

# NETWORKED INTERACTIVE DIGITIZED INFORMATION WILL CHANGE THE WORLD

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Presentation at the



**14th ICT, Society and Human Beings 2021 Conference, July 20, 2021**

## **Main thesis today:**

Digitization is often introduced with not enough imagination and concern for user-friendliness

Today I will try to explain this using as examples mainly collections of digitized documents.

## Advantage of a collection of digital objects:

- Usage is independent of time and location of user
- Location of information of interest using full text search, or possibly more (?)
- Can a document be used by more than one person at a time (?)
- How about E-Books?
- Material often not in library but on a server of the publisher!

## More imagination seems to be desirable:

- Help to find desired book/ document
- Feedback
- Can one ask questions?
- How about discussions?
- Can one add text or multimedia material oder links (when and who checks this ?)
- Allow groups of users
- Link relevant parts with others (how much can be done automatically?)
- Allow different types of searches

- Search in more than one document with one command
- CoT on each page
- Jump to any page
- Pages from different servers on the screen at the same time  
(IIIF Standard)
- Allow manipulation of pictures
- Allow high resolution pictures
- Links to parts of page („Transclusions“)
- Allow to choose presentation (one page, two pages, thumb nails,...)
- Allow different kind of Quiz
- Allow to choose complexity of menus

# Help to find documents of interest

Feedback 





LOGIN ARTICLES BOOKS 


## NETWORKED INTERACTIVE DIGITAL BOOKS

Search for metadata like title, author, publisher

Metadata  Full-Text

  
**+132 Books**  
Explore by categories

  
**Read Online**  
Feel free to read online

  
**Searchable**  
Books with searchable text

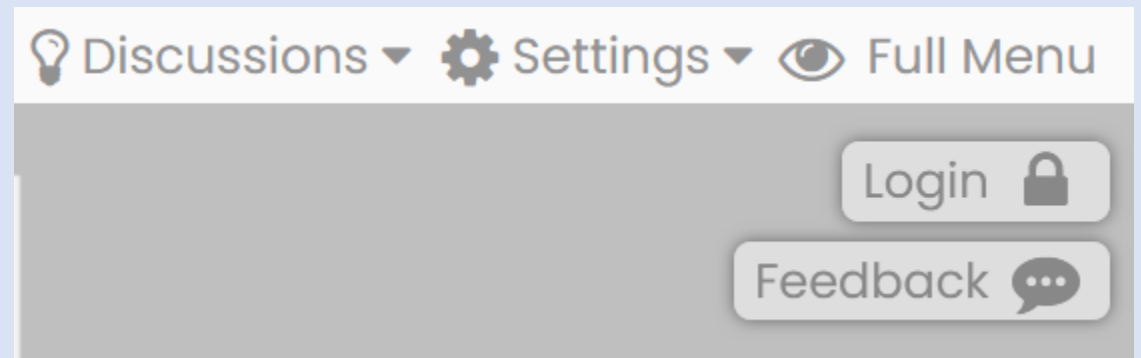
### Library Collections

 <b>Das grüne Juwel</b> Der Türkenschanzpark und	 <b>Networked Interactive Digital Library - User Manual</b>	 <b>Nikola Tesla and the Graz Tech</b> Vol. 7, EN	 <b>Power of Electricity and more</b> Demo Booklet	 <b>Um die Welt mit Zwischenfällen ... und mehr</b> Stücke einer Biographie v	 <b>The power of interactive digital documents</b>	 <b>AUSSEREUROPÄISCHE BAUKULTUREN</b> ALTAMERIKANISCHE BAUKUNST-GESCHICHTE Vorlesung IX - Zugbeanspr
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 <b>Arts and Humanities</b>  21 BOOKS	 <b>Architecture</b>  3 BOOKS	 <b>Basic Sciences</b>  7 BOOKS	 <b>Law and Politics</b>  10 BOOKS	 <b>Medical</b>  3 BOOKS	 <b>Academic Research Work</b>  11 BOOKS
 <b>Periodicals</b>  1 BOOKS	 <b>Technology</b>  14 BOOKS	 <b>Geography</b>  37 BOOKS	 <b>Text Books</b>  2 BOOKS	 <b>Kitchen and Garden</b>  2 BOOKS	 <b>Comics</b>  3 BOOKS

Feedback!

Feedback possible on every page



Klick on  
Feedback  
yields →

**Feedback!**

Email (Optional)

Feedback \*

**Submit** Cancel

# In NID one can ask questions and use discussions everywhere

In NID Documents on each page there is at the top right an entry



or, if there is already a discussion on that page: →



A click shows all discussions in the document or allows to start new one



← View Discussion

← Nice book!

← Page identity!

← AC versus DC.



+ Add New

← Nice book!

← Page identity!

← AC versus DC.

# Short discussion on AC versus DC



**Anonymous**

AC versus DC.

AC (Alternating current, Wechselstrom) has won over DC (Direct Current, Gleichstrom) I have read, and Tesla after all won with AC the competition to build a powerplant at Niagra Falls. But I have also seen the statement that DC is making a comeback. Is this correct?

15-Oct-2020 11:42 AM



**H.M**

Yes, this is true to some extent for two reasons: The first one is that high AC voltage lines lose more energy per 100 miles than DC high voltage lines. Since now good techniques are available to convert AC into DC and change the voltage of DC (still more difficult than for

AC) it makes sense to use DC for transporting electricity over long distances. The second reason is that accumulators (batteries) store or produce DC, and this has become important because of electric cars and photovoltaic elements (solar cells) that produce DC.

15-Oct-2020 11:47 AM



**Anonymous**

Thanks, HM for the explanation!

15-Oct-2020 11:48 AM



**M.F**

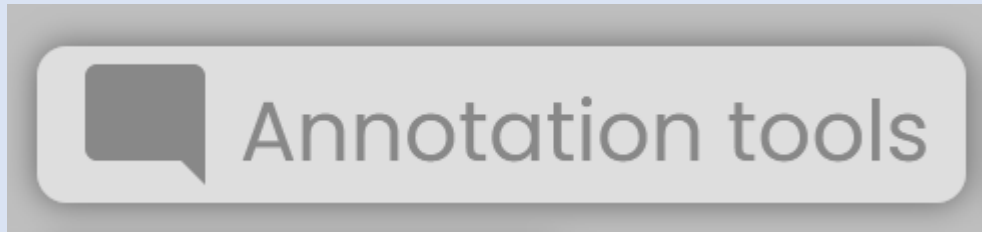
Since photovoltaic cells (also called solar cells) produce DC this has to be converted often into AC, e.g. when

Type your comment below

 **B** *I* I<sub>x</sub>

 Post

Add text or multimedia material or links („Annotations“, various alternatives are available)



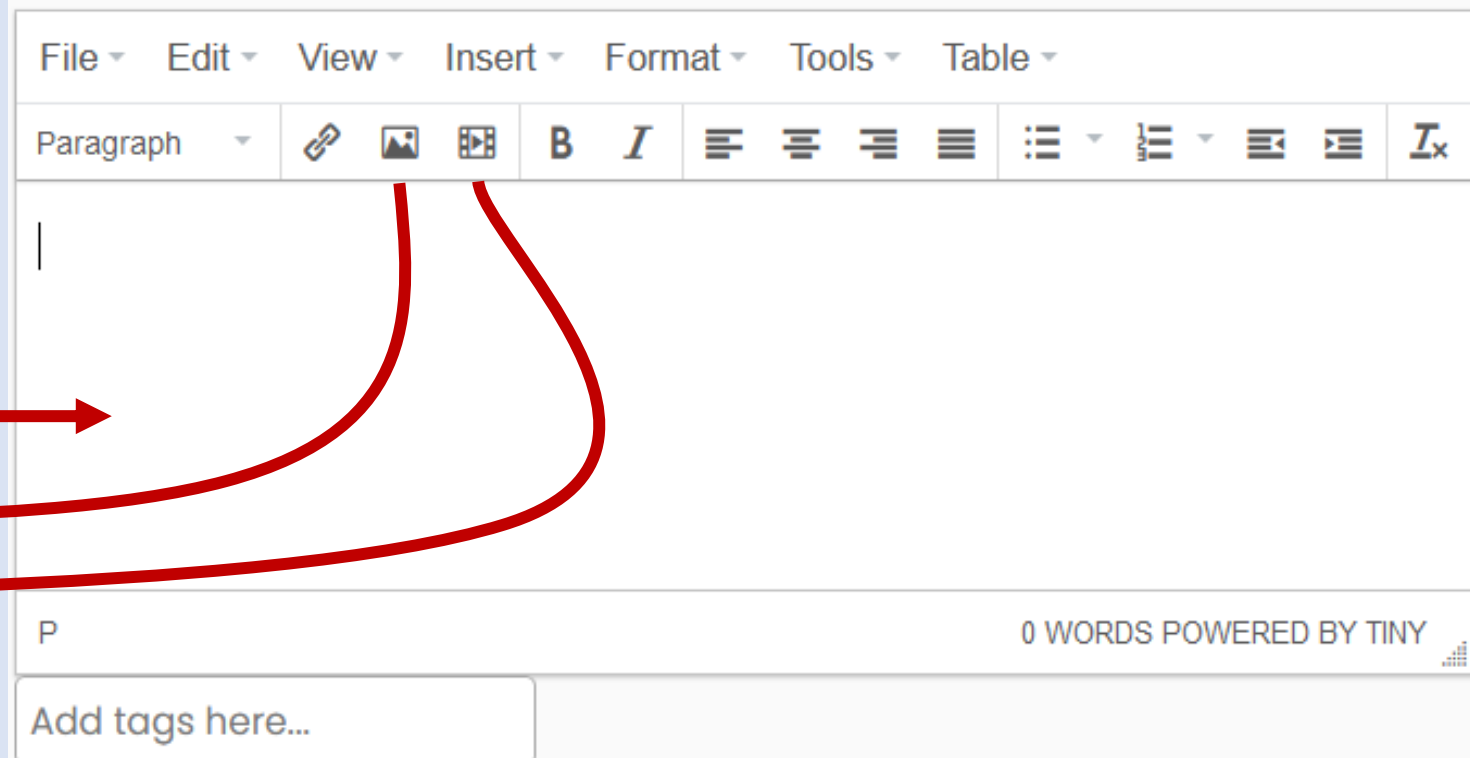
Simple version allows to create a link on any spot desired:

Text

Picture

Clip

...or combination



# Demo Booklet Tesla

The decision to build a demo around the name Tesla emerged since **Graz University of Technology** decided to honor the former student Tesla by publishing a book on him, one version in **English**, the other in **German**. The name Tesla as name for one of the earliest electric cars allowed to also add a little bit on the electric cars, and on Musk as the mastermind behind it and other interesting endeavors.

Mouse-over

Added By: Marco Fuchs on: 19-Oct-2020

 [New Window](#)



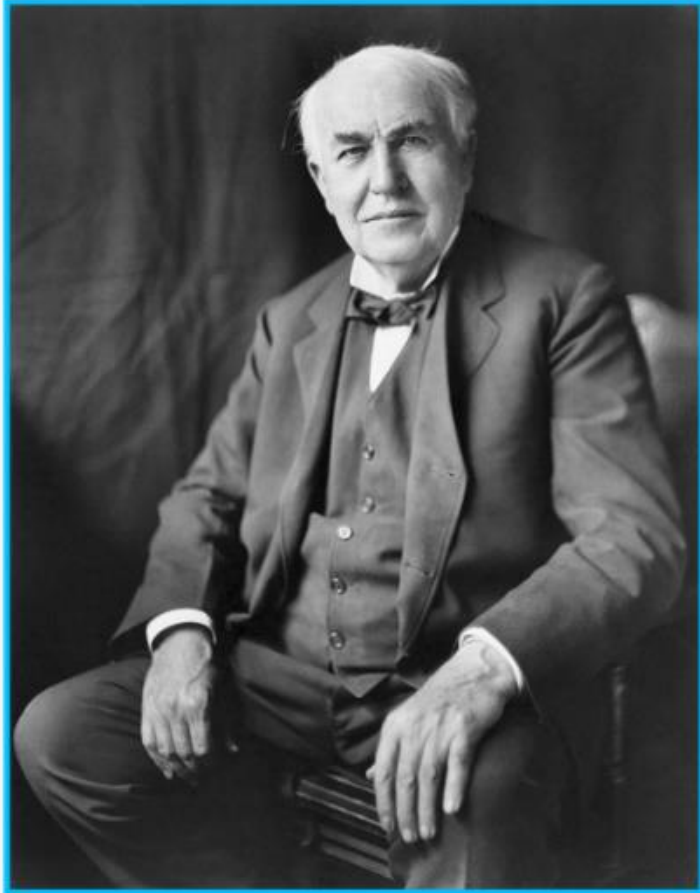
## Nikola Tesla and the Graz Tech

Edited by Uwe Schichler and Josef W. Wohinz

Archive and Library of Graz University of Technology / Vol. 7 EN



War of the currents with Thomas Alva Edison



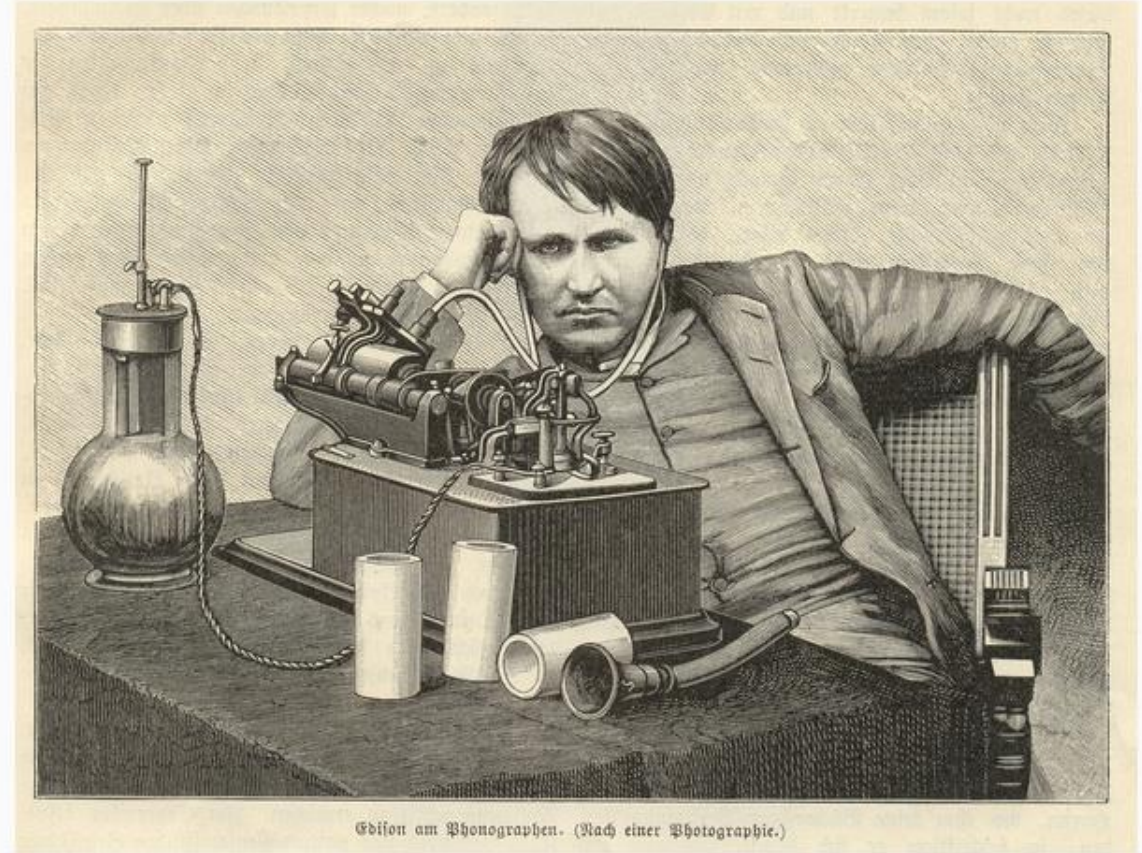
(Picture of Thomas Edison, Louis Bachrach, Public Domain)

War of the current



(Picture of Thomas Edison, Louis Bachrach, Public Domain)

**Thomas Alva Edison** (February 11, 1847 – October 18, 1931) was an American inventor and businessman who has been described as America's greatest inventor.



[Login](#) [Feedback](#) 

## Book for Experiments



Please enter the book and try out to make annotation to pieces of information, or fool around in any way using the annotation features (left upper corner of page when you have logged in). We will delete most experimental information once in a while. But please: Do add meaning full annotation to the other books available.



Annotation

🔍 Search

Login 🔒

Feedback 💬

Important: Documents can be opened with „Simple Menu“. Switching to „Full Menu“ gives more options, possibly confusing. **Login not necessary.**

Annotation tools



More ▾

🔧 Image Manipulation

🔍 Search

☰ Table of contents



Login 🔒

Book Details ←

Console 🤖

Feedback 💬

Citation “”

Transclusion 📄

# Fancy annotations



🇬🇧 The best view over the northern part of Malta is provided by the **Red Tower**, one of the 23 signal and watchtowers from the time of the Knights of St. John. 50 men were stationed here.

🇩🇪 Den besten Blick über das nördliche Malta gewährt der Red Tower, einer der 23 Signal- und Wachtürme aus der Johanniterzeit. 50 Mann waren hier einst stationiert.



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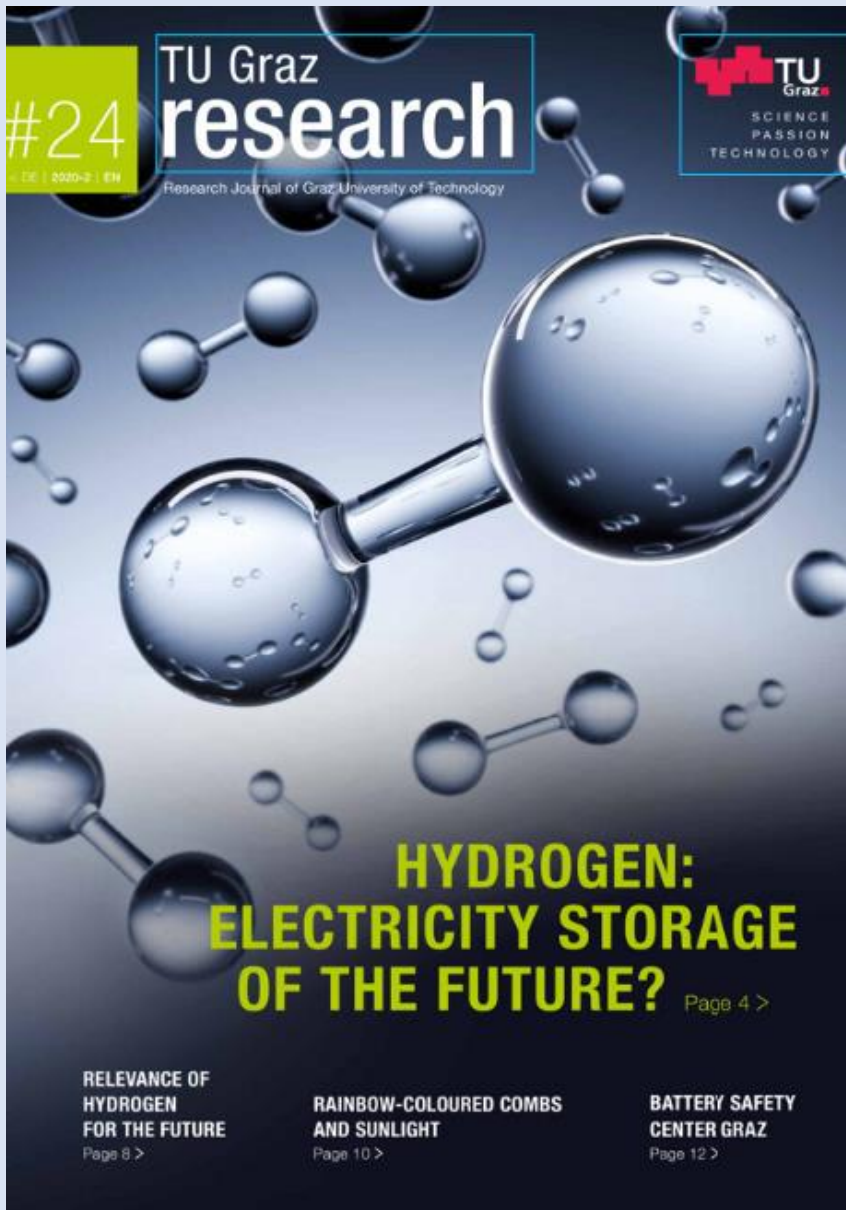


Blue Grotto on Malta

By choosing this icon, users know what to expect: Some textual information.

This and other special icons are only available under Fancy Annotations.

# Table of Contents available on every page



10 Physics

PORTRAIT  
TU Graz research  
2020-21/24

## Rainbow-Coloured Combs and Sunlight

After only a few months at Graz University of Technology, Birgitta Schultze-Bernhardt has already brought two renowned research grants to Graz: an ERC Starting Grant and the FWF START Prize. With these in her pocket, Schultze-Bernhardt wants to generate more (UV) light at the Institute of Experimental Physics at Graz University of Technology.

**Birgitta Schultze-Bernhardt**



The sky in front of the wall-sized window is the colour of fresh concrete. Today, sunrays find no gap in the cloud cover. It is more pleasant inside, in Birgitta Schultze-Bernhardt's office. There is water from coffee cups and warm ceiling light. The fact that the cloudy sky swallows the ultraviolet sunrays does not bother the physicist. After all, in future she wants to make her own UV rays.

UV radiation is very high-energy radiation. When it encounters matter or gases, the interactions are very frequent and very strong and, because it is also emitted by the sun, this makes it particularly relevant for research. Yet it is also difficult because there is currently no laser source that can emit such high-energy light directly. "I was already working on creating a frequency comb for the UV range during my doctorate," says the researcher. "A frequency comb is a laser ruler, so to speak, by which I can measure radiation with great precision and broad band," explains Schultze-Bernhardt. For her research she uses a method of converting infrared light into UV light – an unfortunately very inefficient method: a lot of laser power is lost, so it has to be started at a very high level in the first place.

**ERC STARTING GRANT AND START PRIZE**

In two projects, rooted like a tree in the same thematic ground and branching upwards, she wants to create a new approach to UV spectroscopy. The Electronic Fingerprint Spectroscopy (ELFIS) project was awarded the FWF's START prize in spring and focuses on the lower UV range. In the summer the researcher was awarded an ERC Starting Grant from the European Research Council, which now allows her to devote additional attention to the high-energy UV range. "With these funds I can establish a special laser source and two high-power amplifiers in Graz," she says, looking forward to the years of research ahead of her.

The results of her work are intended, on the one hand, to improve precision spectroscopy and, on the other, to be used in applied research, for example in atmospheric research: "We could use them to investigate how the sun's UV light affects the gases in the Earth's atmosphere and thus, for example, find out the exact conditions under which these gas molecules react to form new molecules or simply decompose," she explains, adding, "We physicists always want to know everything down to the last detail."

**TU Graz Research**

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- Commentary: Alexander Trattner
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- Battery Safety Center Graz
- Newsflash
- Fields of Expertise
- Advanced Materials Science
- Human & Biotechnology
- Information, Communication & Computing
- Mobility & Production

# Two pages from two different books!



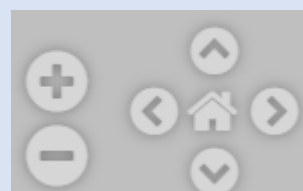
The importance of the specific, indeed unmistakable, character of a university lies in the particularly close link between scholarly research and teaching. In this way, insights are obtained which, as a further development of knowledge and in particular of the respective state of technology, justify the reputation of such an institution. Our world today is crucially shaped by technology, which entails both negative and positive aspects. The shared responsibility for our fellow human beings and for the environment is reflected in necessary decisions and programmes of action derived from them. Here, many contributions have been and are being made.

Fig.: Joanneum (Raubergasse 10) entrance gate with a row of coats of arms and a commemorative plaque (photo: H. Tezak)



Die Bedeutung und der spezifische, ja unverwechselbare Charakter einer Universität liegt in der besonders engen Verknüpfung von wissenschaftlicher Forschung und Lehre. Damit werden auch jene Einsichten erzielt, die als Weiterentwicklung des Wissens, im Speziellen des jeweiligen Standes der Technik, den Ruf einer solchen Einrichtung begründen. Unsere Welt von heute ist entscheidend durch die Technik geprägt, was positive wie negative Aspekte in sich birgt. Die gemeinsame Verantwortung für Mitmenschen und Umwelt findet ihren Niederschlag in notwendigen Entscheidungen und daraus abgeleiteten Handlungsprogrammen; hier wurden und werden vielfältige Beiträge erbracht.


Abb.: Joanneum (Raubergasse 10) Eingangsportal mit Wappenband und Gedenktafel (Foto: H. Tezak)



# Full-text search in NID documents

Search in book ▾

power

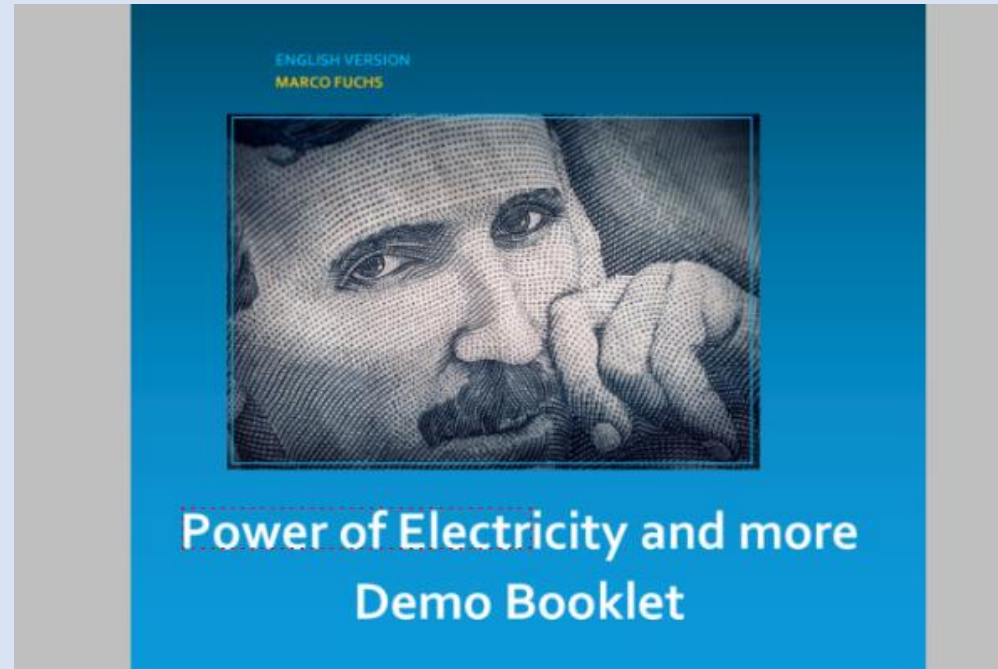
 Search

---

Search results for: power

Showing 1 - 3 out of 3

- 1 ...*power* of Electr ... ▲
- 6 ...Niagara Falls, *power* and Tesla ...
- 6 ...The Niagara Falls *power* station: Direct current or alternating current? ...




# Different types of Quiz are available

## Multi-option quiz

Q. Where is Red Tower located

- Earth
- Sothern Part of Malta
- Northern Part of Malta
- Mars


 Submit

## Multi-option quiz

Q. Where is Red Tower located

- Earth
- Sothern Part of Malta
- Northern Part of Malta
- Mars

Option 3: Correct

 Submit

# Search for Object categories

**NID Object Detection Test**

Search in book

bottle

Q Search

Search results for: bottle

Showing 1 - 5 out of 5

- 2 ...*bottle* ...
- 4 ...*bottle* ...
- 4 ...*bottle* ...
- 10 ...*bottle* ...
- 16 ...*bottle* ...



Search in book

tie

Q Search

Search results for: tie

Showing 1 - 2 out of 2

24 ...*tie* ...

25 ...*tie* ...

It is remarkable that even with the very small objects, the algorithm recognizes them as a "tie"!

# Opinion

Embrapa visiting scholar **Mauricio Antonio Lopes** writes about how policies informed by science are contributing to advances in Brazil's agricultural sector.



## A new approach to agriculture is emerging in the world's tropical belt

## Bringing climate change and economics together

Q&A with **William Nordhaus**, recipient of the 2018 Nobel Prize in Economics.



way, the penalty to our living standards will be small. That's the main lesson. We need to find the right instruments and apply them in a gradual, appropriate way, with very high participation from different countries.

The second lesson is about international cooperation. We've basically made no progress in devising mechanisms to bring nations together. I think we have the wrong model in mind and we are going down the wrong road on international agreements.

# Using AI techniques for term extraction of pages as first step towards (semi-automatic) linking of material

## INSTITUTE NEWS

### Transcending the boundaries of science and policy

Written by: Ansa Heyl

In February, IIASA Director General and CEO Albert van Jaarsveld led a delegation from the institute to participate at the annual conference of the American Association for the Advancement of Science (AAAS), the world's largest general scientific society. The focus of this year's event was on how science can bring together people, ideas, and solutions from across borders, disciplines, and ideologies to address the most pressing problems of our time. IIASA is uniquely positioned to provide extensive expertise on these topics, as they are fundamental to the institute's multidisciplinary approach and its commitment to the promotion of scientific cooperation at the local, regional, and global level.

IIASA organized two conference sessions as part of the proceedings, the first of which focused on cross-disciplinary science, while the second addressed science diplomacy. Delegates from the institute also presented a career



The session on science diplomacy looked at the role that IIASA science has played in building bridges across political divides since its establishment in 1972, and highlighted the institute's increasingly important role in the international discourse about sustainable development, particularly in terms of the SDGs. In light of rising tensions between East and West in contemporary geopolitics, speakers also reflected on how facilitating scientific training across borders through platforms like the IIASA Young Scientists Summer Program can aid in easing tensions between countries with troubled relations.

Science advice to government is a rapidly evolving field, but the number

**Page Tags:** science, agricultural, development, sustainable, policies, advice, land, scientific, global, systems

#### From another page

**Page Tags:** energy, electricity, africa, hydropower, sustainable, study, morocco, renewable, potential, assessment

The upper part of page 7 of (<https://nid.iicm.tugraz.at/Home/BookDetail/127>) where interesting terms ("tags") are extracted with option AI

The original idea of my talk was to also address a number of provocative issues **that all the time are reported distorted in the media**, and hence paint a completely wrong picture of what our real problems are:

- Alarmism
- Reports on climate change (CO2 etc.)
- Overpopulation
- Green Energy
- Mobility
- Power of Europe
- 

Those interested should read:

\*\*\*Fehlalarm (von Leopold STUMMER)

\*\*\*Apocalypse Never (von Michael Shellenberger)

If you are interested in the NID system, contact me at [hmaurer@iicm.edu](mailto:hmaurer@iicm.edu)

Thanks for your attention!

Hermann Maurer



Me: [https://www.ae-info.org/ae/Member/Maurer\\_Hermann](https://www.ae-info.org/ae/Member/Maurer_Hermann)

NID: Have look at <https://austria-forum.org/af/AEIOU/NID-Books>