LEIBNIZ-INFORMATIONSZENTRUM
TECHNIK UND NATURWISSENSCHAFTEN
UNIVERSITÄTSBIBLIOTHEK

TIB

Mathematical Knowledge in Videos – experience the TIB's AV-Portal for Maths

Matti Stöhr
14th September 2022
Contribution for the Minisymposium: "The Future of Digital Infrastructures for Mathematical Research" at DMV-AM 2022

Leibniz Gemeinschaft

Agenda

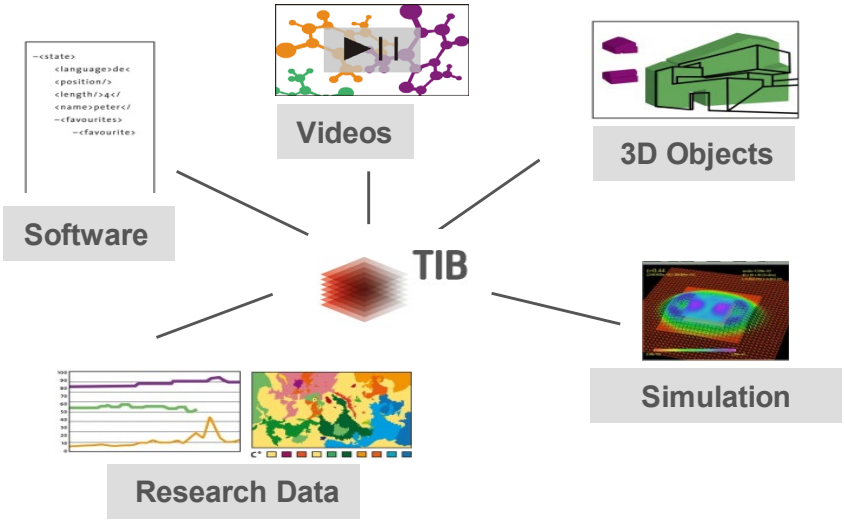
1. **The TIB and TIB AV-Portal in a nutshell**
2. Mathematical media in TIB‘s AV-Portal
3. Visibility and Sharing
4. Summary
5. Q&A

0 Warm Up – World of scientific films in a nutshell

- Very long tradition
- Huge diversity of genres
- Way of modern and innovative science communication
- Nowerdays: More than YouTube ;-)

1 German National Library of Science and Technology (TIB)

- The worlds largest science and technology library
- An infrastructure provider for the scientific work process
- TIB-Strategy: Move beyond text / Openness
- Competence Centre for Non-Textual Materials
- Be invited to visit: www.tib.eu



1 The TIB AV-Portal in a nutshell

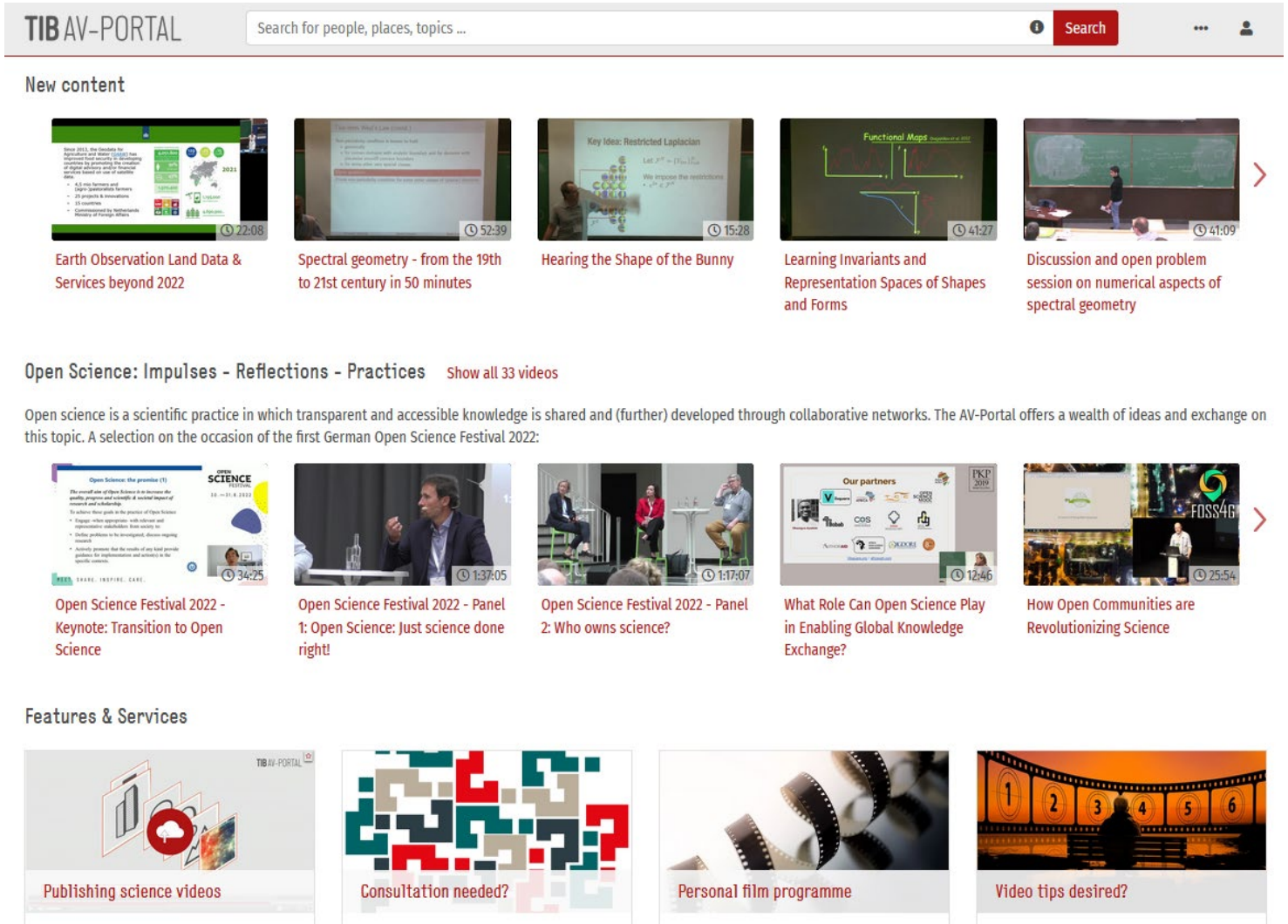
Overview

Profile

- Free portal for quality-proofed scientific AV media from technology & sciences (focus)

Development

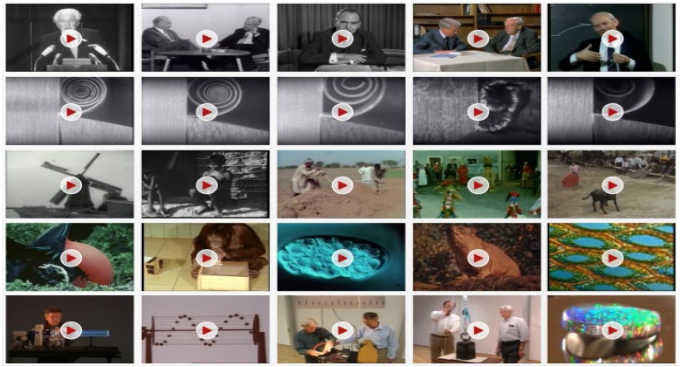
- TIB and HPI / Yovisto
- Online since spring 2014
- From project to regular service
- Continuous improvement



1 The TIB AV-Portal in a nutshell

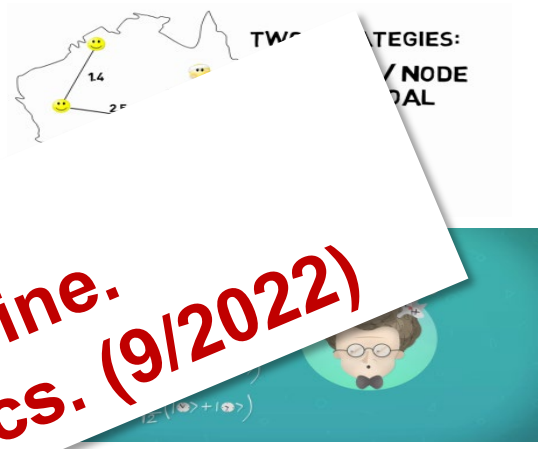
Contents

IWF



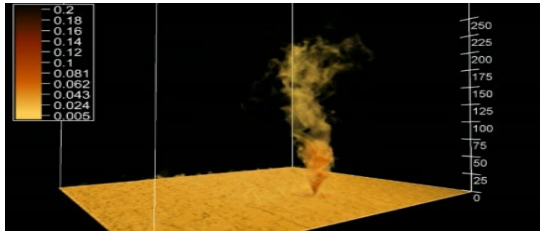
Conferences

Video Abstracts

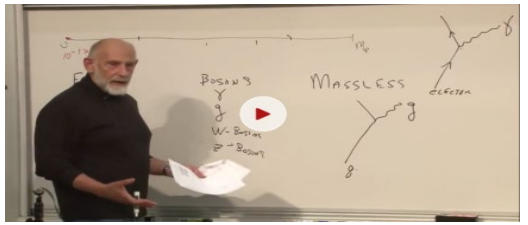


Over 38.000 videos findable,
over 37.000 videos viewable online.
More than 5000 videos on mathematics. (9/2022)

Interviews/Documentaries



Teaching



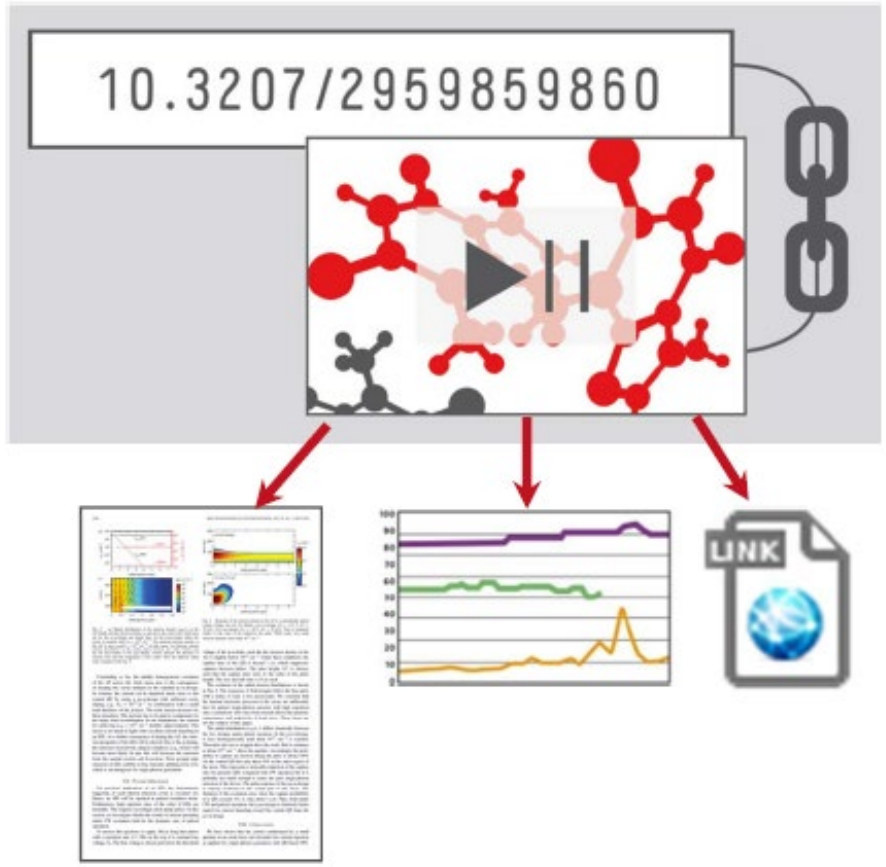
1 The TIB AV-Portal in a nutshell

Services / functions / unique selling points

- Hosting & long term preservation
- Metadata enrichement (standardised by using authority files)
- Permanent citeability with DOI & MFID
- Crosslinking to related information - paper, research data, profile, …
- Semantic search
- Publication practices in conformity with the law

➢ **Free of charge**

- Conference recording service (TIB ConRec)
- Events: workshops / lectures …



1 The TIB AV-Portal in a nutshell

Automatic video analysis

- Scene Recognition
- Voice Recognition
- Text Recognition
- Visual Concept Detection
- Named Entity Recognition

2 Mathematical media in TIB‘s AV-Portal

Lecture videos

TIB AV-PORTAL

Search for people, places, topics ... Search

1-36 out of 2,722 results

Sort by: Relevance

Publication Year

2008 2010 2012 2014 2016 2018 2020 2022

- OK

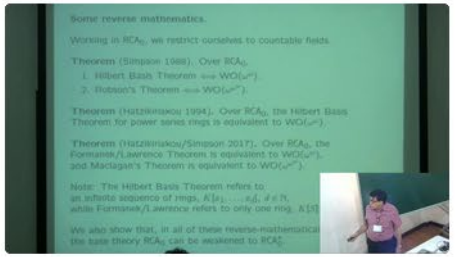
Collection

- ☐ Online collection (2,722)

Subject

- ☑ Mathematics (2,722)
- ☐ Physics (1,318)
- ☐ Computer Science (1,001)

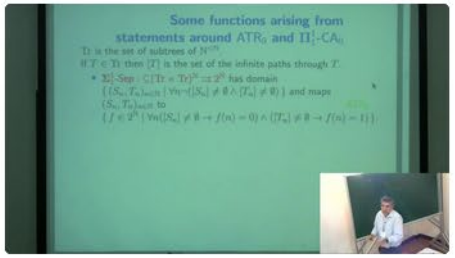
Video ✕ Mathematics ✕ Lecture ✕ Remove all filters



Reverse mathematics and the ascending chain condition

45:26 Simpson, Stephen G.

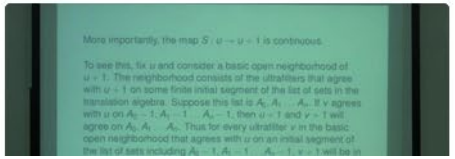
2019 Banff International Research Station (BIRS) for Mathematical Innovation and Discovery



The open and clopen Ramsey theory in the Weihrauch lattice

56:59 Marcone, Alberto

2019 Banff International Research Station (BIRS) for Mathematical Innovation and Discovery



Questions about Hindman’s theorem

36:15 Hirst, Jeff

2019 Banff International Research Station (BIRS) for Mathematical Innovation and Discovery

2 Mathematical media in TIB‘s AV-Portal

Recordings of conferences

Leibniz MMS Days 2022

The Leibniz Network "Mathematical Modeling and Simulation" carried out the fifth Leibniz MMS Days hosted by the Potsdam Institute for Climate Impact Research (PIK). The Workshop aimed to further develop the MMS networking activities in the different Institutes, presenting undergoing work using modern methods of MMS and creating a plattform for discussion on themes of specific and general interest.

Weierstraß-Institut für Angewandte Analysis und Stochastik (WIAS)

DOI (series): 10.5446/s_1243

22 2022 36 12 hours 39 minutes

Open this series as search result Share series Cite series Save in My Media

1-22 out of 22 results

Sort by: Series Order (up)

Binary black hole coalescence: From numerical relativity to gravitational waves

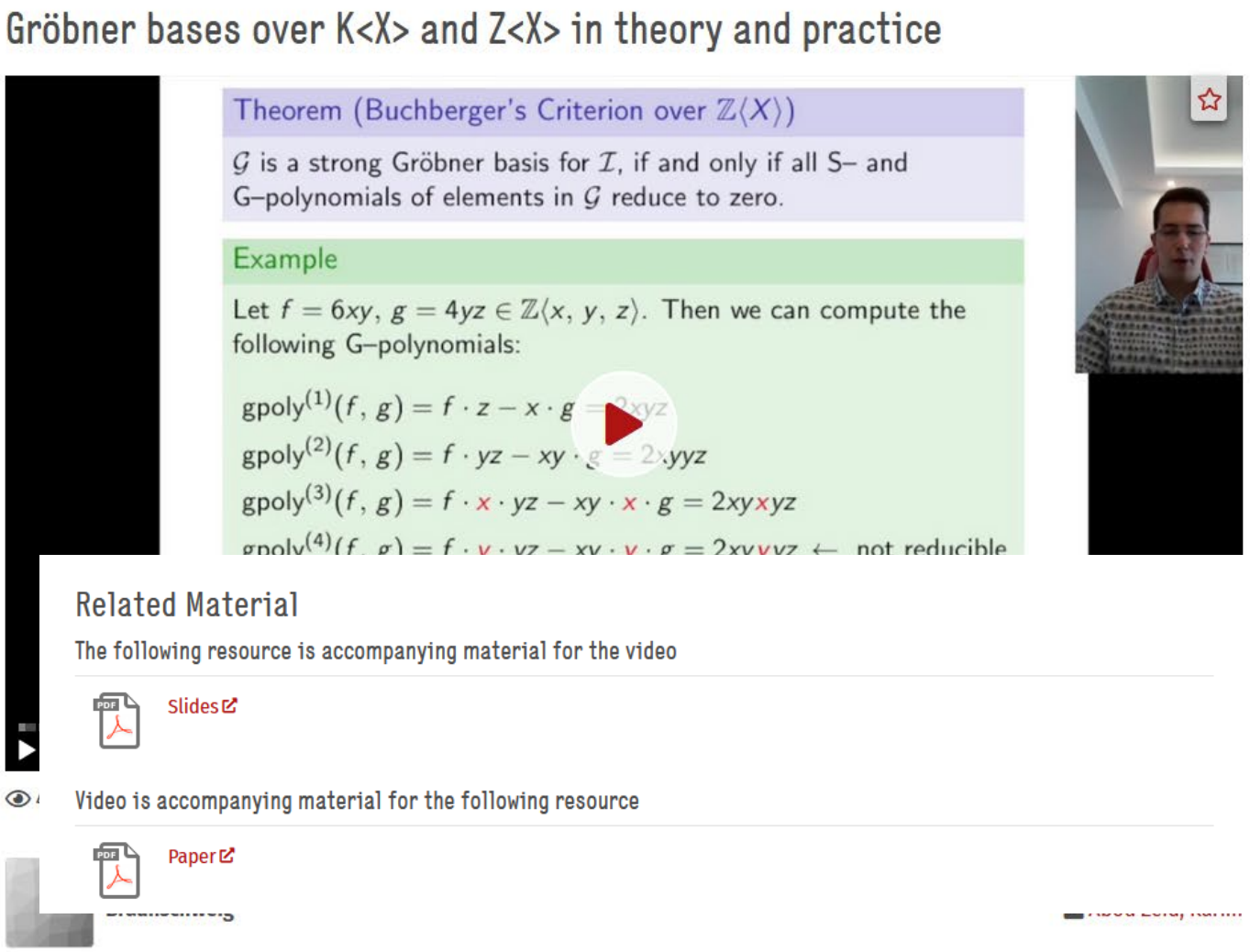
48:10 2 Pfeiffer, Harald

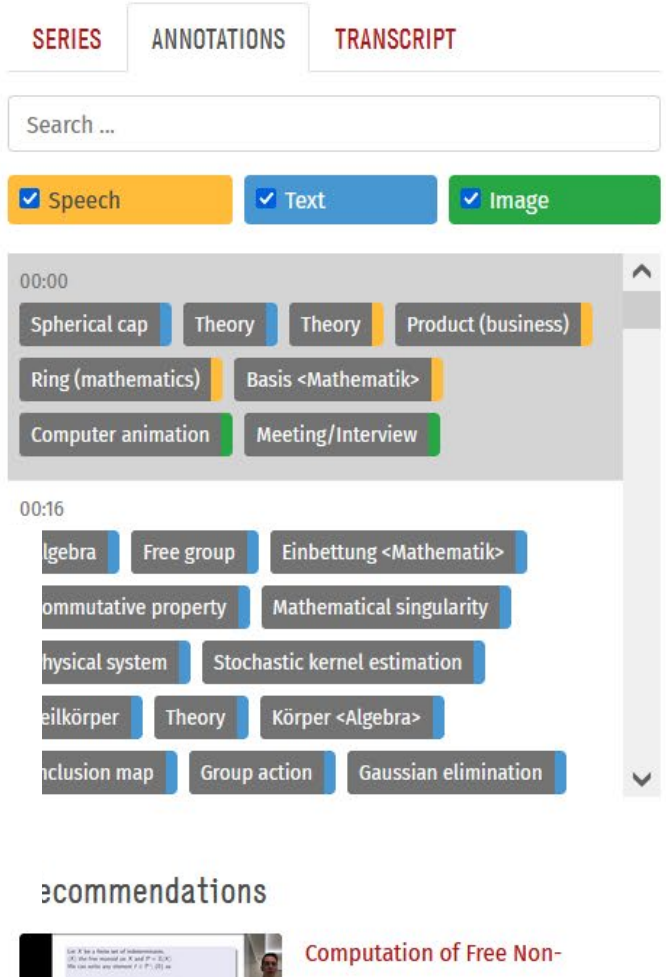
Several times per hour, a pair of black holes coalesces somewhere in the observable Universe. Direct supercomputer calculations of binary black holes elucidate the dynamics of warped space-time and underpin gravitational wave observations of these systems. This talk introduces the techniques of such simulations and their application to gravitational wav...

2022 Weierstraß-Institut für Angewandte Analysis und Stochastik (WIAS), Potsdam Institute for Climate Impact Research (PIK)

2 Mathematical media in TIB‘s AV-Portal

Recordings of conferences





2 Mathematical media in TIB‘s AV-Portal

Interviews

1-36 out of 49 results

Sort by: Relevance

The HLF Portraits ✕ Mathematics ✕ Remove all filters

Author & Contributors

- Pachter, Marc (46)
- Milnor, John (2)
- Nirenberg, Louis (2)
- show more

Publisher

- Heidelberg Laureate Forum Foundation (49)

Reuse

- Use for your own purposes only (49)

Video Length

- Longer than 30 minutes (45)
- 5 to 30 minutes (4)

The HLF Portraits: Simon Donaldson

57:12 33 Donaldson, Simon

The Heidelberg Laureate Forum Foundation presents the HLF Portraits: Simon Donaldson; Fields Medal, 1986 Recipients of the the Abel Prize, the ACM A.M. Turing Award, the ACM Prize in Computing, the Fields Medal and the Nevanlinna Prize in...

2020 Heidelberg Laureate Forum Foundation

The HLF Portraits: Ronald L. Rivest

51:19 86 Rivest, Ronald L.

The Heidelberg Laureate Forum Foundation presents the HLF Portraits: Ronald L. Rivest; ACM A.M. Turing Award, 2002 Recipients of the the Abel Prize, the ACM A.M. Turing Award, the ACM Prize in Computing, the Fields Medal and the...

2020 Heidelberg Laureate Forum Foundation

The HLF Portraits: Leslie Lamport

1:02:23 6 Lamport, Leslie

The Heidelberg Laureate Forum Foundation presents the HLF Portraits: Leslie Lamport; ACM A.M. Turing Award, 2013 Recipients of the the Abel Prize, the ACM A.M. Turing Award, the ACM Prize in Computing, the Fields Medal and the...

2019 Heidelberg Laureate Forum Foundation

The HLF Portraits: Karen Keskulla Uhlenbeck

58:01 12 Uhlenbeck, Karen Keskulla et al.

2019 Heidelberg Laureate Forum Foundation

2 Mathematical media in TIB‘s AV-Portal

Visual simulations – problem of diverse publication

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. Tarasevich, Volodymyr A. Gigiberiya, Nikolai V. Vygornitskii
   Comments: 12 page[illegible] 14 figs, 3 videos, 53 re[illegible] Submitted to Phys. Rev. E
   Subjects: **Statistical [illegible]chanics (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 video[illegible] please open pdf with Acrobat to see the embedded movies
   Journal-ref: The American Naturalist 2017 18[illegible] 105-120
   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 a[illegible] links to video media on YouTube
   Subjects: **Artificial Intelligence (cs.AI)**; Comput[illegible] and Society (cs.CY); General Literat[illegible]e (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 Depuiset, Mirta B. Gordon, Sébastien Roché, Nancy Rodriguez, Jean-Pierre Nadal
   Comments: 16 pages, 6 figures, 2 SI pages, 3 SI figures, 4 SI videos ([illegible] SI videos are included in the source package, a[illegible] are also available here: this http URL)
   Subjects: **Physics and Society (physics.soc-ph)**; Social and Informati[illegible] 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 mat[illegible]al video: this https URL
    Subjects: **Computer Vision and Pattern Rec[illegible]nition (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 [illegible] a compressed file
    Subjects: **Mesoscale and Nanoscale Physics (cond-mat.mes-hall)**

Where?

Embedded in PDF

Youtube

Source package

Private webpage

Other formats section

2 Mathematical media in TIB‘s AV-Portal

Visual simulations

Atmos. Chem. Phys., 16, 7067–7090, 2016
https://doi.org/10.5194/acp-16-7067-2016

Volume 16, issue 11

Research article

10 Jun 2016

Using a combined power law and log-normal distribution model to simulate particle formation and growth in a mobile aerosol chamber

Miska Olin et al.

Supplement

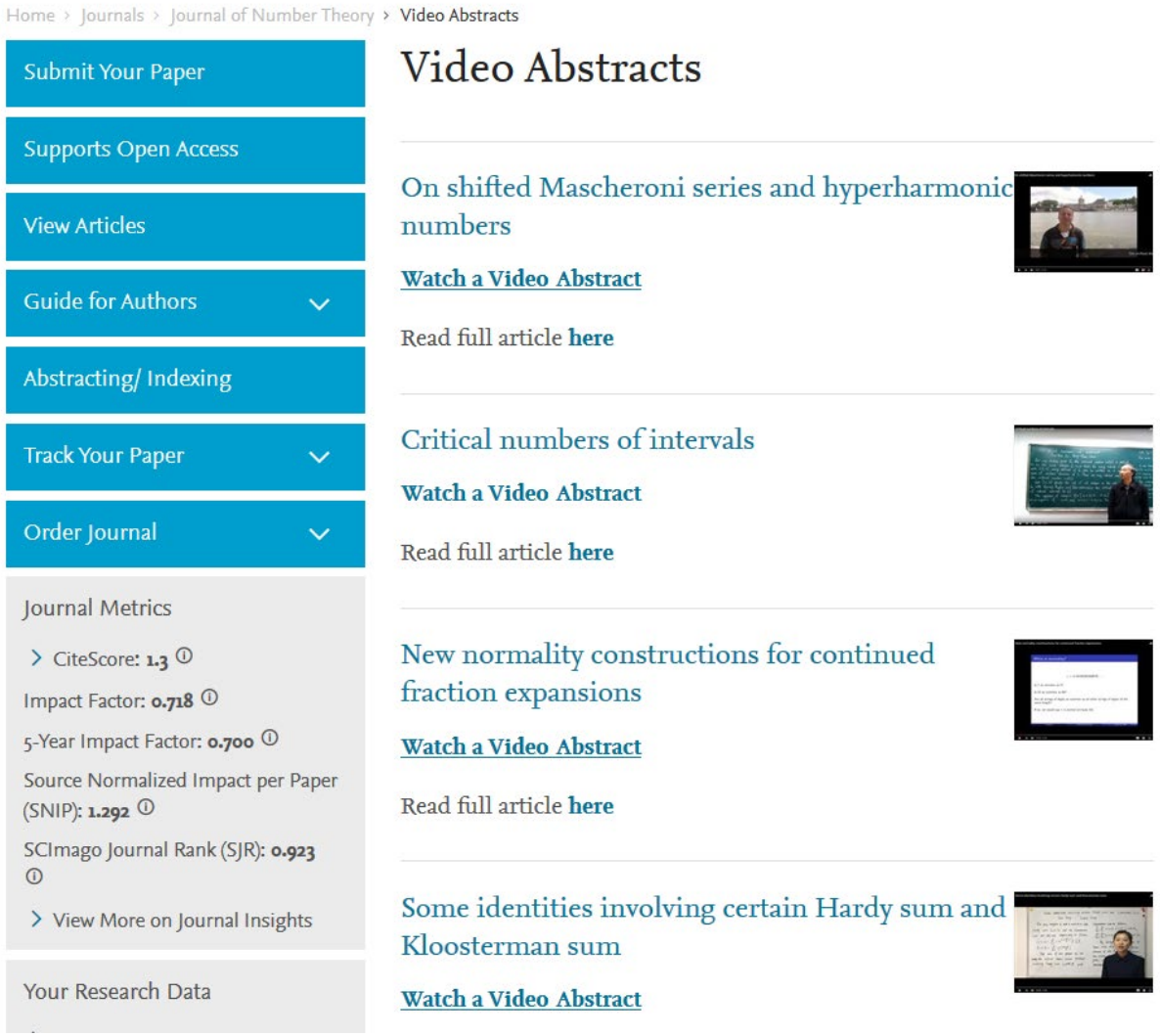
https://doi.org/10.5194/acp-16-7067-2016-supplement

Video supplement

Comparison of the particle size distributions simulated by the sectional model (FS1000), the log-normal distribution model (LN), and the combined power law and log-normal distribution model (PL+LN)
Miska Olin
http://dx.doi.org/10.5446/18564

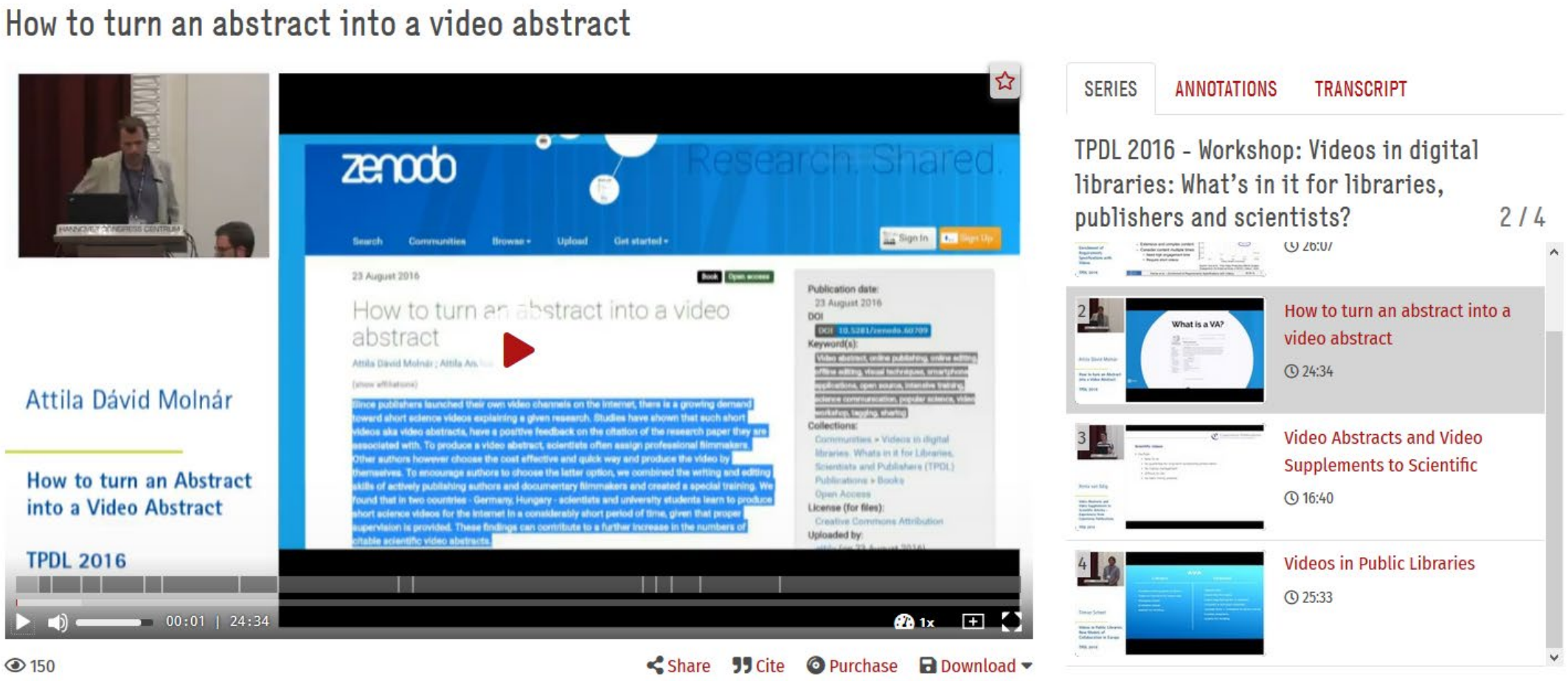
2 Mathematical media in TIB‘s AV-Portal

Video abstracts

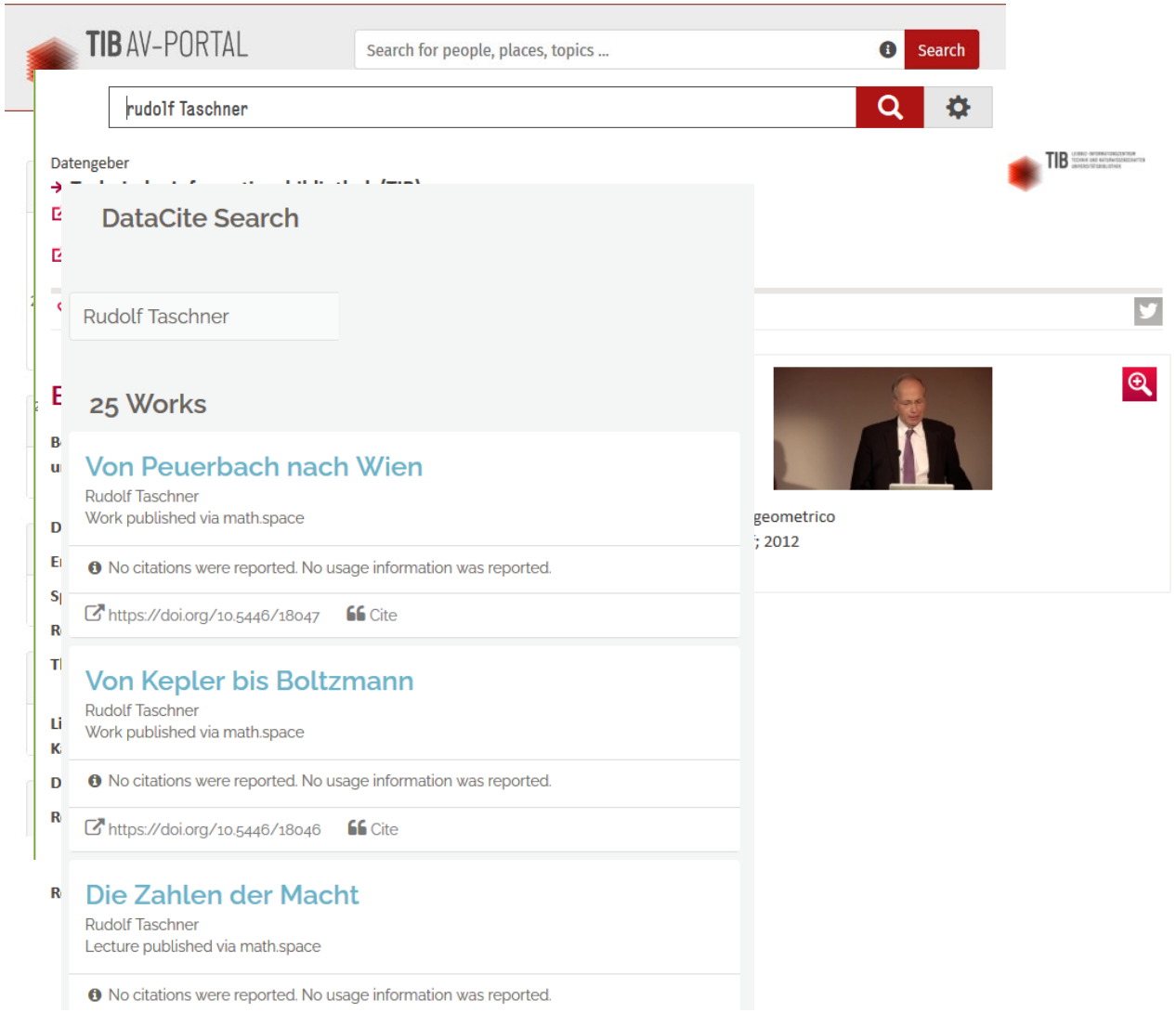


2 Mathematical media in TIB‘s AV-Portal

Video abstracts



3 Visibility and sharing



ORCID

Connecting Research and Researchers

Weblinks [Bearbeiten | Quelltext bearbeiten]

- **Commons: Christian Spannagel** – Sammlung von Bildern, Videos und Audiodateien
- Fakultätsseite der PH Heidelberg von Christian Spannagel
- Blog von Christian Spannagel
- Blog zum MOOC „Mathematisch denken!“
- MOOC „Mathematisch denken!“
- Account von Christian Spannagel auf dem ZUM-Wiki
- YouTube-Account von Christian Spannnagel
- Videos von und über Christian Spannagel im AV-Portal der Technischen Informationsbibliothek

4 Summary

- Scientific videos are important resources
- Stable and sustainable infrastructure is necessary
  - ➢ Citation, DOI, long term preservation, …
- Videos may increase the visibility of your research
  - ➢ Simulations, video abstracts, social media, Wikipedia -> Open Science
- TIB AV-Portal: platform for scientific videos
  - ➢ "… *optimal solution for hosting scientific videos"*
  - ➢ *"… all necessary features (issuing of DOIs, preservation, accessibility, licencing, and back-linking to the article) are provided."*

van Edig, X. (2016). Video abstracts and video supplements to scientific articles – experiences from Copernicus Publications. Zenodo. http://doi.org/10.5281/zenodo.59819, p.6

Searching and publishing scientific videos: The TIB AV-Portal in 120 seconds

https://doi.org/10.5446/22006

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TIB

Thank you!

MORE INFORMATION

www.tib.eu | www.av.tib.eu

Contact
Matti Stöhr
T +49(0)511 762-19505, matti.stoehr@tib.eu

@TIB_AVPortal

@TIBHannover

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