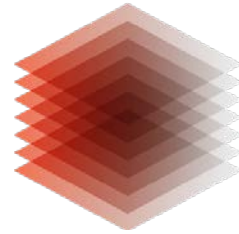

LEIBNIZ-INFORMATIONSZENTRUM
TECHNIK UND NATURWISSENSCHAFTEN
UNIVERSITÄTSBIBLIOTHEK



TIB

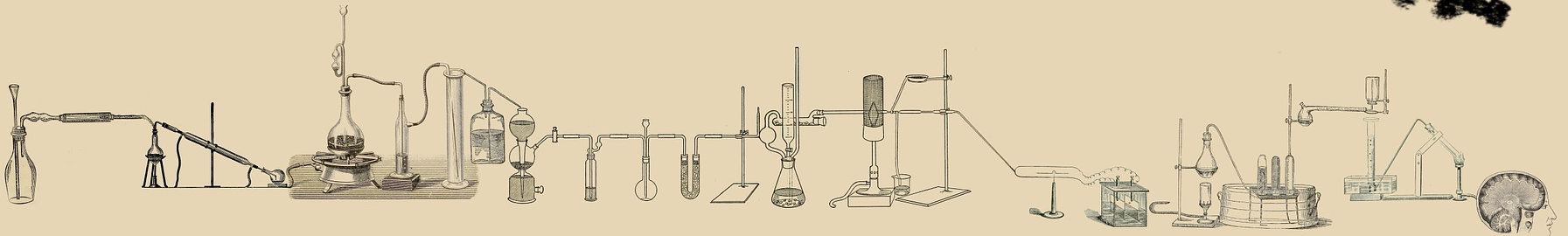
Videos in science: Increasing visibility, comprehensibility and impact of your research

Dr. Bastian Drees
Bad Homburg, 3 August 2018
Brilliant Minds Summer School



**„Science
isn't finished until it's
communicated.“**

Sir Mark Walport



science vs. public


PNAS
Gap between science and media revisited: Scientists as public communicators
 Hans Peter Peters¹
 Institute of Neuroscience and Medicine: Ethics in the Neurosciences, Forschungszentrum Jülich, 52425 Jülich, Germany
 Edited by Dietram A. Scheufele, University of Wisconsin, Madison, WI, and accepted by the Editorial Board April 5, 2013 (received for review August 2, 2012)

Science & Society
The communications gap between scientists and public
 More scientists and their institutions work with the public

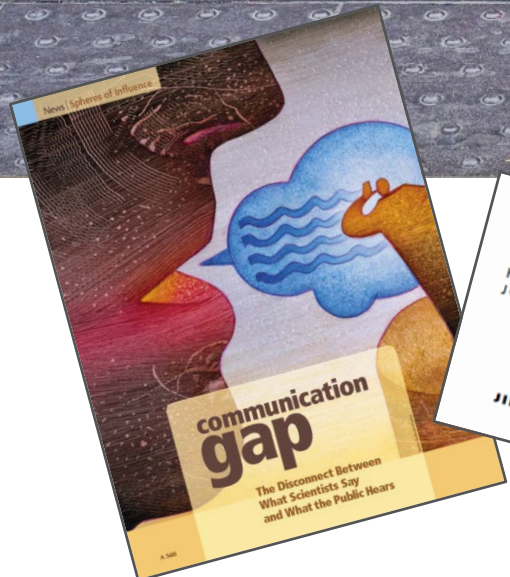
SAGE PUBLICATIONS (www.sagepublications.com)
 Public Understand. Sci. 19(1) (2010) 70-79
 PUBLIC UNDERSTANDING OF SCIENCE
The gap between scientists and journalists: the case of mercury science in Québec's press
 Marie-Ève Maillé, Johanne Saint-Charles and Marc Lucotte

THIS IS AN INTERDISCIPLINARY PROGRAM IN WHICH PHYSICS STUDENTS TRY TO HIT PSYCHOLOGY STUDENTS WITH PENDULUMS.

PROMISING!



MY PROFESSORS HAD AN ONGOING COMPETITION TO GET THE WEIRDEST THING TAKEN SERIOUSLY UNDER THE LABEL "INTERDISCIPLINARY PROGRAM,"



Worlds Apart
 HOW THE DISTANCE BETWEEN SCIENCE AND JOURNALISM THREATENS AMERICA'S FUTURE
 JIM HARTZ AND RICK CHAPPELL, PH.D.

PsycARTICLES: Journal Article
Science and the press: Like oil and water
 McCall, Robert B.
 American Psychologist, Vol 43(2), Feb 1988, 87-94

Scientific Barriers to the Popularization of Science in the Mass Media
 by Sharon Dunwoody and Michael Ryan

universal design

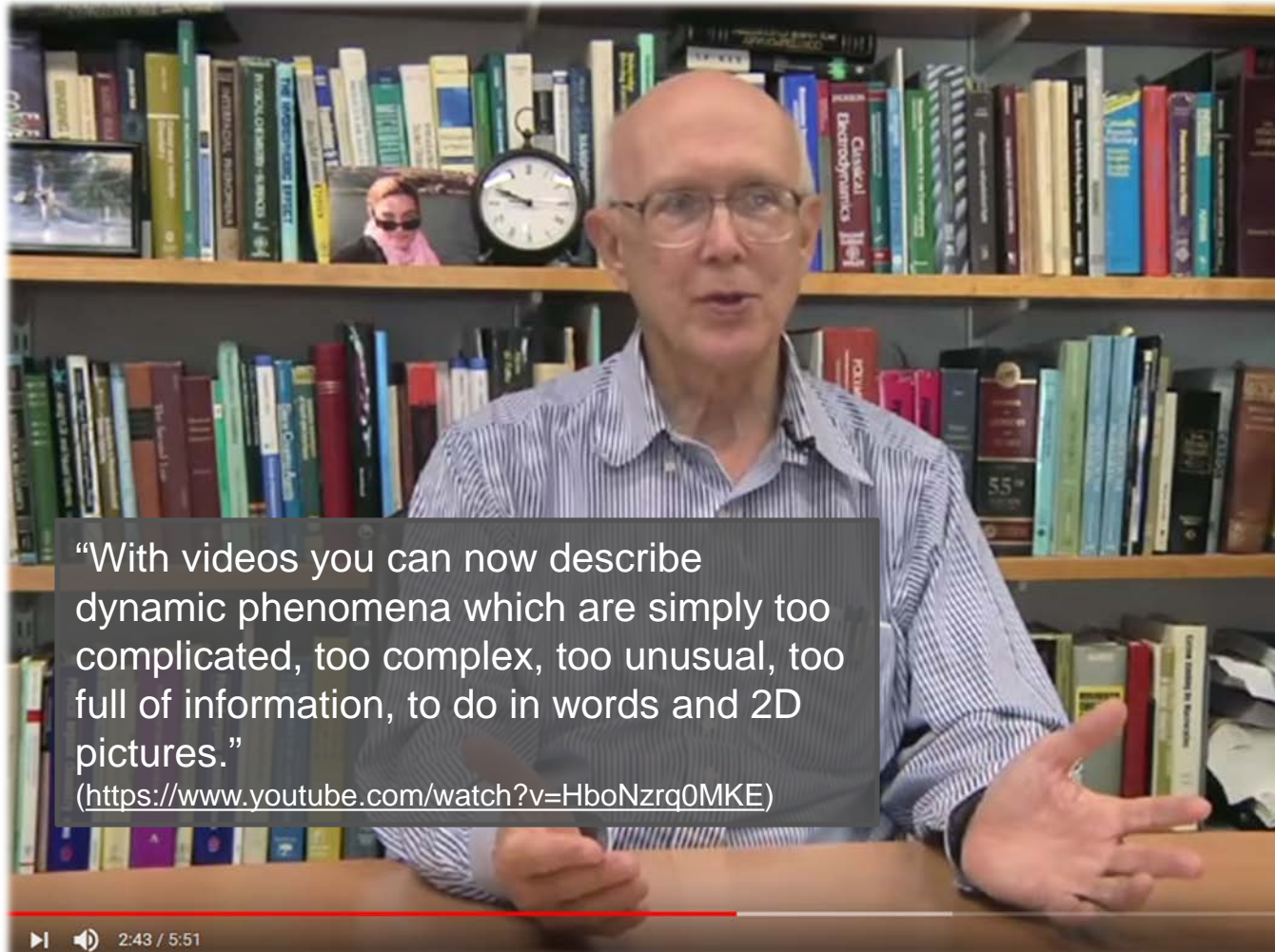


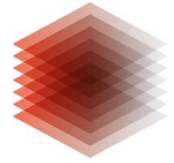
source: <https://www.htfc.mb.ca/media-release-htfc-honoured-for-excellence-in-universal-design/>

agenda

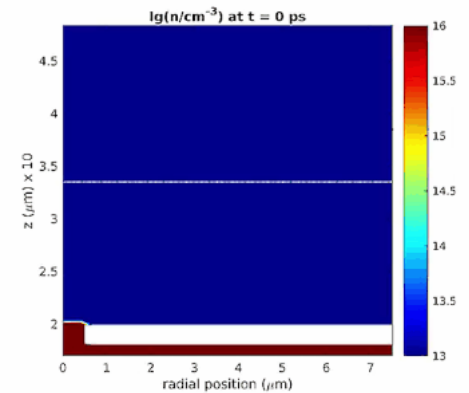
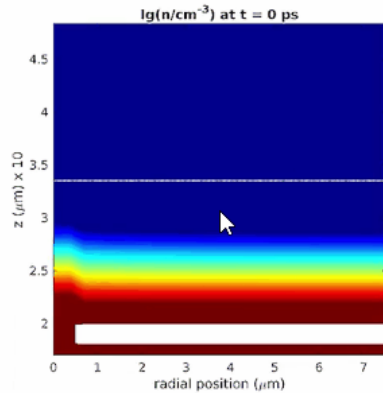
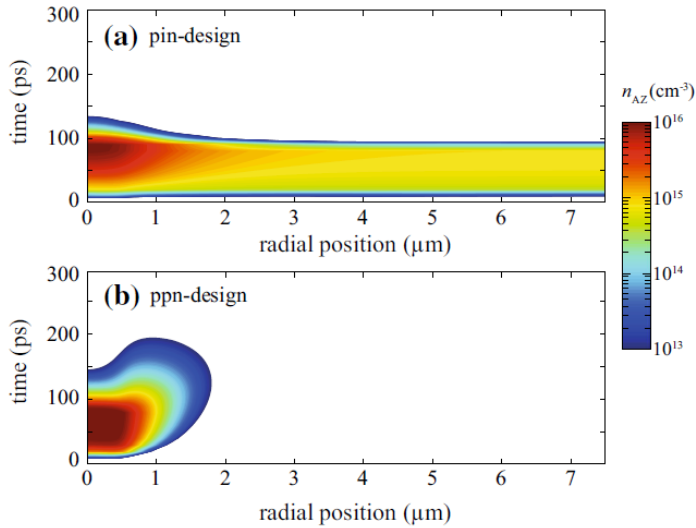
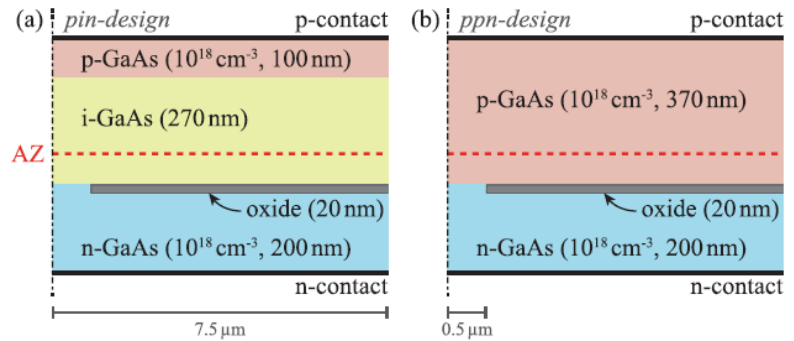
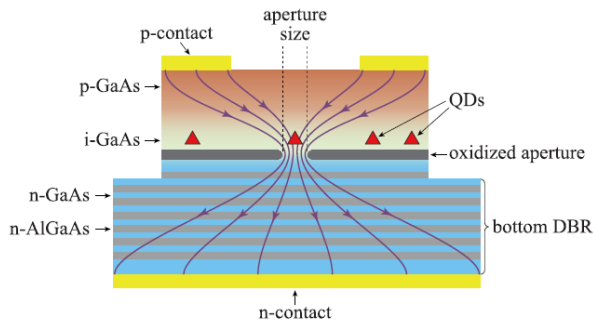
- 1. scholarly communication**
- 2. science communication**
- 3. problems**
- 4. solutions**

visualisation





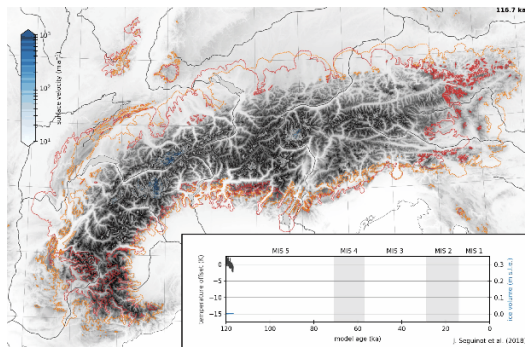
visualisation



Kantner, M., et al., (2016)
<https://doi.org/10.1109/TED.2016.2538561>

Drees, B., Kraft, A. & Koprucki, T., (2018)
<https://doi.org/10.1007/s11082-018-1327-1>

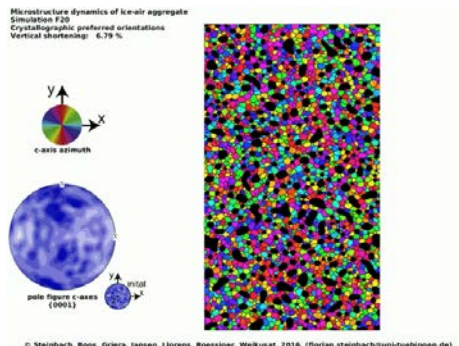
visualisations and observations



Seguinot, J.: Modelling last glacial cycle ice dynamics in the Alps
<https://doi.org/10.5446/35164>



Lin, Y.: Venting activity of the White Vent at the Kueishantao hydrothermal field
<https://doi.org/10.5446/32348>



Steinbach, F., et al.: Simulation F20 - Orientations of c-axes
<https://doi.org/10.5446/19288>

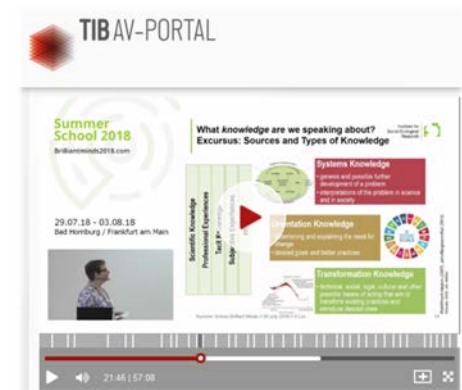
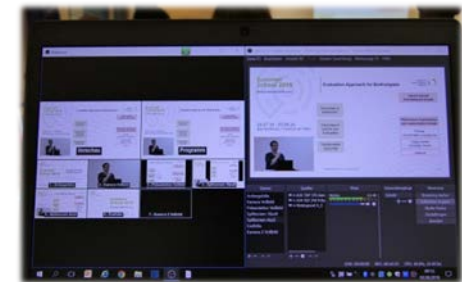


Handcock, R.: Animation of 545 days of daily digital camera images of tropical pastures from the fenced node at the CSIRO Lansdown Research Farm, Queensland, Australia
<https://doi.org/10.5446/19349>



Mutlu, A., et al.: The down- and up-shift responses on an SM* gel pad of the fluorescent marker strain BIB1126, which carries a PrpA-mCherry promoter fusion that reports on sporulation timing.
<https://doi.org/10.5446/33994>

conference recordings



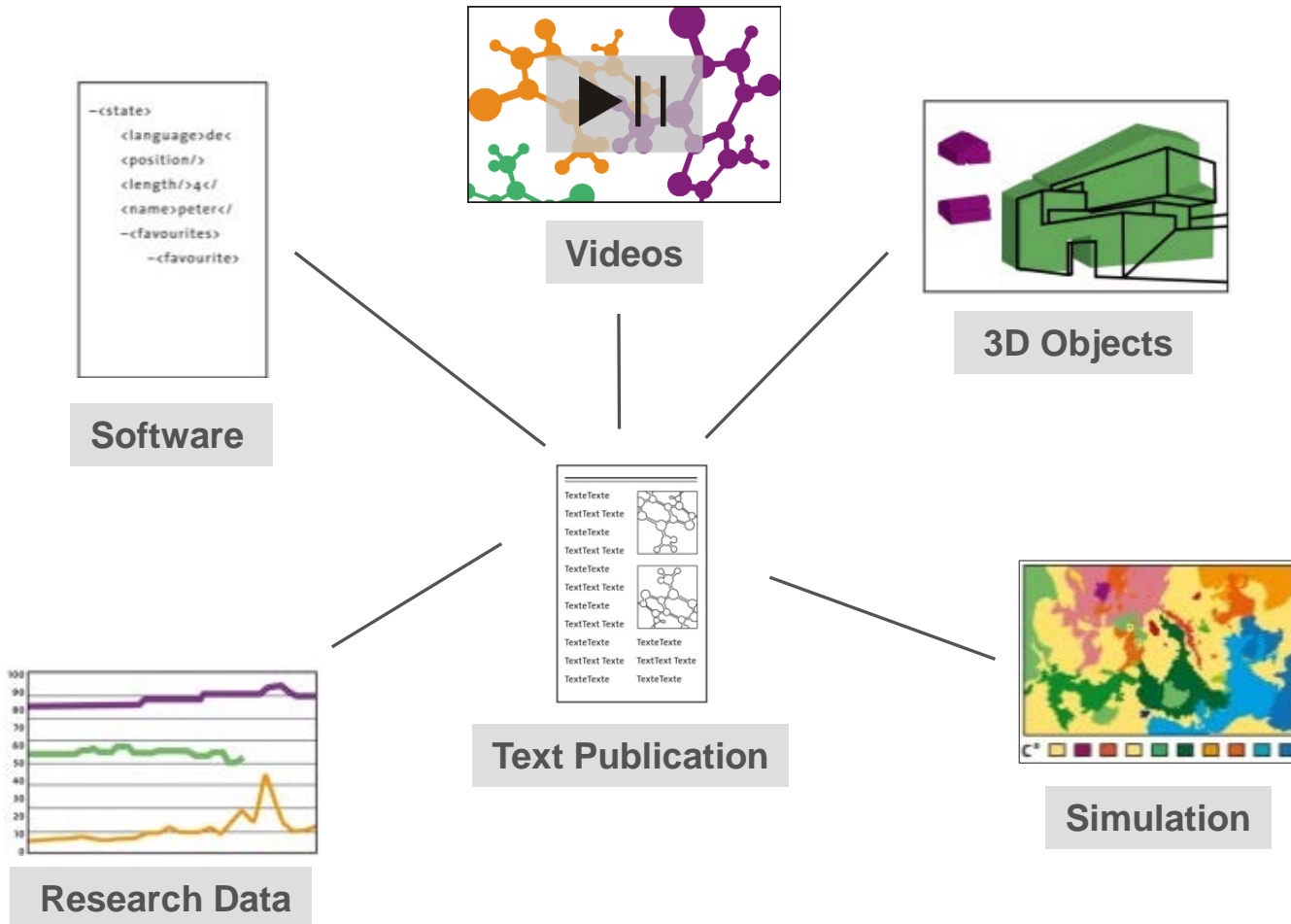
#BrilliantMinds_ISOE:
<https://av.tib.eu/series/521>

#TIBConfRec:
<https://tib.eu/confrecEN>

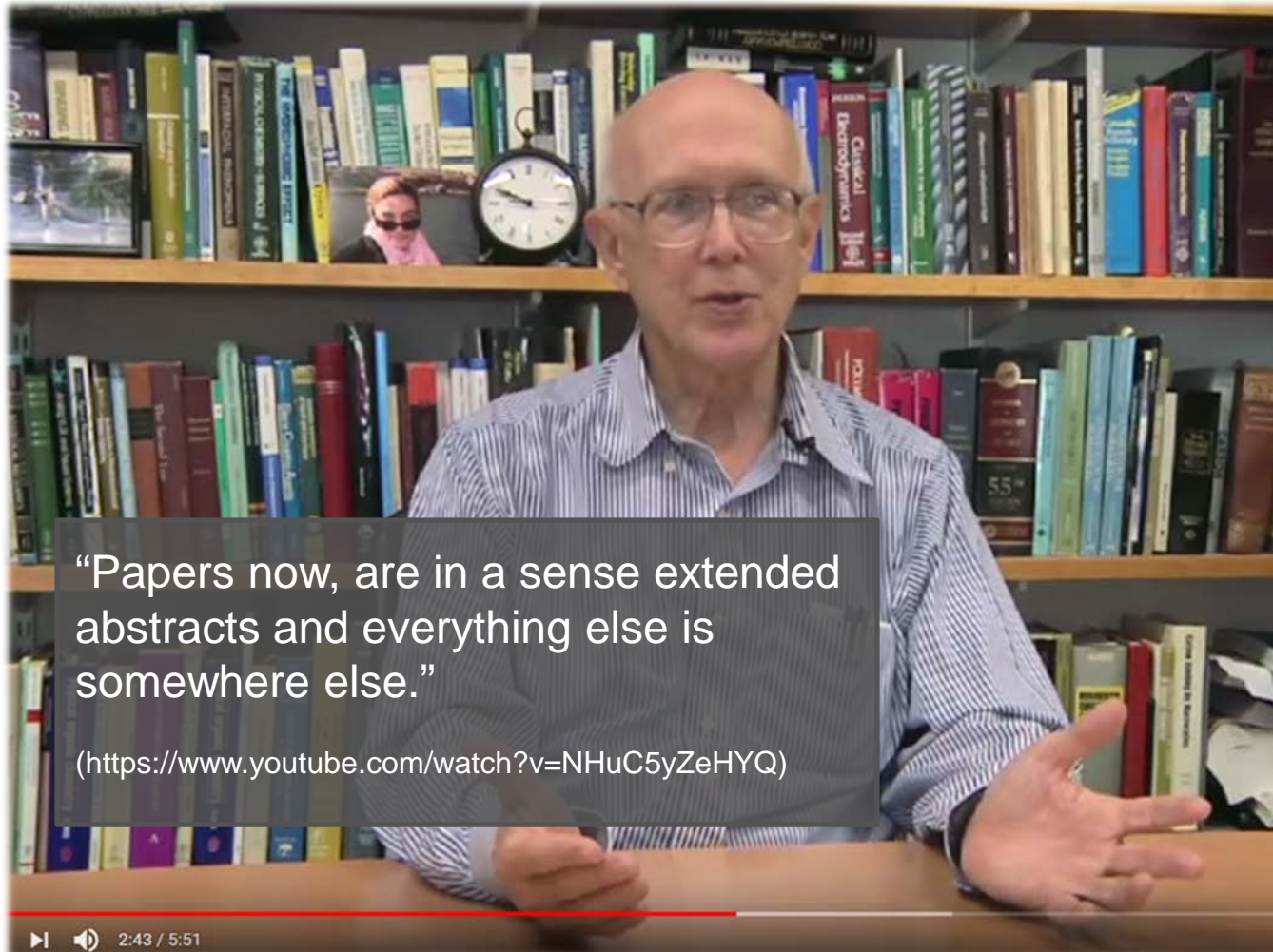
publications...

...then

...and now



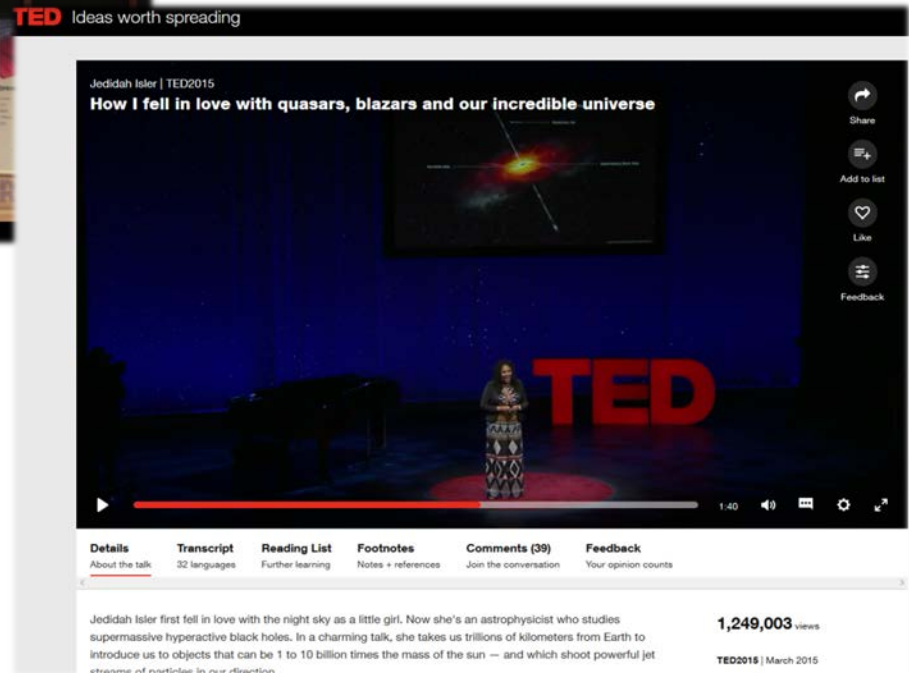
publications...



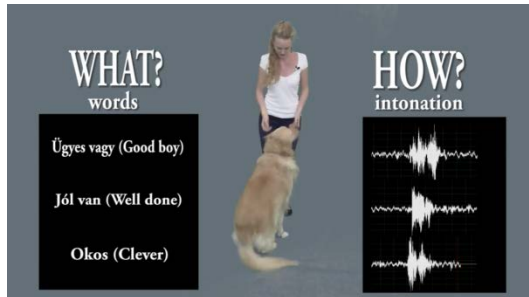
agenda

1. scholarly communication
- 2. science communication**
3. problems
4. solutions

science communication



video abstract



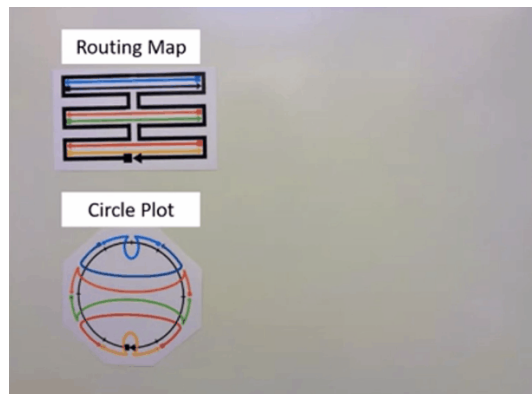
<https://doi.org/10.5446/32195>



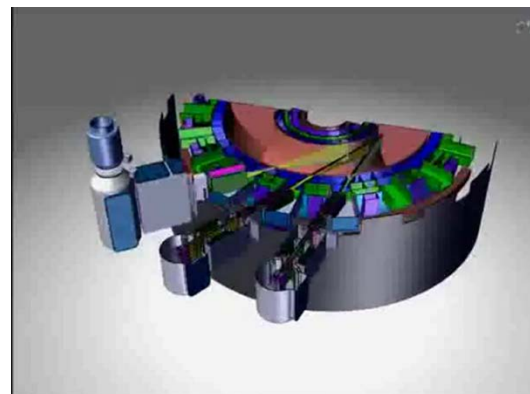
<https://doi.org/10.5446/21332>



<https://doi.org/10.5446/32196>



<https://doi.org/10.5446/21892>



<https://doi.org/10.5446/21890>



<https://doi.org/10.5446/17789>

video abstract



Liao, H-K., et al.: Turning Up Gene Expression to Treat Disease
<https://doi.org/10.1016/j.cell.2017.10.025>



Cook, J., et al.: Deconstructing climate misinformation to identify reasoning errors
<https://doi.org/10.1088/1748-9326/aaa49f>

video abstract

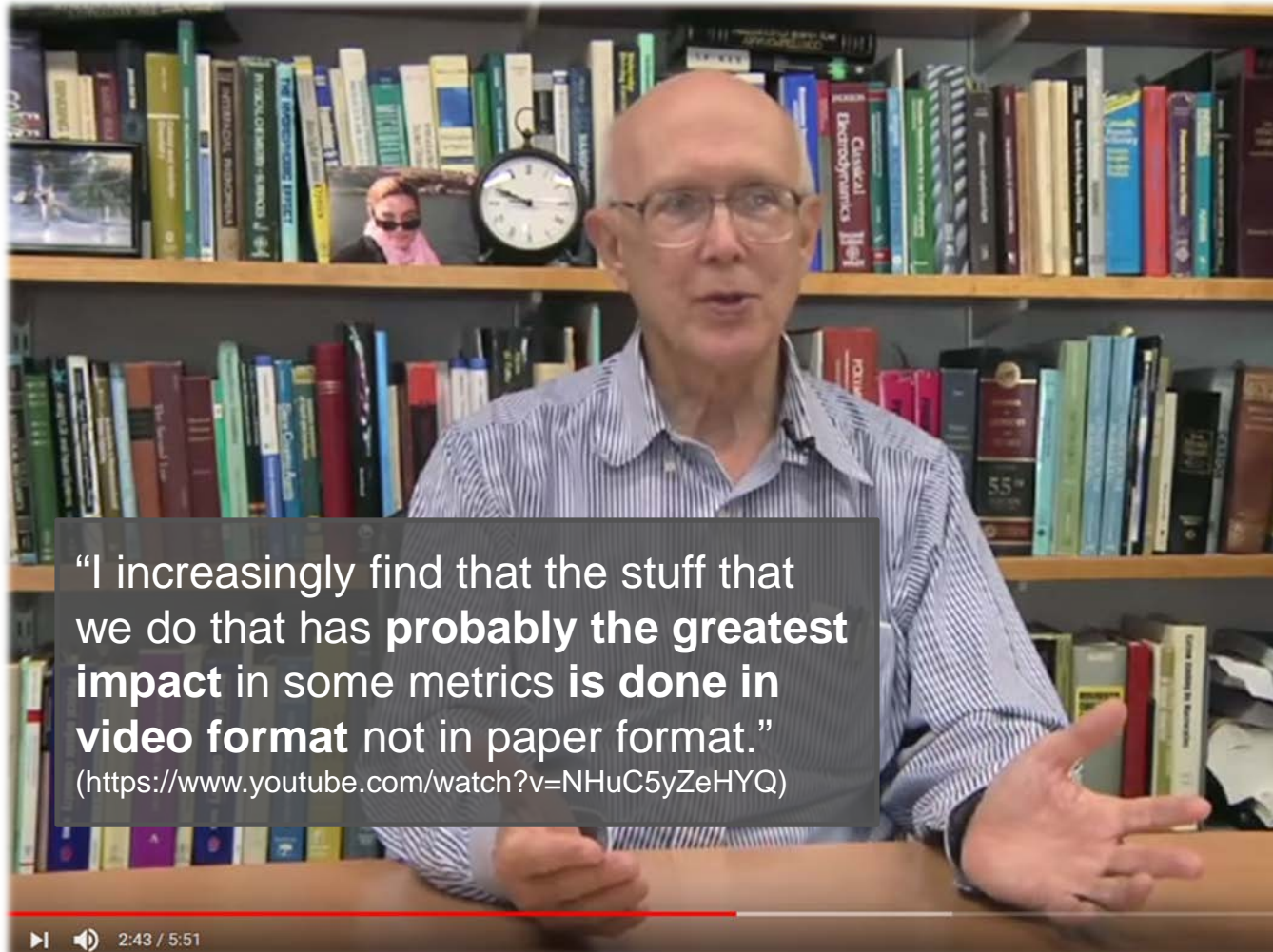


IOP Publishing



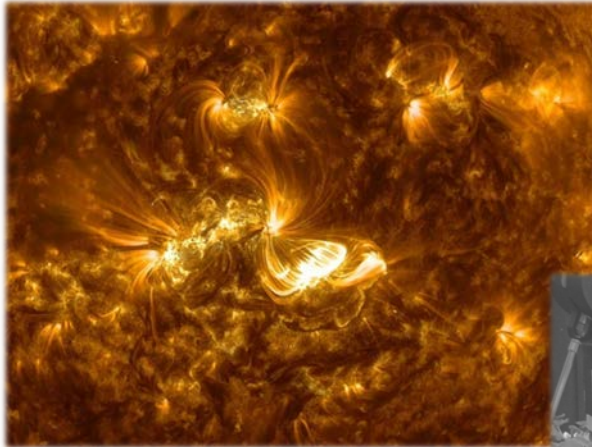
“...the top 25 and 100 read articles had a significantly higher presence of video abstracts than articles overall in the data set.”

communicating science

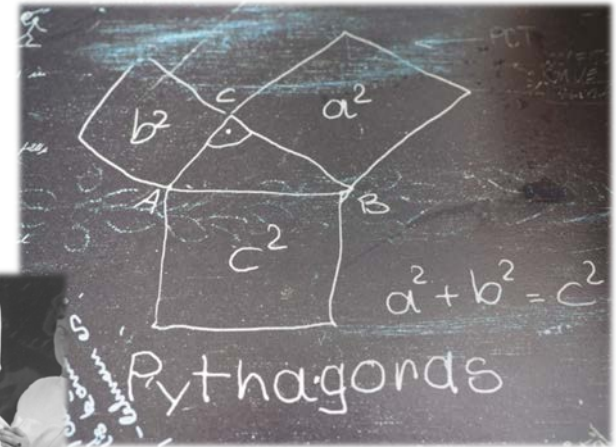


video in science

visualisation



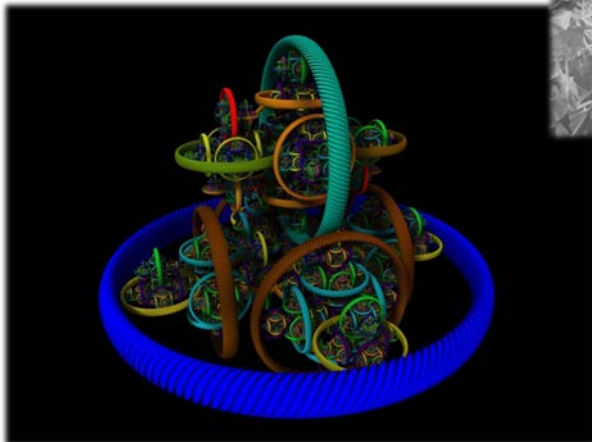
comprehensible



documentation



complexity



visibility



agenda

1. scholarly communication
2. science communication
- 3. problems**
4. solutions

snapshots

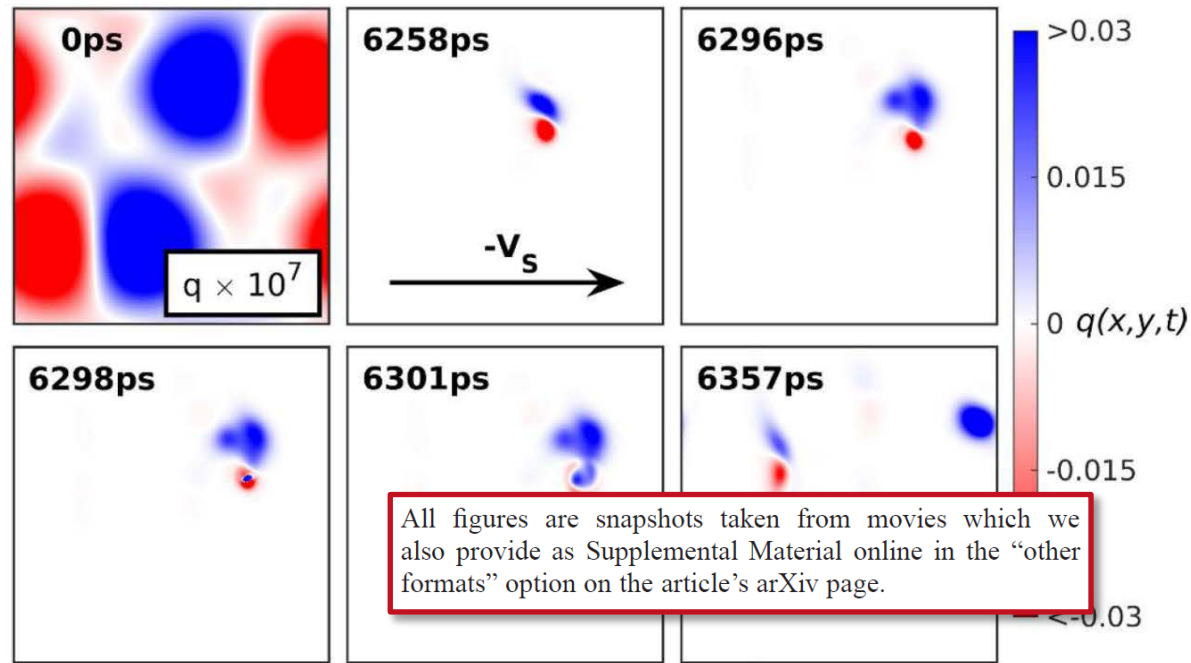


FIG. 1. (Color online). Snapshots of the Sk density q at the times as indicated. The initial Sk seed density adopted by the applied inhomogeneous magnetic field is tiny (see Sk density for $t = 0$ which is multiplied by 10^7 for clarity). Over time, the current in x -direction, indicated by

e.g. arXiv

6. [arXiv:1702.01519](#) [pdf, ps, other]

Diffusion-driven self-assembly of rod-like particles: Monte Carlo simulation on a square lattice

Nikolai I. Lebovka, Yuri Yu. Tarasewich, Volodymyr A. Gigiberiya, Nikolai V. Vygornitskii

Comments: 12 pages, 14 figs, 3 videos, 53 refs. Submitted to Phys. Rev. E

Subjects: **Statistical Mechanics** (cond-mat.stat-mech)

7. [arXiv:1701.07861](#) [pdf, other]

Diversity and coevolutionary dynamics in high-dimensional phenotype spaces

Michael Doebeli, Iaroslav Ispolatov

Comments: 49 pages, 6 figures, and 5 videos (please open pdf with Acrobat to see the embedded movies)

Journal-ref: The American Naturalist 2017 189:2, pp.115-120

Subjects: **Populations and Evolution** (q-bio.PE)

8. [arXiv:1701.07769](#) [pdf, ps, other]

Ethical Considerations in Artificial Intelligence Courses

Emanuelle Burton, Judy Goldsmith, Sven Koenig, Benjamin Kuipers, Nicholas Mattei, Toby Walsh

Comments: 29 pages including all case studies and links to video media on YouTube

Subjects: **Artificial Intelligence** (cs.AI); **Computers and Society** (cs.CY); **General Literature** (cs.GL)

9. [arXiv:1701.07479](#) [pdf, other]

Epidemiological modeling of the 2005 French riots: a spreading wave and the role of contagion

Laurent Bonnasse-Gahot, Henri Berestycki, Marie-Aude Denuit, Mira B. Gordon, Sebastian J. Sché, Nancy Rodriguez, Jean-Pierre Nadal

Comments: 16 pages, 6 figures, 2 SI pages, 3 SI figures, 4 SI videos (the SI videos are included in the source package, and are also available here: [this http URL](#))

Subjects: **Physics and Society** (physics.soc-ph); **Social and Information Networks** (cs.SI)

10. [arXiv:1701.07372](#) [pdf, other]

A Multi-view RGB-D Approach for Human Pose Estimation in Operating Rooms

Abdolrahim Kadkhodamohammadi, Afshin Gangi, Michel de Mathelin, Nicolas Padoy

Comments: WACV 2017. Supplementary material video: [this https URL](#)

Subjects: **Computer Vision and Pattern Recognition** (cs.CV)

11. [arXiv:1701.07256](#) [pdf, ps, other]

Skyrmion-Antiskyrmion pair creation by in-plane currents

Martin Stier, Wolfgang Häusler, Thore Posske, Gregor Gurski, Michael Thorwart

Comments: Please find additional videos of the skyrmion-antiskyrmion pair creation process on the article's arXiv page. The videos can also be downloaded from the "other formats" section as a compressed file

Subjects: **Mesoscale and Nanoscale Physics** (cond-mat.mes-hall)

where?

embedded in PDF

youtube

source package

private webpage

other formats section

e.g. arXiv



Not Found

The requested URL `/pg-nomin/lesgourg/inflation/` was not found on this server.

Apache/2.2.3 (Red Hat) Server at laph.cnrs.fr Port 80

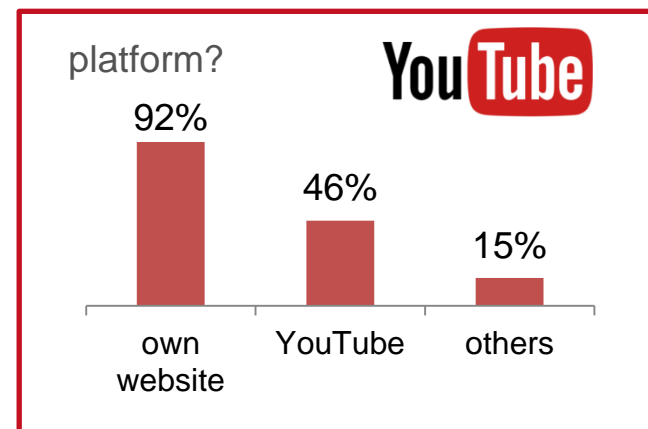
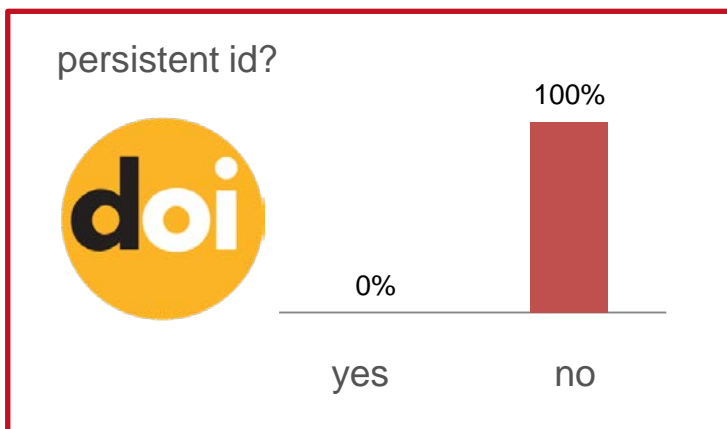
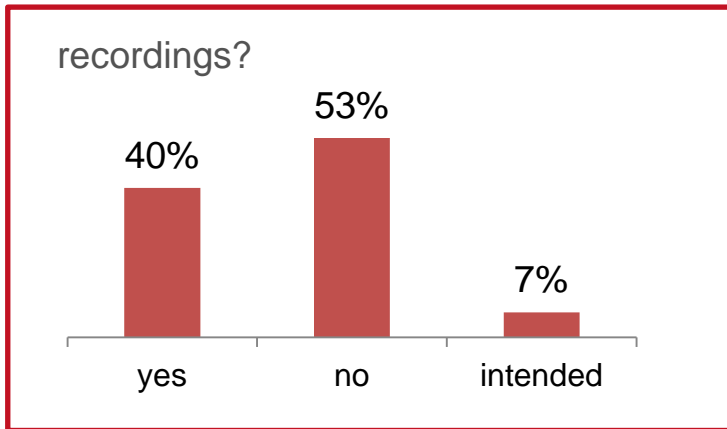
Forbidden

You don't have permission to access `/~jjmc/auxiliaryData.tgz` on this server.

Apache/2.4.10 (Debian) Server at www.physics.ucla.edu Port 80

conference recordings

survey among 30 conference organisers



where?



nowhere!



„... blip.tv changed their business model and ... simply **stopped offering the service altogether...**“

Re: Conference video on Vimeo dissapeared

“...many of the **videos are already removed** including conferences 2014 and 2015 ...”

agenda

1. scholarly communication
2. science communication
3. problems
4. **solutions**

TIB AV-PORTAL

Search for people, places, topics... Search

PHYSICS



A system's wave function is uniquely determined by its underlying physical state

MATHEMATICS



1/7 The energy critical wave equation

INFORMATION TECHNOLOGY



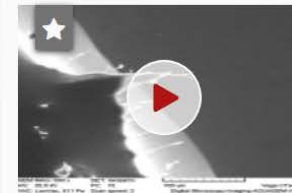
Combining linear Support Vector Machines by constraining them to use the same set of features

ENGINEERING



Technische Mechanik IV, SS 2016, gehalten am 31.05.2016

CHEMISTRY



S1

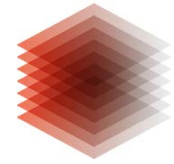
ARCHITECTURE



Livraria Lello e Irmão



Connecting Research and Researchers



persistent link

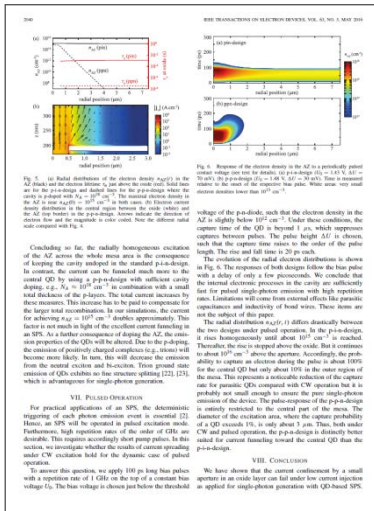
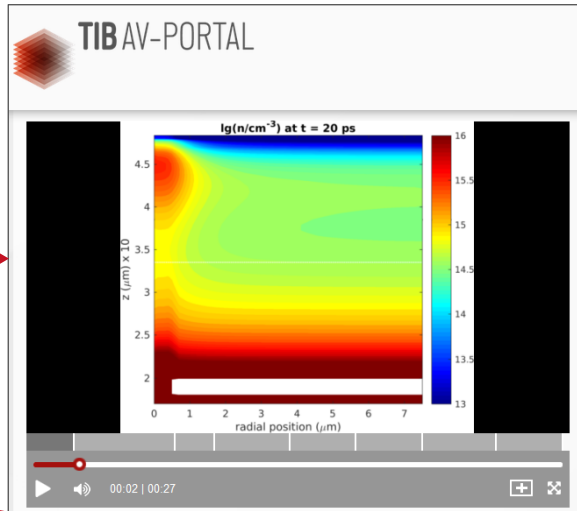


Fig. 5. (a) Radial distribution of the electron density $n_e(r)$ in the AZ for the p-n design and under bias. (b) The radial electric field $E_r(r)$ for the p-n design and under bias. (c) The radial electric field $E_r(r)$ for the p-n design and under bias. (d) The radial electric field $E_r(r)$ for the p-n design and under bias.

Considering as far as the radial homogeneity of the AZ across the whole mesa area in the comparison of doping the cavity through the standard p-n design. In contrast, the current can be focused much more to the central QD by using a p-n structure with sufficient carrier doping, e.g. $N_A = 10^{18} \text{ cm}^{-3}$ in combination with a small radial thickness of the p-layer. The total current increases by these amounts. This increase has to be paid to compensate for the larger total capacitance. In our simulation, the current for achieving $n_{QD} = 10^{11} \text{ cm}^{-3}$ doubles approximately. This factor is not much in light of the excitation current forming an SP. As a further consequence of doping the AZ, the carrier injection processes of the QDs will be affected. Due to the doping, the emission of positively charged complexes (e.g., trions) will become more likely. In sum, this will decrease the extraction from the neutral exciton and bi-exciton. These general assumptions of QDs exhibit to the structure options [22], [23], which is advantageous for single-photon generation.

VII. PULSED OPERATION
The practical application of an SPN, the deterministic triggering of each photon emission event in control [22]. Hence, an SPN can be operated in pulsed excitation mode. Furthermore, high repetition rates of the order of GHz are desirable. This requires accordingly fast pump pulses. In this section, we investigate whether the results of current spreading under CW excitation hold for the dynamic case of pulsed operation.
To answer this question, we apply (10) to pump bias pulses with a repetition rate of 1 GHz on the top of a constant bias voltage V_0 . The bias voltage is chosen just below the threshold.

VIII. CONCLUSION
We have shown that the current contribution by a small aperture in an oxide layer can fall under low current injection as applied for single-photon generation with QD based SPN.



Related Material

VIDEO IS ACCOMPANYING MATERIAL FOR THE FOLLOWING RESOURCE

[Efficient Current Injection Into Single Quantum Dots Through Oxide-Confined p-n-Diodes](https://doi.org/10.1109/TELED.2016.2653861)

DOI: 10.1109/TELED.2016.2653861

[An Adaptive Semi-Lagrangian Emissions in the Atmosphere](#)

REFERENCES

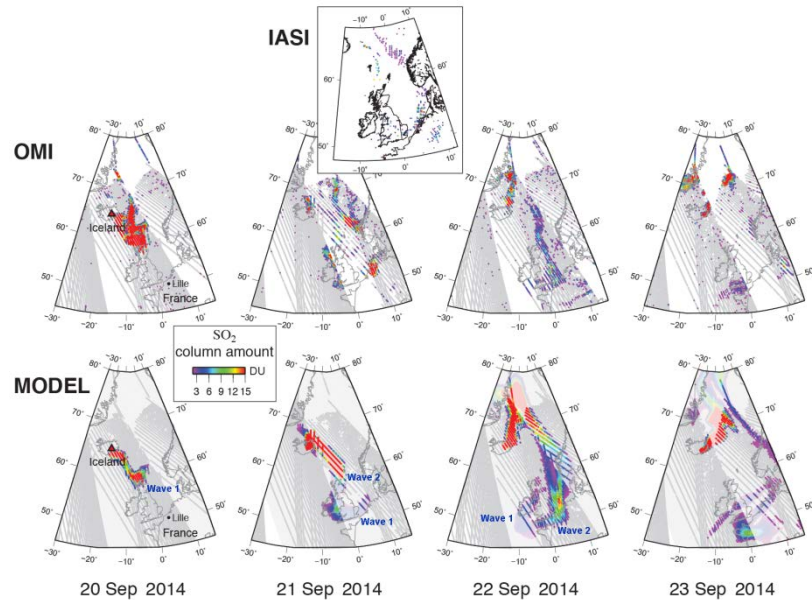
- [1] C. Santori, D. Fattal, and Y. Yamamoto, *Single-Photon Devices and Applications*. Weinheim, Germany: Wiley, 2010.
- [2] S. Buckley, K. Rivoire, and J. Vučković, "Engineered quantum dot single-photon sources," *Rep. Prog. Phys.*, vol. 75, no. 12, p. 126503, Nov. 2012.
- [3] R. Michalzik, Ed., *VCSSELS: Fundamentals, Technology and Applications of Vertical-Cavity Surface-Emitting Lasers* (Springer Series in Optical Sciences). Berlin, Germany: Springer, 2013.
- [4] W. Utran et al., "Electrically driven single photon source based on a site-controlled quantum dot with self-aligned current injection," *Appl. Phys. Lett.*, vol. 101, no. 21, p. 211119, 2012.
- [5] A. Strittmatter et al., "Site-controlled quantum dot growth on buried oxide stressor layers," *Phys. Status Solidi A*, vol. 209, no. 12, pp. 2411–2420, Nov. 2012.
- [6] H. Gajewski and R. Nürnberg, *WIAS-TeSCA: Two- and Three-Dimensional Semiconductor Analysis Package*, accessed on Mar. 10, 2016. [Online]. Available: <http://www.wias-berlin.de/software/tesca/>

media fragment identifier

- whole video
 - ✓ DOI (cf. ISBN)
 - ✓ <https://doi.org/10.5446/17570>
- talk 2 of 3
 - ✓ DOI+MFID (vgl. ISBN+Seite)
 - ✓ <https://doi.org/10.5446/17570#t=05:44,14:06>
- quote: “have fun on the conference”
 - ✓ DOI+MFID (vgl. ISBN+Seite)
 - ✓ <https://doi.org/10.5446/17570#t=13:57,13:58>



media fragment identifier



20 Sep 2014:

<https://doi.org/10.5446/19496#t=00:05,00:09>

21 Sep 2014:

<https://doi.org/10.5446/19496#t=00:09,00:14>

22 Sep 2014:

<https://doi.org/10.5446/19496#t=00:14,00:19>

23 Sep 2014:

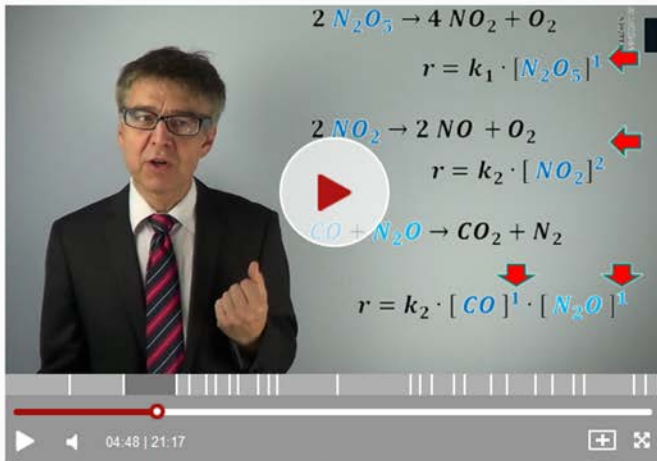
<https://doi.org/10.5446/19496#t=00:19,00:24>

Boichu, et al. (2016), DOI:[10.5194/acp-16-10831-2016](https://doi.org/10.5194/acp-16-10831-2016)

TIB AV-PORTAL Search for people, places, topics...

Online Collection
 Offline Collection
 Complete Collection

Reaction rate law and reaction profile - a question of temperature, concentration, solvent and catalyst - how fast will a reaction proceed



Citation of segment

Automated Media Analysis BETA

Recognized Entities Speech transcript

Search...

Speech
 Text in the video
 Image content

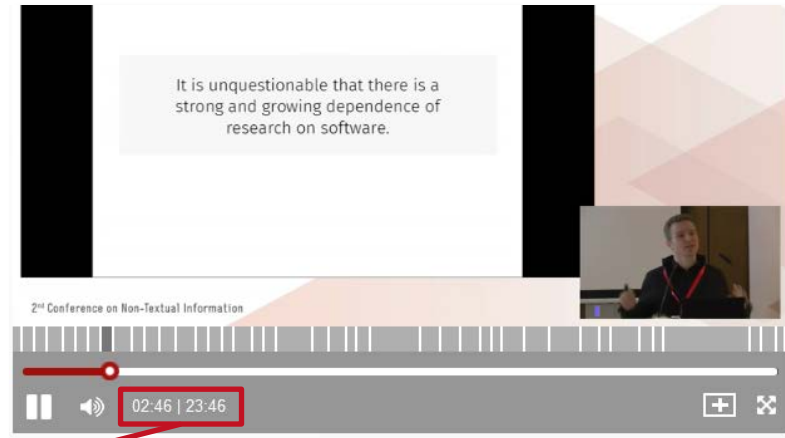
Process (computing)

02:10

Formaldehyde	Meat analogue	Waterfall	
Activation energy	Acetaldehyde	Human body temperature	
Chemical reaction	Octane rating	Potenz <Homöopathie>	
Decomposition	Concentrate	Molecule	Functional group
Gene expression	Enzyme		



Video segments



Speech transcript

02:46

hitting science well about what people images that in software to crimes this data right you need these tools there is no signs without software today and minus catching maybe bottflies that at some point you would use this to a generator a database of the butterflies again and researchers need maybe to classify all this so software is essential for science today the it can also

Keywords

- 02:44
- Resultant
 - Point (geometry)
 - Database
 - Service (economics)
 - Information
 - Whiteboard
 - Computer animation
 - Software
 - Software
 - Right angle
 - Sign (mathematics)
 - Game controller
 - Medical imaging
 - Function (mathematics)

PHYSICS



A system's wave function is uniquely determined by its underlying physical state

MATHEMATICS



1/7 The energy critical wave equation

INFORMATION TECHNOLOGY



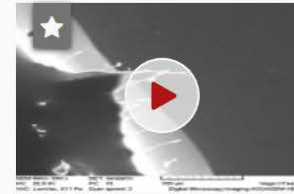
Combining linear Support Vector Machines by constraining them to use the same set of features

ENGINEERING



Technische Mechanik IV, SS 2016, gehalten am 31.05.2016

CHEMISTRY



S1

ARCHITECTURE

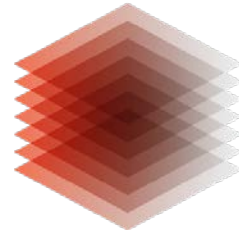


Livraria Lello e Irmão

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Thank you for your attention!

Contact

Bastian Drees (ORCID: 0000-0003-3508-602X)

Phone: +49 511 762-14644

Email: bastian.drees@tib.eu



@BastianDrees

@TIB_AVPortal



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references

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- Drees, B. and Plank, M. (2018). *Video is the new Grey*. Grey Journal (TGJ), Vol. 14 Issue 1, p26-30.
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