



Leopoldina  
Nationale Akademie  
der Wissenschaften

# NAL-live: The New Online Journal for Open Scientific Exchange

Diethard Tautz

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*Director Ephemeridum (Chief Editor) of the Leopoldina*



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NAL-LIVE

# The Covid-19 Pandemic: Basic Insights from Basic Mathematical Models (2022)



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NOVA ACTA LEOPOLDINA

NAL-Live | 2022.3

The Covid-19 Pandemic: Basic Insights from Basic Mathematical Models

Version 2.0

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## DOWNLOADS

[▶ The Covid-19 Pandemic: Basic Insights from Basic Mathematical Models \(PDF\)](#)

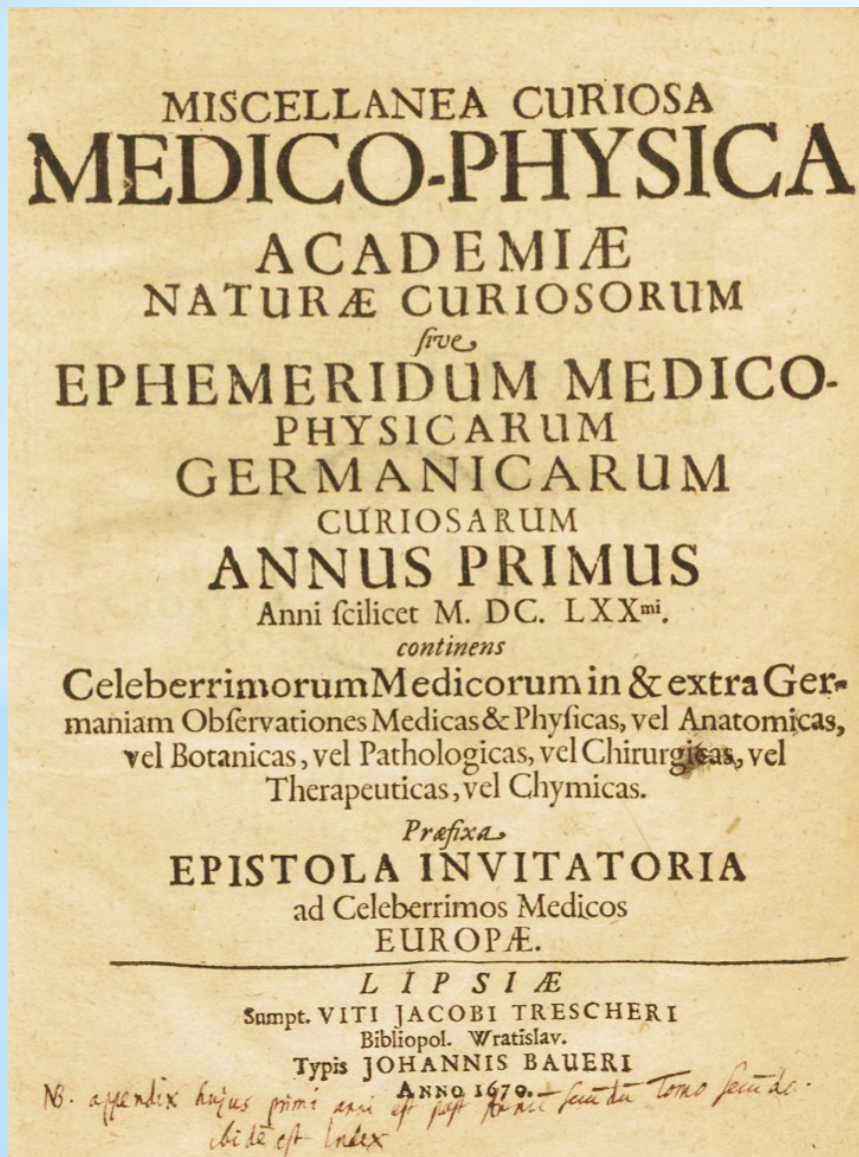
## VOL. 2022.3

Arne Traulsen, Chaitanya S. Gokhale, Saumil Shah, Hildegard Uecker

Published by Matthias Beiglböck

(2022, 20 pages, 4 Figures, ISSN: 2699-8955)

# the dawn of scientific publishing



first scientific journals mark  
a transition from pure book  
publishing to publishing  
collections from different  
authors

France 1665

*Journal des Savants*

England 1665

*Philosophical transactions*  
by the Royal Society

Germany 1670

*Miscellanea curiosa*  
by the Leopoldina

# Development of business models in scientific publishing: 17th century\*

initially run as barter trade (Tauschhandel) at book fairs: printed pages of one product were exchanged for printed pages of other products

Dutch publishers (among them the Elzevier family) were the first to change this: "We are not engaged in printing to exchange books for books, but to make money from them"

(in a letter of Balthasar Moretus to Willem Blaeu of 4 October 1634)\*

Unauthorized reprinting and bad translations were rampant: predatory publishers emerged

the first journals needed to recover the printing and paper costs

➤ establishment of subscription charges

➤ business interests started to exceed scientific interests

\* based on Maclean (2022): *Publishers, book fairs, academies, journals: the dissemination of English medicine and natural philosophy in the second half of the seventeenth century*. *Acta Historica Leopoldina* 81, 37-67.

# Development of business models in scientific publishing: today

electronic publishing has changed the business model:

- no need to recover printing and paper costs
- but new costs arise: quality control (Peer Review) and editing

birth of the Open Access idea:

- article processing charges (APC) cover the service costs
- subscription charges can be abandoned

predatory  
publishers have  
emerged again

birth of the Preprint concept:

- articles are initially made available without peer review checks

birth of the Open Review model:

- Peer Review happens publically
- Peer Review comments are published with the articles

# Development of the *scientific* "business model" in publishing

published papers have become the currency for scientific careers:

- positions and financial support depend on numbers of published papers and their impact factors

bibliographic services created to support literature searches

- became converted into bibliometric services that determine the currency value of published papers

scientific publishing has become an "economic game" between authors, peer reviewers and bibliometric manipulators

- this game leaves little room for Open Science contributions from the public

scientific economy first - science second

Establishment of

*Living Documents*

could trigger a major change in  
scientific publishing



# Development of Leopoldina publications

1670 – 1706: *Miscellanea curiosa sive ephemeridum medico-physicarum Germanicarum Academiae Caesareo-Leopoldinae Naturae Curiosorum*

1712 – 1722: *Academiae Caesareo-Leopoldinae Naturae Curiosorum ephemerides, sive, Observationum Medico-Physicarum à Celeberrimis Viris tum Medicis, tum Aliis Eruditis in Germania & extra eam communicatarum*

1727–1754: *Acta Physico-Medica Academiae Caesareae Leopoldino-Carolinae Naturae Curiosorum exhibentia Ephemerides, sive, Observationes Historias et Experimenta Celeberrimis Germaniae et Exterarum Regionum Viris Habita & Communicata, Singulari Studio Collecta*

1757-1842: *Nova Acta Physico-Medica Academiae Caesareae Leopoldino-Carolinae Naturae Curiosorum*

1843-1928: *Nova acta Academiae Caesareae Leopoldino-Carolinae Germanicae Naturae Curiosorum*

## Nova Acta Leopoldina NAL

### NAL-miscellanea

reports on  
Academy events

### NAL-conference

documentation of  
Academy  
conferences  
(including videos)

### NAL-live

newly conceived  
as  
Living Documents

### NAL-Historica

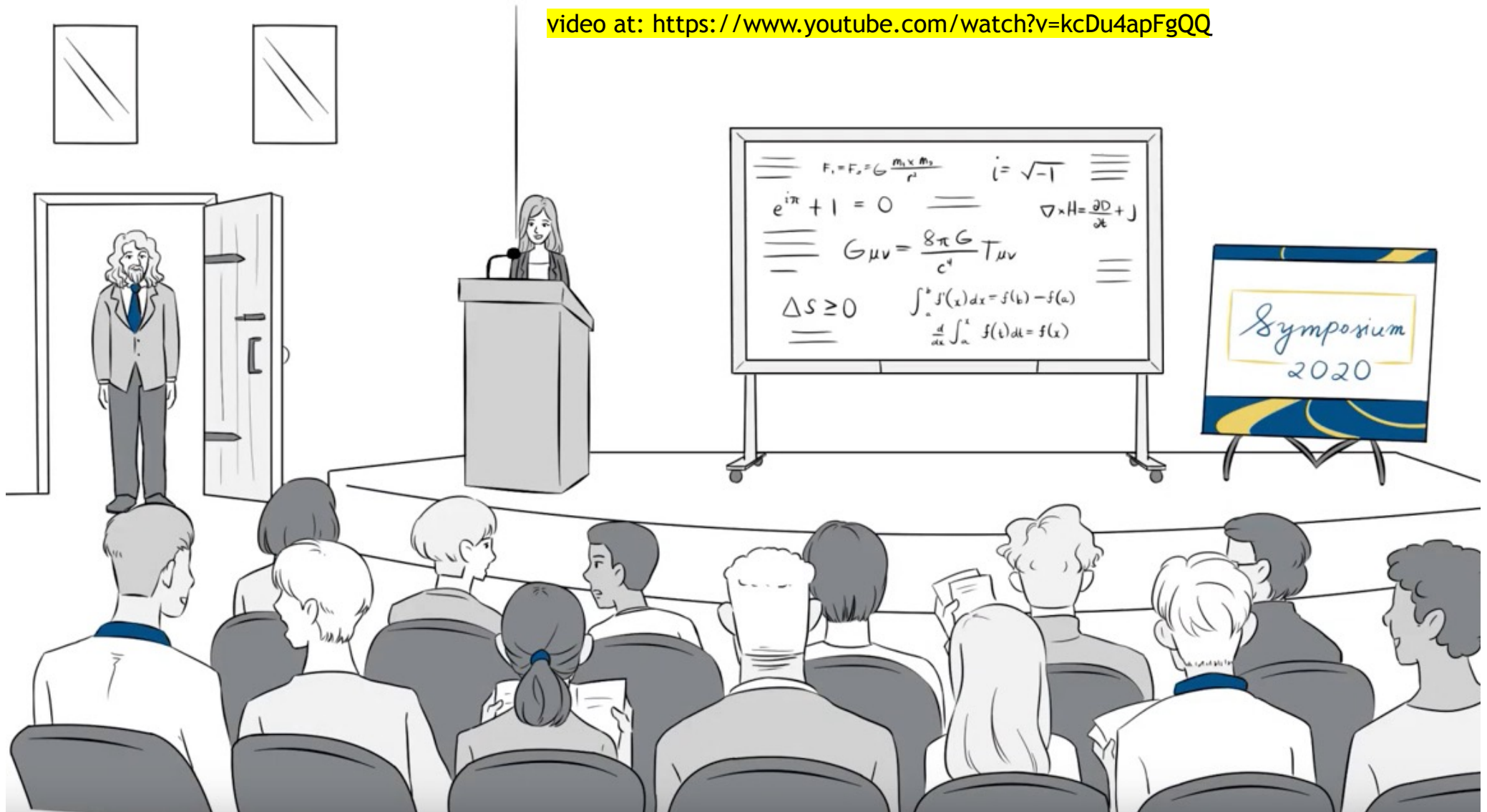
continues the  
*Acta Historica  
Leopoldina*

➤ Platinum Open Access (no APC) and



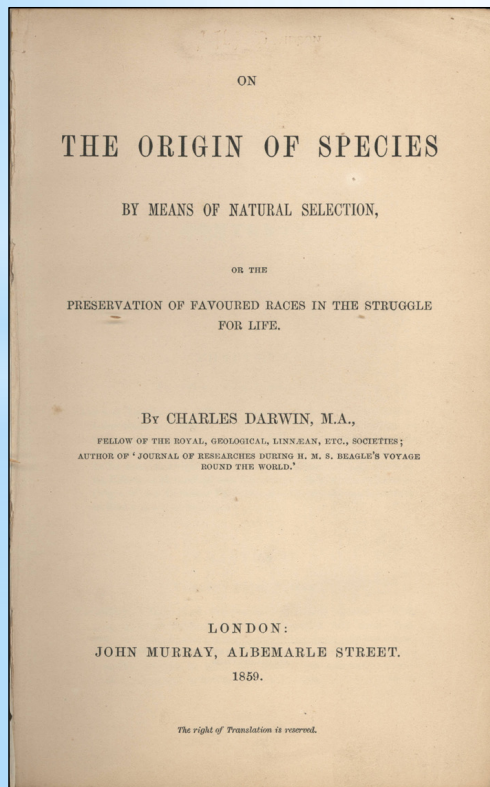
# NAL-live: Living Documents

video at: <https://www.youtube.com/watch?v=kcDu4apFgQQ>



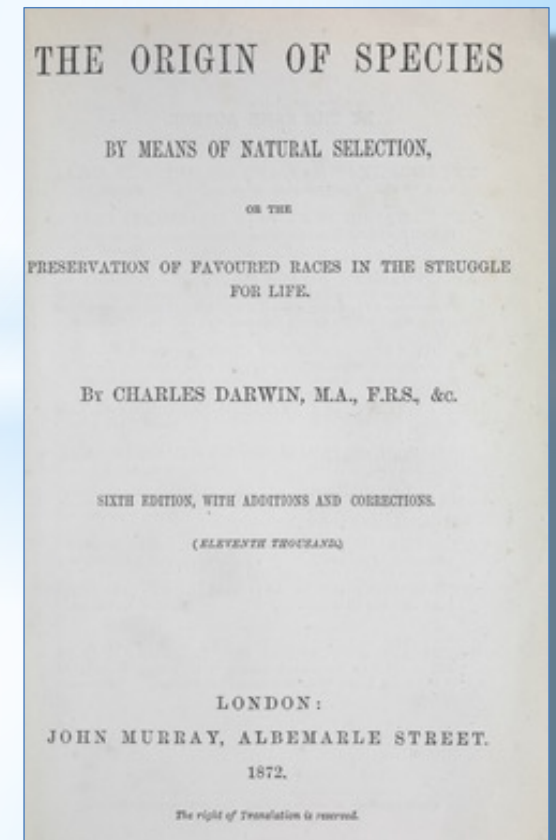
# Living Documents are not new

Example: Darwin's *The Origin of Species*



1st edition

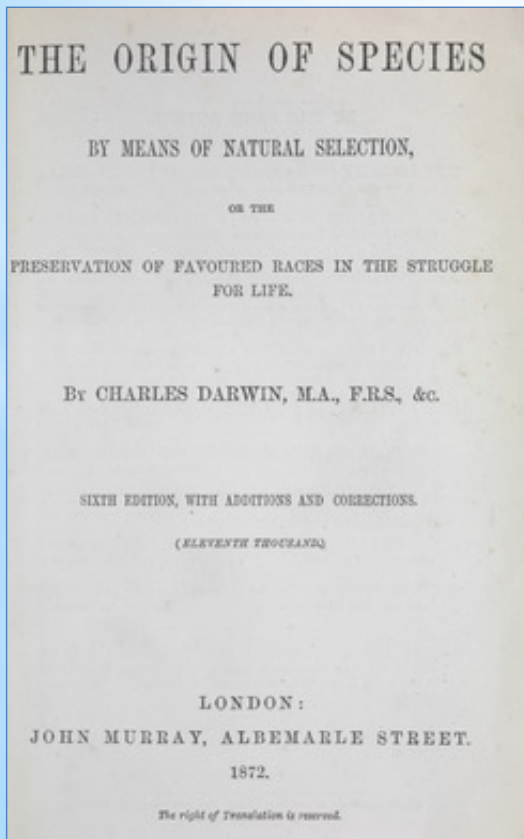
- corrections and responses to readers and public discussion in every new edition



6th edition

# Living Documents are not new

Example: Darwin's *The Origin of Species*



6th edition

- large number of changes in the 6<sup>th</sup> edition - includes also a list of all changes

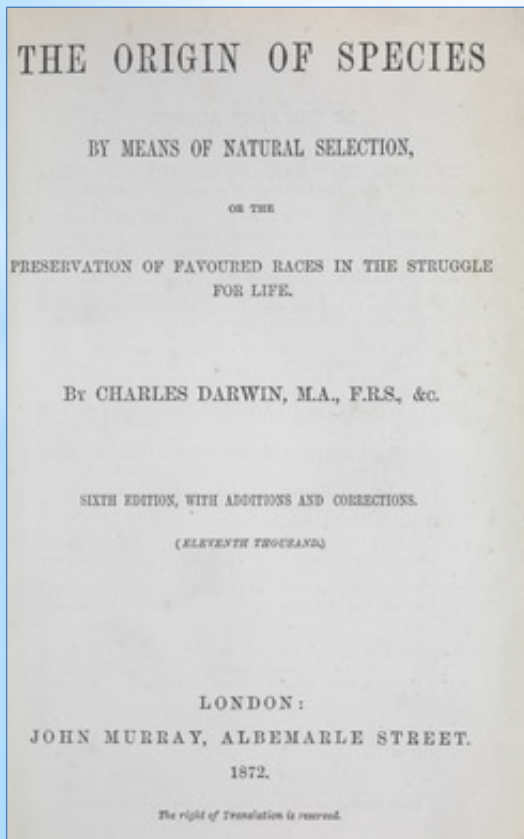
xii *Additions and Corrections.*

Fifth Edition.		Sixth Edition.	Chief Additions and Corrections.
Page	Page		
190	68		Influence of fortuitous destruction on natural selection.
158	101		On the convergences of specific forms.
220	142		Account of the Ground-Woodpecker of La Plata modified.
225	145		On the modification of the eye.
230	149		Transitions through the acceleration or retardation of the period of reproduction.
231	150		The account of the electric organ of fishes added to.
233	151		Analogical resemblance between the eyes of Cephalopods and Vertebrates.
234	153		Clasp-verte on the analogical resemblance of the hair-claspers of the Acartids.
248	162		The probable use of the rattle to the Rattle-snake.
248	163		Helmholtz on the imperfection of the human eye.
255	168		The first part of this new chapter consists of portions, in a much modified state, taken from chap. iv. of the former editions. The latter and larger part is new, and relates chiefly to the supposed incompetency of natural selection to account for the incipient stages of useful structures. There is also a discussion on the causes which prevent in many cases the acquisition through natural selection of useful structures. Lastly, reasons are given for disbelieving in great and sudden modifications. Gradations of character, often accompanied by changes of function, are likewise here incidentally considered.
268	214		The statement with respect to young cuckoos ejecting their foster-brothers confirmed.
270	215		On the cuckoo-like habits of the <i>Melothrus</i> .
307	240		On fertile hybrid moths.
319	248		The discussion on the fertility of hybrids not having been acquired through natural selection condensed and modified.
326	252		On the causes of sterility of hybrids, added to and corrected.
377	284		<i>Pyrgoma</i> found in the chalk.
402	301		Extinct forms serving to connect existing groups.
440	328		On earth adhering to the feet of migratory birds.
463	343		On the wide geographical range of a species of <i>Galaxias</i> , a fresh-water fish.
505	373		Discussion on analogical resemblances, enlarged and modified.
516	382		Homologous structure of the fist of certain marsupial animals.
518	384		On serial homologues, corrected.
520	385		Mr. E. Ray Lankester on morphology.
521	387		On the asexual reproduction of <i>Chironomus</i> .
541	401		On the origin of rudimentary parts, corrected.
547	405		Recapitulation on the sterility of hybrids, corrected.
552	409		Recapitulation on the absence of fossils beneath the Cambrian system, corrected.
568	421		Natural selection not the exclusive agency in the modification of species, as always maintained in this work.
572	424		The belief in the separate creation of species generally held by naturalists, until a recent period.

list of changes

# Living Documents are not new

Example: Darwin's *The Origin of Species*



## *problems*

- no further updates after the 6<sup>th</sup> edition
- important topics that were already addressed in the book were temporarily forgotten
- many subsequent discussion of evolutionary principles would have been different, if they would have been based on a continuation of the book

6th edition

# Living Documents are not new

Example: Wikipedia

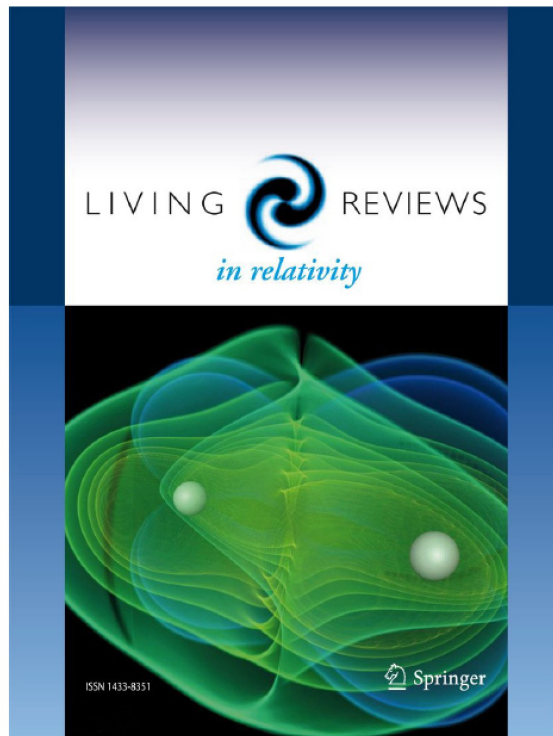


## *problems*

- scientific quality is not the primary goal
  - archiving is unclear
  - sources of information are not systematically listed
  - no peer review
  - corrections and recognition of manipulation relies solely on "crowd knowledge"
- has been stimulating and has provided important ideas, but is not sufficiently reliable for scientific purposes

# Living Documents are not new

Example: Living Reviews in relativity



## Living Reviews in Relativity

Editor-in-Chief: B. Iyer

- ▶ Offers critical reviews of research in all areas of relativity
- ▶ “Living” articles are kept up-to-date by their authors
- ▶ Published under the auspices of the Max Planck Society and ISGRG

*Living Reviews in Relativity* is a peer-reviewed, full open access, and exclusively online journal, publishing freely available reviews of research in all areas of relativity. Articles are solicited from leading authorities and are directed towards the scientific community at or above the graduate-student level. They provide critical reviews of the current state of research and available sources in the fields they cover. All contributions are subject to single-blind peer review by at least two referees.

*Living Reviews* is unique in maintaining a suite of high-quality reviews, which are kept up-to-date by the authors. This is the meaning of the word "living" in the journal's title.

*but:* no commenting function, updates are published as new documents

# Concept for *NAL-live*

initial manuscript  
version 1.0



commenting



adjustment(s)  
version(s) 1.xx



revised manuscript  
version 2.0



etc.

starts with a classic Review of a  
given scientific topic  
including  
systematic literature search  
and  
peer review

edited by editorial staff

publication online als pdf and XML  
with a doi number

based on CC BY4.0 license



# Concept for *NAL-live*

initial manuscript  
version 1.0



commenting



adjustment(s)  
version(s) 1.xx



revised manuscript  
version 2.0



etc.

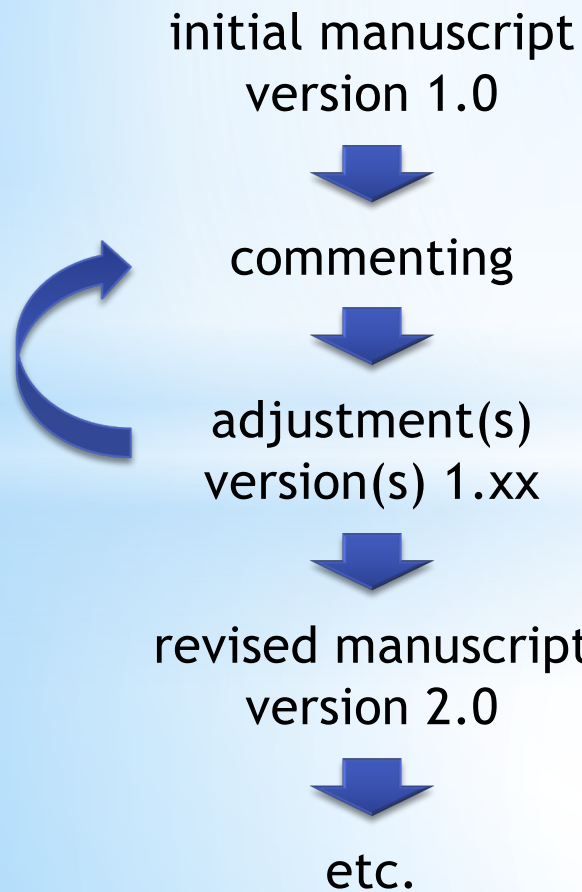
everybody is allowed to comment  
(with a moderation filter)

comments receive a doi

Author(s), Editor(s) and peer  
reviewer(s) can respond

comments and responses are  
provided online

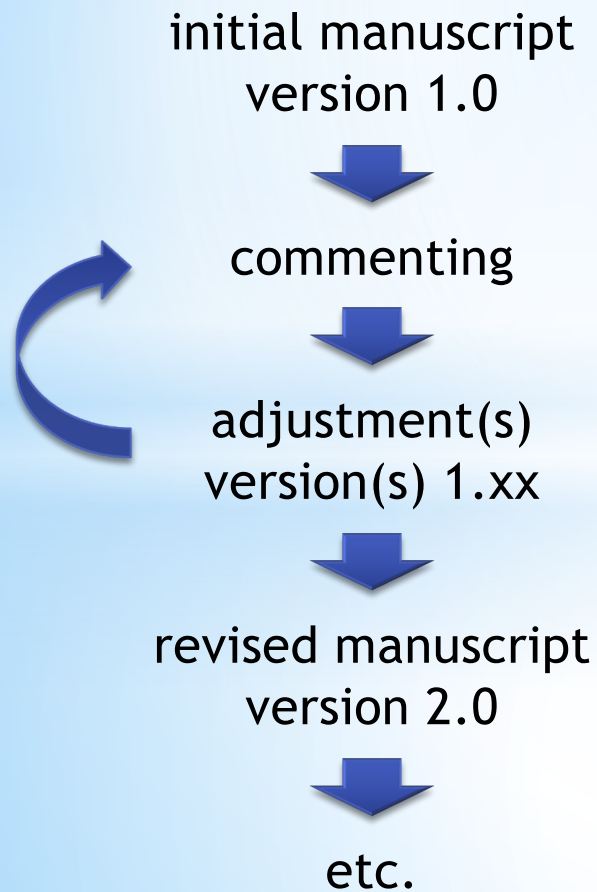
# Concept for *NAL-live*



author(s) of the document can  
adjust their text on the basis of the  
comments

changes are marked to allow  
tracing

# Concept for *NAL-live*



Original author(s) and/or new author(s) revise the text and write new parts

new systematic literature search

new peer review

new editing by editorial staff

publication online as pdf and xml  
with new doi number

# Concept for *NAL-live*

## *consequences*

- authors can change over time
- elements of the first text can be directly transferred to the new text (CC BY 4.0 license)
- commenters gain a recognized role and can refer to their contributions via doi links
- a "living document could potentially be carried on over decades
- Scientific credence must be guaranteed by an established institution: should be a central task for scientific societies

# Living documents are not new, but require a change in publishing culture

*active commenting needs to be encouraged*

- while many journals are experimenting with commenting options on published papers, these are only rarely used

Why?

- Serious comments need some effort, but there is so far no "payback" for the effort
- when comments receive a doi, there is the chance that that authors of comments see that their efforts have an effect on shaping the content

# Living documents are not new, but require a change in publishing culture

*requires a new business model*

- open access publishers recover currently their costs via APCs on a per article basis
- maintaining a commenting and updating function incurs additional costs, but these are difficult to collect via additional APCs

possible solution:

- publishing needs to be based on general service contracts, rather than APCs

# Living documents are not new, but require a change in publishing culture

*a revived role for scientific societies*

- Scientific journals should be run by scientific societies, who provide also the scientific expertise (*Platinum Open Access Model*)
- Scientific societies should receive public grants to run the journal
- the grants should be subject to peer review in regular cycles (e.g. every 5 years)
- the grant money can be used to establish an own publishing service, or to buy it from private companies

# Living documents are not new, but require a change in publishing culture

*a new role for the authors*

- authors need to pay continued attention to their publication
- authors will directly interact with the public via responses to comments
- however, the "currency" effect of publishing individual papers becomes diluted
- would need to be replaced by a "currency" effect on well maintained living papers, which requires a new bibliometric scoring system



# challenges for implementation

- getting authors to engage in the effort
- getting (public) commenters to engage
- getting financing sorted out
- develop a "payback" system that recognizes the efforts of authors and commenters
- **develop a suitable software first ...**

# Living Documents

- can put science first in scientific publishing
- can create new economic and scientific business models
- can allow non-scientists to directly contribute to science