility b...

[linkedin.com/company/326252](https://www.linkedin.com/company/326252) and 4 more links

HOME VIDEOS PLAYLISTS CHANNELS ABOUT

Videos ▶ Play all



Superconductors and data  
26 views · 19 hours ago



Accelerators for life sciences  
18 views · 19 hours ago



Accelerators for particles and the cosmos  
13 views · 19 hours ago



Accelerators to study the distant past  
26 views · 19 hours ago

26 views Oct 3, 2023

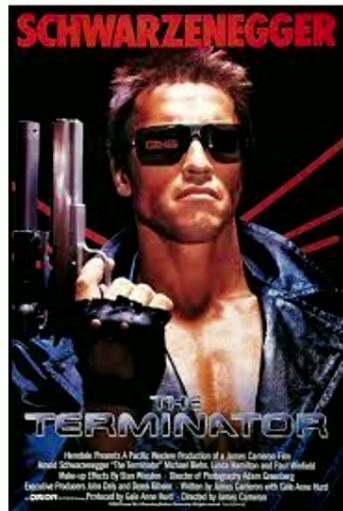
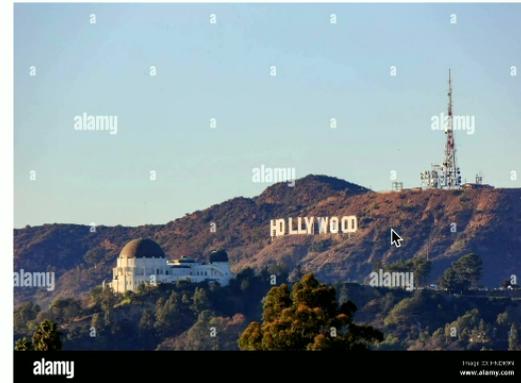
Speaker – Professor Phill Manning, University of Manchester, UK  
Theme: Using light to reveal the secrets of fossils and dinosaurs.

This is one of a series of short films made for high school science teachers and students. They were produced by the production company Making Science the Star, with colleagues from ESS, and with financial support from the EU from an ERASMUS+ project called Accelerating Teaching – Research Facilities to support STEM Teaching.

If you are a science educator visit the Accelerate Your Teaching MOOC to find a whole free online course with lots more material on how to use large accelerator-driven research facilities as a context for your teaching:  
<https://www.europeanschoolnetacademy...>

# CINEMA AS A VEHICLE OF SCIENCE DISSEMINATION

## HOLLYWOOD AND SCIENCE



# CINEMA AS A VEHICLE OF SCIENCE DISSEMINATION

## A PUBLICATION PLATFORM



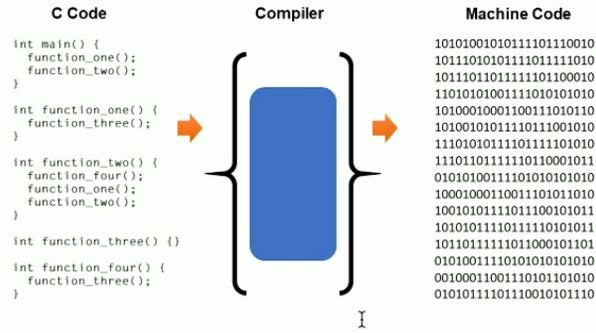
Kinematograph 1895



Jean Painleve



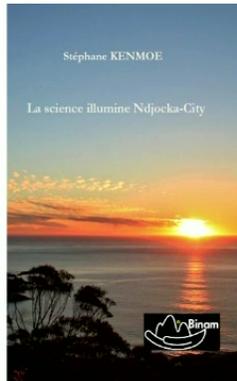
# MS<sup>2</sup> AT WORK



**THE PROJECT  
MAKING SCIENCE THE STAR  
MS<sup>2</sup>**

**MS<sup>2</sup> = COMPILERS**

**SCIENCE**



80 movie professionals  
(script writer, directors,  
actors, make-up...)

**SOCIETY**

Bring scientific knowledge  
to everyone's reach

Involve celebrities and  
opinion leaders

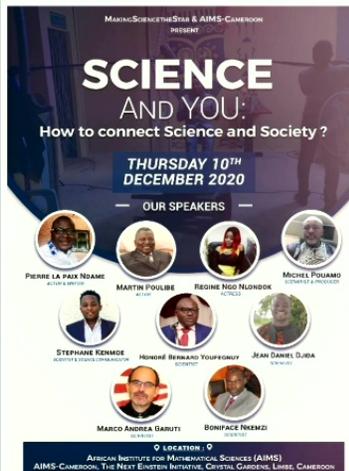
# BRINGING SCIENCE WITHIN EVERYONE'S REACH

Topics aligning with local needs:  
biomass, energy, health...

Science denialism, superstition,  
women education



## Input from scientists

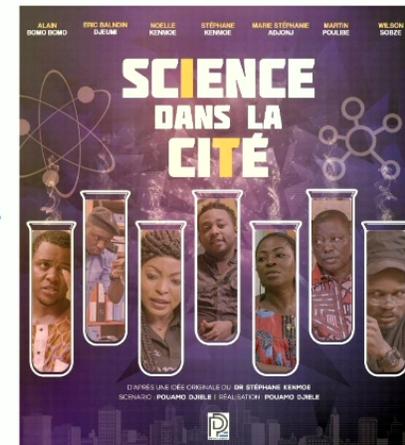


**AIMS Cameroon**

MS<sup>2</sup> at work



## Movie series



# BREAKING THE WALL BETWEEN SCIENCE AND FILM IN AFRICA

© CINAF platform (VOD)

Rating: 9/10



TV Market is a closed network

Poor scientific culture

Basic Science missing in agendas

Lack of investors

Scientists themselves are out

More science spreading actions



Reach a critical mass of engagers



Break the walls and make a room for science

**Small** step in the movie industry but  
**Giant** step for the scientific culture in Africa

**FALLING WALLS AWARD 2021**

# CAMPAIGNING FOR BASIC SCIENCE IN AFRICA

Renewable energy, Congo Republic



CRISPR technology, Benin



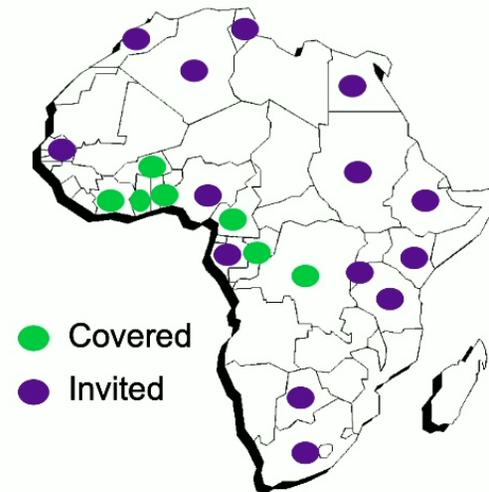
Smart agriculture, RD Congo



Science denialism & skepticism  
Burkina Faso

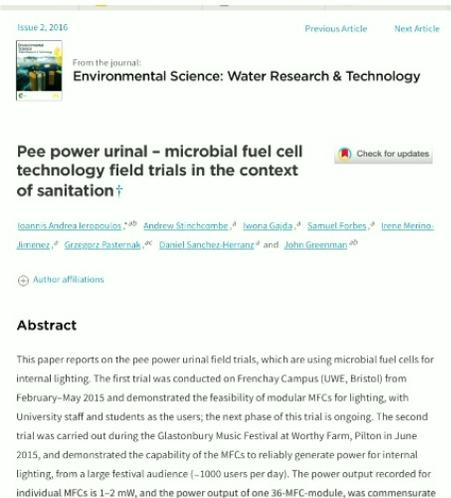


Environment protection, Togo



# A PRACTICAL EXAMPLE

## FROM A SCIENTIFIC PAPER TO A MOVIE



Issue 2, 2016 Previous Article Next Article

From the journal:  
**Environmental Science: Water Research & Technology**

**Pee power urinal – microbial fuel cell technology field trials in the context of sanitation †** [Check for updates](#)

[Ioannis Andrea Ieropoulos](#) <sup>\*,a,b</sup> [Andrew Strachcombe](#) <sup>a</sup> [Ivona Galda](#) <sup>a</sup> [Samuel Forbes](#) <sup>a</sup> [Irene Merino Jimenez](#) <sup>a</sup> [Grzegorz Pasternak](#) <sup>a,c</sup> [Daniel Sanchez-Herrera](#) <sup>a</sup> and [John Greenman](#) <sup>a,b</sup>

[Author affiliations](#)

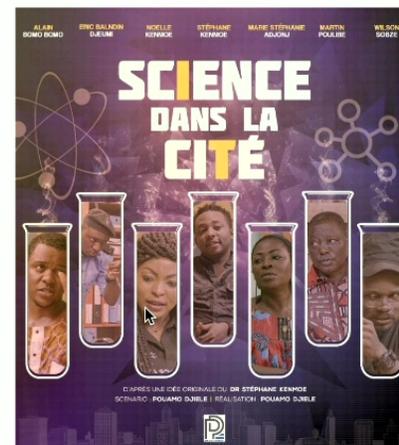
**Abstract**

This paper reports on the pee power urinal field trials, which are using microbial fuel cells for internal lighting. The first trial was conducted on Frenchay Campus (UWE, Bristol) from February–May 2015 and demonstrated the feasibility of modular MFCs for lighting, with University staff and students as the users; the next phase of this trial is ongoing. The second trial was carried out during the Glastonbury Music Festival at Worthy Farm, Pilton in June 2015, and demonstrated the capability of the MFCs to reliably generate power for internal lighting, from a large festival audience (~1000 users per day). The power output recorded for individual MFCs is 1–2 mW, and the power output of one 36-MFC-module, was commensurate

**Environ. Sci.: Water Res. Technol.**, 2016,2, 336-343



Energy, biomass,  
Environment, sanitation



**Science denialism**

**Superstition**

## **SYNOPSIS**

Kemy is a scientist by training. After his studies, he could not find a job.

He then decided to set up his own business.

He is the owner of a bar and uses science and technology to make a profit...

Agriculture, biomass, artificial intelligence, renewable energy. He knows how to use them to make a fortune.

**ENJOY THE MOVIE**