

How can we scientists shape the future of scientific publishing?

Institute colloquium: Open access scientific publications
Institut für Mathematik, Universität Potsdam

Dieter Meschede Institut für Angewandte Physik, Universität Bonn

Our fundamental starting point:

In the interest of freedom and the quality of science,
the publication ecosystem should be shaped

“By Scientists For Scientists”

An anecdote:

Julius Rudolph Mayer, Physician
discoverer (one of four scientists) of the *Conservation of Energy*
(1st law of thermodynamics)

16.6.1841 Submission to *Annalen der Physik und Chemie*:

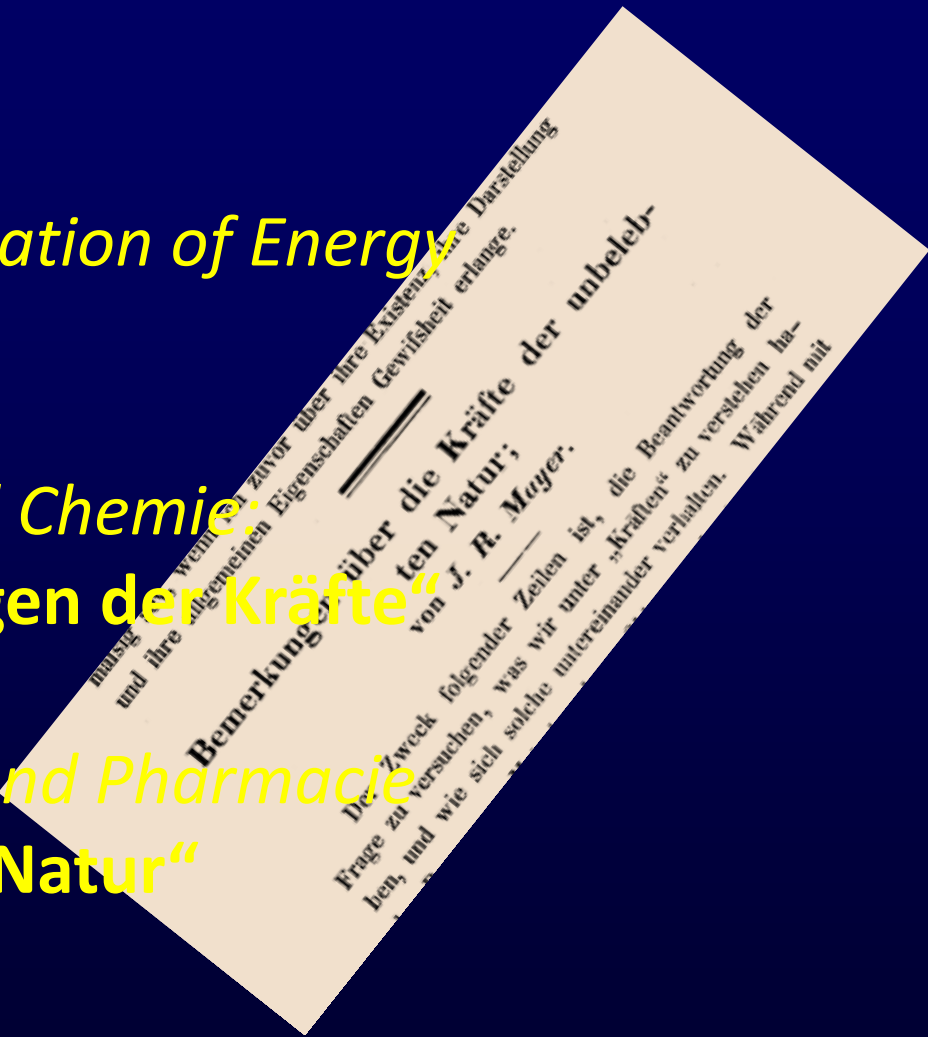
„Über quantitative und qualitative Bestimmungen der Kräfte“

→ No answer (since he was a physician??)

31.5.1842 Einreichung bei *Annalen der Chemie und Pharmacie*:

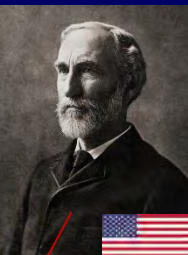
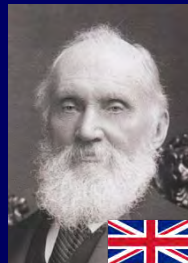
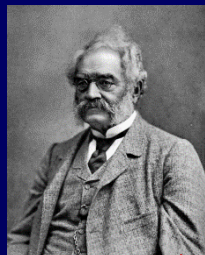
„Bemerkungen über die Kräfte der unbelebten Natur“

1841 manuscript 1877 found in the inheritance of editor Poggendorf ...





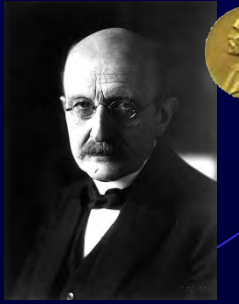
E. Becquerel J. Tyndall W. v. Siemens Lord Kelvin Lord Rayleigh J. Gibbs



J. Van der Waals



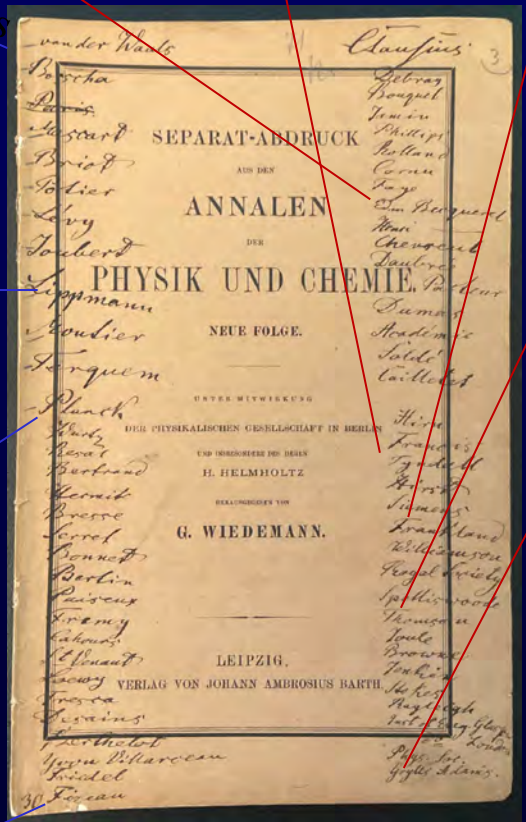
G. Lippmann



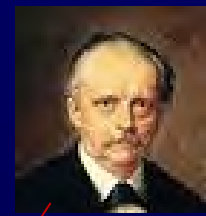
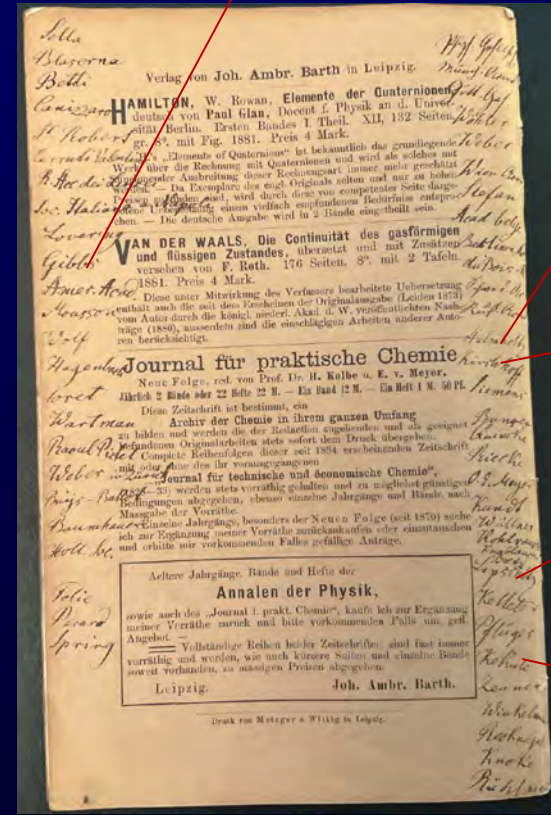
M. Planck



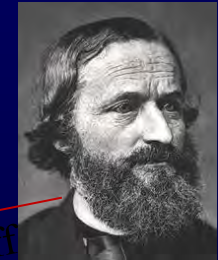
H. Fizeau



© Johannes Orphal



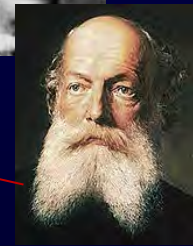
H. v. Helmholtz



G.R. Kirchhoff



R. Lipschitz



A. v. Kekulé

Weil die Zeit eine Richtung hat

Bilder: Wikipedia, gemeinfrei

Structural aspects of my own publication record:

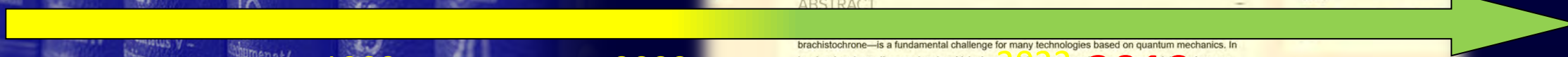
1979 – 2022:

** ~ 160 peer reviewed articles (~ 4 per year)

** 2 monographs



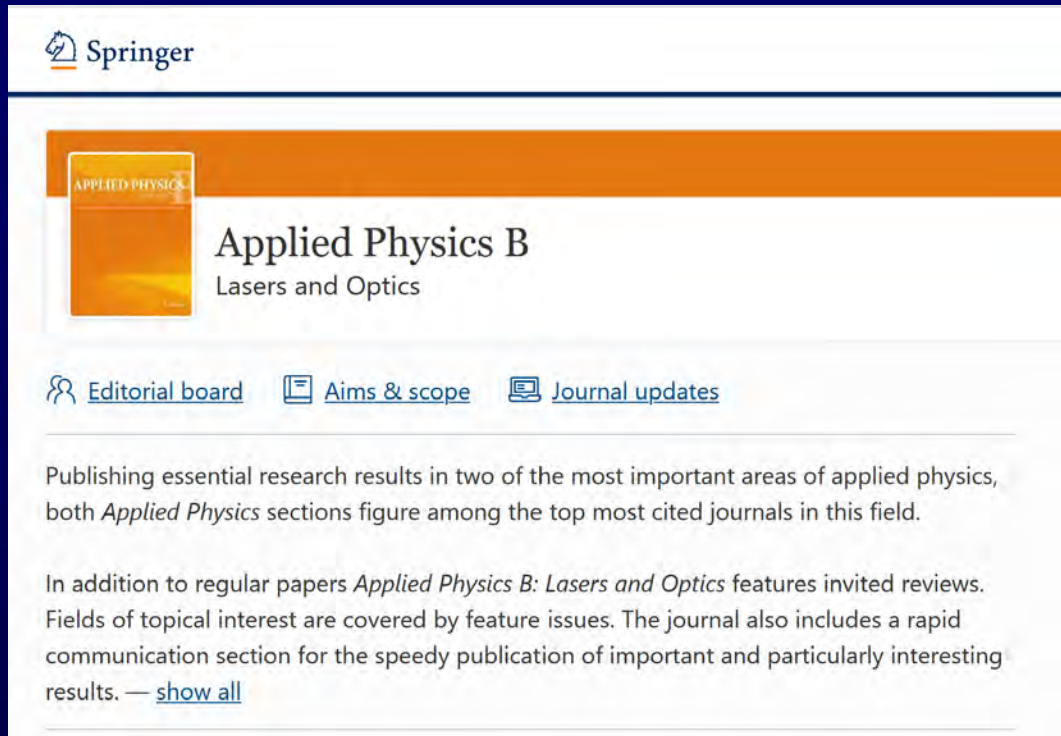
Diplom Thesis
Doctoral Thesis
Postdoc/Habilitation



1979 1984 1989 2000

2022

2022 ~ 2010



2013 – 2020:

Editor-in-Chief Dieter Meschede

Handling ~ 650-800 manuscripts/year

Publish ~ 300/year

with 12-16 co-editors

+ Decision making on scientific grounds only
- Motivating co-editors ...

+ Archival journal; few ethical problems
- OA costs € 2600/article; DEAL arrangement

UNESCO
United Nations
Educational, Scientific and
Cultural Organization

"Building peace in the minds of men and women"

IN BRIEF WHAT WE DO WHERE WE WORK PARTNERS JOIN US

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Open Science

UNESCO Recommendation on Open Science

Home

Definition of Open Science

- an inclusive construct that combines various movements and practices aiming to make scientific knowledge openly available, accessible and reusable for everyone
- to increase scientific collaborations and sharing of information for the benefits of science and society
- and to open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community



Benefits for Researchers

- Optional service with no author fees, no administrative burden and automatic compliance with open access requirements. ✓
- Submissions published rapidly as preprints after a set of thorough prepublication checks. ✓
- Transparent peer-review: authors suggest appropriate reviewers and engage in an open and public dialogue with their peers. ✓ ?



Benefits for Research

- Rapid open access publication enables others to build upon new ideas right away, wherever and whenever they are. ?
- Removes obstacles to collaborative research through data sharing, transparency and attribution. ?
- Shifts the way research and researchers are evaluated by supporting research assessment based on the intrinsic value of the research rather than the venue of publication. ?



Benefits for Society

- Maximises the value and impact of Horizon 2020 and Horizon Europe projects by enabling publication of all aspects of Commission funded research. ✓
- Makes research results fully open access, freely available and fully text and data minable for researchers as well as citizens. ✓ ?
- Accelerates the progress of research meaning new insights, innovations and treatments become available to those who need them more rapidly.

#1 Founded by DPG and IOP in 1998!!

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Deutsche Physikalische Gesellschaft  DPG

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6 days

54 days

3.716

OPEN ACCESS

Role of the Expert Societies ? (Example: DPG)

- Pioneering New Journal of Physics 1998
- Workshop 2019 The Future of Scientific Publishing
(DPG presidents Heuer-Meschede-Schröter-Ullrich-)
- Cooperation across disciplines (DMV, ...)
- Communicating about publishing strategies
- Stimulating innovative publishing formats

Specific aspects of scientific publishing:

- General accessibility (Open Access, OA)
- Cost and data transparency for publishers
- New players and models in the publishing sector
- Tasks of the scientific community

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- The DPG rejects additional payments by the authors for Open Access.
- 'fixed price models' (DEAL, OA articles remunerated with lump sums) acceptable as a transition to a transparent, cost-realistic model (see below)
- Research funding agencies should support stable financial frameworks non-commercial platforms (DOA, "crowd funding").

IOP Publishing

APC pricing

Whilst all IOP Publishing journals apply the same high standards of peer review and publication, they may have different APC prices. Differences can be determined by a number of factors, including:

- **Rejection rate:** the ratio of accepted articles to the total number of manuscripts received. ✓ ?
- **Development intensity:** The degree and proportion of editorial development work conducted by journal staff compared to external academics. ✓
- **Editing:** The average level of language editing, formatting and structuring of an article required and the make-up of the content in terms of equations, figures, data etc. ✓
- **Marketing intensity:** The degree of promotional activity required to attract authors and readers and ensure visibility and impact of journals and their articles. ?
- **Custom services:** Other customised editorial activities or technical functionality offered by the journal, such as open data validation or embedded multimedia content. ✓

Economic arguments are dominating the discussion:

- Publishing at the institutional level:

Who is going to pay for our APCs (750 € - 10.000 €)?

- Publishing at the individual level:

How can I optimally invest for my personal career?

- Publications run by expert societies: Is it alright to make revenues for running our not for profit organization?

- Publications run by investors:

publish many (only?) premium articles

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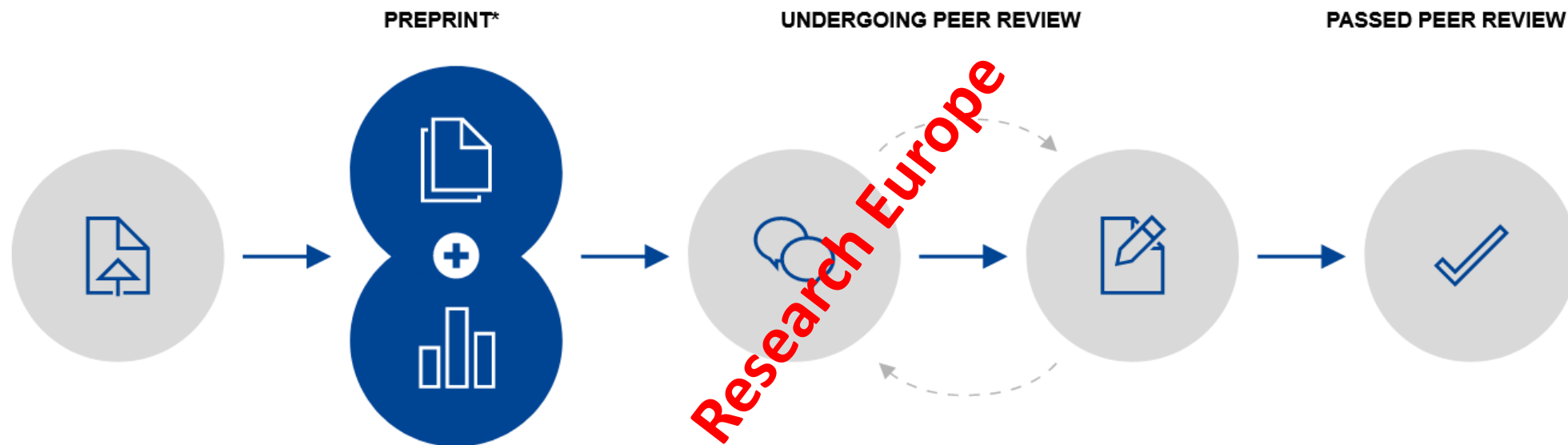
There is more on costs:

- Realistic costs: pricing of services justifiable by 'best practice' benchmark.
- Unbundling: what services are rendered by e.g. journal packages? Agreements funding institutions/ publishers publicly accessible.
- Bibliometric raw data made generally available
- Non-transparent harvesting and resale of user data by publishers must not take place.

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Our Publishing Process



Article Submission

Submission is via a single-page submission system. The in-house editorial team carries out a comprehensive set of prepublication checks to ensure that all policies and ethical guidelines are adhered to.

Publication & Data Deposition

Once the article has passed the prepublication checks, the preprint version is published within 10 days, enabling immediate viewing and citation.

* Unlike other preprints, once the article is published, it cannot be sent to another journal for publication.

Open Peer Review & Article Revision

Expert reviewers are selected and invited, and their reviews and names are published alongside the article, together with the authors' responses and comments from registered users. Authors are encouraged to publish revised versions of their article. All versions of an article are linked and independently citable.

Send to Indexers & Repositories

Articles that pass peer review are sent to major indexing databases and repositories.

2. Publishing Model and Processes

Checks before publication

Article submissions to Open Research Europe undergo a rapid and rigorous check undertaken by the in-house editorial team before being published as a preprint with the status '[Awaiting Peer Review](#)'. There is no Editor (or Editor-in-Chief) to make a decision on whether to accept or reject the article, or to oversee the peer-review process.

The editorial team will ensure that the authors are eligible to publish on Open Research Europe and that articles represent scholarly communications that adhere to [author guidelines](#) and the [ethical and editorial policies](#), including [data policies](#). The team will also check that the article is intelligible and written in good English so that it is suitable for peer review, and that its content can be fully assessed by invited peer reviewers and readers. If a submission fails the initial checks it will be returned to the authors to address the issues, and if they are not resolved satisfactorily the article will not be accepted.

The Home of Genuine Open Publishing

SciPost is a complete publishing infrastructure serving professional scientists worldwide.

Selected publications

Register

Professional scientists (PhD students and above) can become Contributors to SciPost by filling the [registration form](#).

News

Why do we push for this business model?

We view our model as the *cheapest, fairest, simplest* model which an academic publishing infrastructure can adopt.

A subscriptions-based model is out of the question because it is incompatible with our core [guiding principles](#).

We are also against the author pays model, often implemented through Article Processing Charges (APCs). Why? Besides being arguably quite insulting to scientists,

- APCs entangle editorial and financial issues, thereby leading to various degrees of "lead pollution" in publishers' operations
- researchers worldwide cannot uniformly afford publication charges
- for a multi-author paper, who should pay? Most publishers make it administratively difficult to share costs among researchers
- the handling of APCs for each individual publication is a substantial time- and resources-wasting accounting exercise.

Our consortial funding model with pubfractions-based recognition solves all these problems in one go. Our pooling of resources and maximally simple accounting drastically simplifies administration for everybody involved. Our transparency means that recognition is given where it is due.

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Problems (e.g. the reputation of a specific journal (e.g. impact factor) and not the quality of the articles dominating in funding and appointment decisions) to be addressed by the scientific communities:

- Review decision for articles should always be taken by scientists for scientists with specific expertise.
- Formulating an appropriate policy in this regard, and to eliminate such reputational criteria from appointment procedures and performance evaluations is the task of the community of scientists, together with research funding agencies. This is not the task of those publishers who have successfully established certain journals as strong brands.
- The scientific community needs to address the question to what extent it wants to participate in 'cascaded' publishing models (the transfer of manuscripts to journals of sequentially lower reputation) extending the market power of the publishers with the most prominent titles deep into the market.

Conclusion

- Open Access is in principle a good idea
(hybrid schemes should be eventually eliminated)
- The success of the scheme in terms of its aims will be an economic question
(we should prevent the privileged from becoming even more privileged)
- It is the scientific community which must be vigilant in this process:

By scientists for scientists!

By scientists for scientists!

also means:

We should support our colleagues trying out innovative models of future publishing

→ So far mostly the infrastructure/economy is changing, not the contents

Last comment: We need much better collaboration in science. But open access is not a relevant tool for this aim