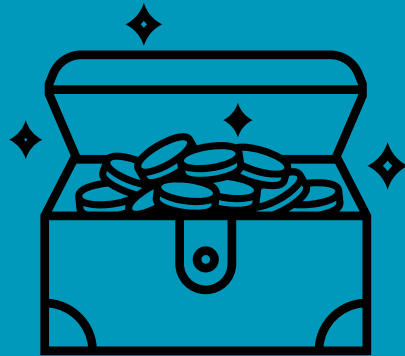


# Extending the repository metadata set with contract and payment details

Leading the Way: How libraries are shaping the future of repository services  
04/June/2025

Gernot Deinzer (University Library of Regensburg)

# Contents



- The openCost project
- Metadata of a publication
- Where to store cost data?
- Integrating cost data into repositories
- Metadata schema
  - Article with payments
  - Agreements
- Using repositories to achieve transparency
- Sharing of Information
  - Display of OpenAPC information in repositories
  - Agreements in repositories
  - Display of OpenAPC information in the Electronic Journals Library

## The project openCost

- **Project partners:** University Library of Regensburg, Bielefeld University Library, Deutsches Elektronen-Synchrotron DESY Hamburg
- Funded by the German Research Foundation (DFG)
- **Goals:**
  - Creating a technical infrastructure that allows to comprehensively record all publication costs and subsequently make them freely accessible by means of standardized interfaces
  - Enabling cost transparency on an institutional, national, and international level

## Project focus

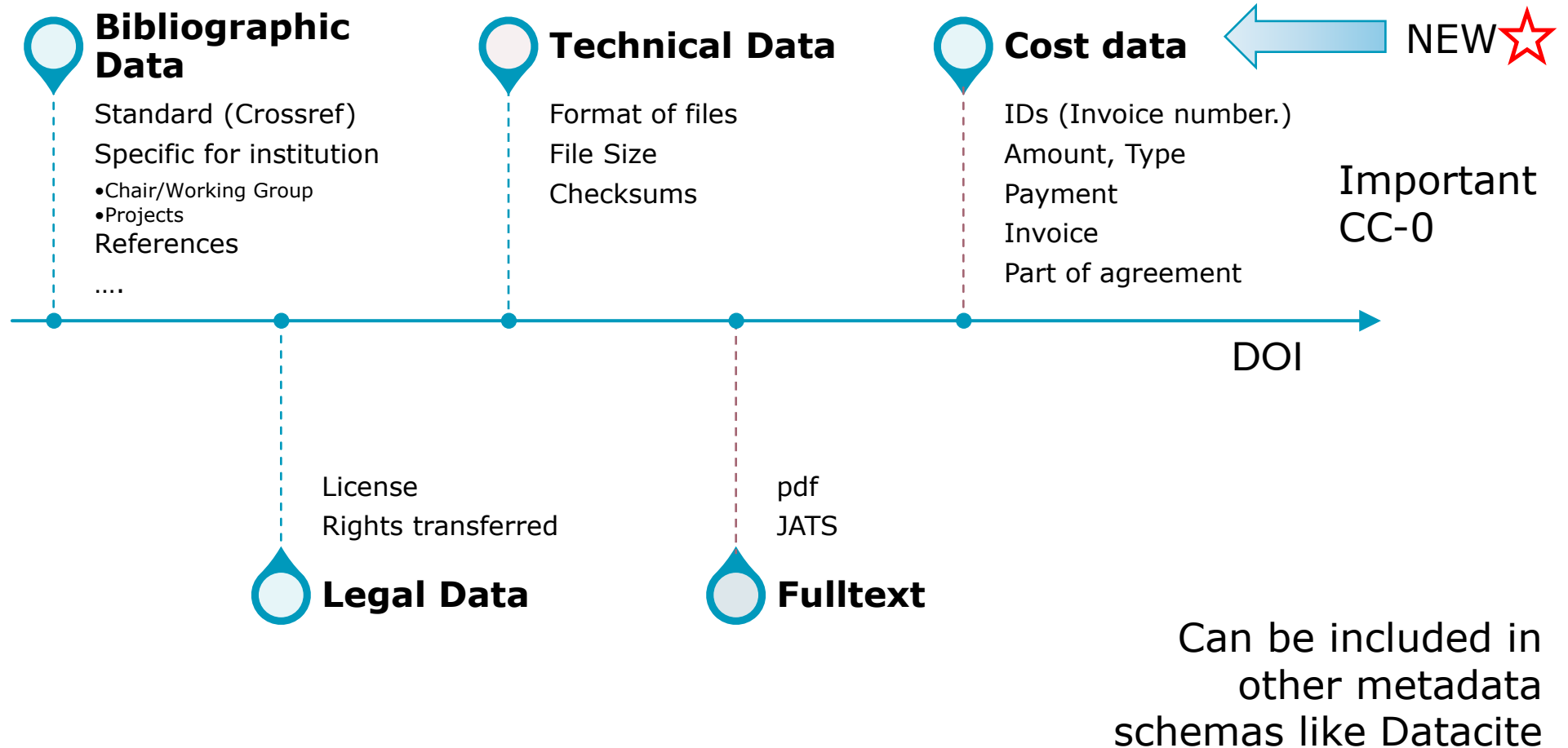
- Development of a **standardized metadata schema** for the collection/recording and transfer of data on publication costs
- Implementation of an open interface for **harvesting** and querying this data
- Extension of the **Electronic Journals Library** (EZB) with special functions for displaying information on open access publication costs and on the assumption of costs

# Metadata of publication

Extending the metadata of a publication with costs associated for publishing



## Metadata of publication



# Repositories

Achievement of transparency in the transformation process to open access



## Repositories

- Repositories as designated location for sustainable publication of research results

Parallel publication of Gold Open Access Publications

- Further: Source of excellent metadata

Metadata is automatically gathered from various sources:

Crossref, DataCite, OpenAlex

- Enrichment with local requirements to obtain additional value

institutions, chairs, and local identifiers to obtain additional value

- Funding of research: funder and project number

provision of financial information, no exact figures



## Where to store data on publication costs?

- Metadata of a publication that is stored in a repository:
  - **Bibliographic metadata:** all data describing the publication
  - **Technical metadata:** technical information and data about the publication
  - **Legal metadata:** mainly rights that are assigned to the publication
  - **Administrative metadata:** all relationships between a publication to an organization
- Metadata in library or management systems:
  - Cost data, but no information about the publication
  - Difficult to expand
  - Transformative agreements: publications have to be assigned to single payments

## **Cost data in repositories**

Advantages:

- Open System
- Free combination of metadata
- Enabling statistical analyses
- Budget planning for libraries: Publication costs
- Standardized interfaces (OAI-PMH and APIs) for easy and automated data exchange

# Article Processing Charges



# Article with payment: Metadata schema and open data exchange

- The metadata schema:
  - Development in collaboration with experts and stakeholders
  - Community feedback (public GitHub repository)
  - Coverage of fee-based journal articles, additional costs, processing fees, costs from contracts, ...
- Open format for the exchange of cost data:
  - Exchange via über OAI-PMH-interface, XML as exchange format
  - Attribute-less XML for easy export in other formats (e.g. JSON)

```
publication
|
|--- primary_identifier
|   |--- doi    __OR__ bibliographic_information!*
|
|--- secondary_identifiers
|   |--- id type=doi
|   |--- id type=local
|   |--- id type=oai
|
|--- institution
|   |--- id type=ror
|   |--- name type=short
|
|--- publication_type = COAR controlled vocabulary
|
|--- external_costssplitting = true _OR_ 1 / false _OR_ 0
|
|--- cost_data
|   |--- part_of_contract
|   |   |--- primary_identifier
|   |   |   |--- id type=ESAC
|   |   |--- group_id
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|   |   |--- invoice_number
|   |   |--- creditor
|   |   |--- dates
|   |   |   |--- invoice
|   |   |   |--- paid
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|   |   |   |--- amount
|   |   |   |--- currency
|   |   |--- amounts_paid
|   |   |   |--- amount_paid
```

## **Article part of Agreement**

Articles of transformative agreements, community models, diamond open access



# Articles part of a publishing agreement

## Consortium SCOAP<sup>3</sup>

### Mentioned in copyright

*Published by the American Physical Society under the terms of the Creative Commons Attribution 4.0 International license. Further distribution of this work must maintain attribution to the author(s) and the published article's title, journal citation, and DOI. Funded by SCOAP 3*

**DEAL** (German Transformative Agreement with Springer Nature, Wiley, Elsevier)

### Mentioned in Acknowledgement - Funding

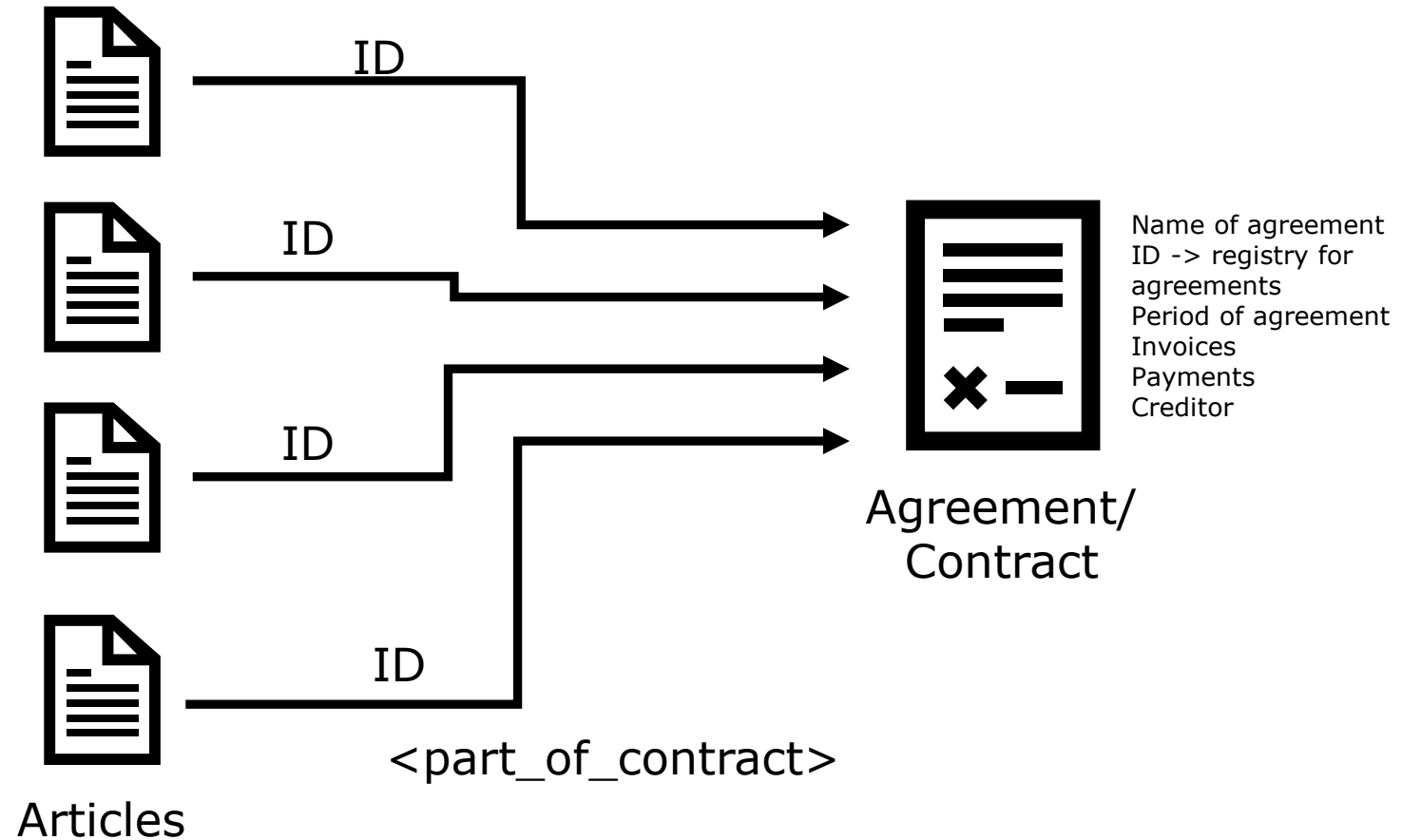
*Open Access funding enabled and organized by Projekt DEAL.*

**Others: No mention at all**



## New Entity: Contract

### Reference in Article Metadata to Contract



## Contract entity

```
<contract>
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  <invoice_group>...
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  invoice_group>:{...
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  }
}
```

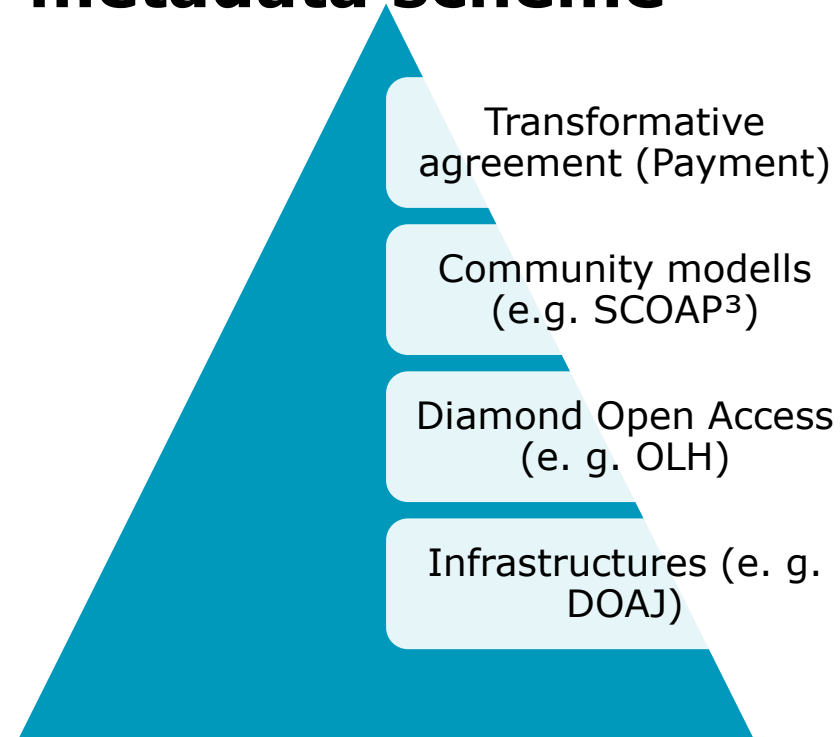
## Machine Readable Data

Exchange of data possible via

- OAI-PMH
- API



## Flexibility of metadata scheme



See Transparency to Sustain Open Science Infrastructure, <https://tsosi.org/>



### **Important:**

Just real payments

No evaluation of the contract (like cost per article)

## **Integrating cost data into repositories**


Exemplary implementation by the project partners







# Display of OpenAPC information in repositories

**Quantification of gas-accessible microporosity in metal-organic framework glasses**  
Frentzel-Beyme, L. ; Kolodzeiski, P. ; Weiss, J.-B. ; Schneemann, A. ; Henke, S. (Corresponding author)

2022  
Nature Publishing Group UK [London]

Nature Communications 13(1), 7750 (2022) [10.1038/s41467-022-35372-5] 

This record in other databases:    14  33

Please use a persistent id in citations: doi:10.1038/s41467-022-35372-5 doi:10.3204/PUBDB-2022-07769

**Abstract:** Metal-organic framework (MOF) glasses are a new class of glass materials with immense potential for applications ranging from gas separation to optics and solid electrolytes. Due to the inherent difficulty to determine the atomic structure of amorphous glasses, the intrinsic structural porosity of MOF glasses is only poorly understood. Here, we investigate the porosity features (pore size and pore limiting diameter) of a series of prototypical MOF glass formers from the family of zeolitic imidazolate frameworks (ZIFs) and their corresponding glasses. CO<sub>2</sub> sorption at 195 K allows quantifying the microporosity of these materials in their crystalline and glassy states, also providing excess to the micropore volume and the apparent density of the ZIF glasses. Additional hydrocarbon sorption data together with X-ray total scattering experiments prove that the porosity features of the ZIF glasses depend on the types of organic linkers. This allows formulating design principles for a targeted tuning of the intrinsic microporosity of MOF glasses. These principles are counterintuitive and contrary to those established for crystalline MOFs but show similarities to strategies previously developed for porous polymers.

**Classification:**  
• ddc:500

**Contributing Institute(s):**  
1. DOOR-User (DOOR ; HAS-User)

**Research Program(s):**  
1. 6G3 - PETRA III (DESY) (POF4-6G3) (POF4-6G3)


Publication costs of 5579.37€ funded by Technische Universität Dortmund (Source: OpenAPC)


**Contributing Institute(s):**  
1. DOOR-User (DOOR ; HAS-User)

**Research Program(s):**  
1. 6G3 - PETRA III (DESY) (POF4-6G3) (POF4-6G3)

Publication costs of 5579.37€ funded by Technische Universität Dortmund (Source: OpenAPC)


## Tumour stage distribution and survival of malignant melanoma in Germany 2002-2011

URN zum Zitieren dieses Dokuments:  
URN:NBN:DE:BV8:355-EPUB-427213 


DOI zum Zitieren dieses Dokuments:  
10.5283/EPUB.42721 

Schoffer, Olaf ; Schüle, Stefanie ; Arand, Gerlinde ; Arnholdt, Hans ; Baaske, Dieter ; Bargou, Ralf C. ; Becker, Nikolaus ; Beckmann, Matthias W. ; Bodack, Yves ; Böhme, Beatrix ; Bozkurt, Tayfun ; Breitsprecher, Regine ; Buchali, Andre ; Burger, Elke ; Burger, Ulrike ; Dommisch, Klaus ; Elsner, Gudrun ; Fernschild, Karin ; Flintzer, Ulrike ; Funke, Uwe ; Gerken, Michael ; Göbel, Hubert ; Grobe, Norbert ; Gump, Vera ; Heinzerling, Lucie ; Kempfer, Lana Raffaella ; Kiani, Alexander ; Klinkhammer-Schalke, Monika ; Klöcking, Sabine ; Kreibich, Ute ; Knabner, Katrin ; Kuhn, Peter ; Lutze, Stine ; Mäder, Uwe ; Maisel, Tanja ; Maschke, Jan ; Middeke, Martin ; Neubauer, Andreas ; Niedostatek, Antje ; Opazo-Saez, Anabelle ; Peters, Christoph ; Schell, Beatrice ; Schenkirsch, Gerhard ; Schmalenberg, Harald ; Schmidt, Peter ; Schneider, Constanze ; Schubotz, Birgit ; Seide, Anika ; Strecker, Paul ; Taubenheim, Sabine ; Wackes, Matthias ; Weiß, Steffen ; Welke, Claudia ; Werner, Carmen ; Wittekind, Christian ; Wulff, Jörg ; Zettl, Heike ; Klug, Stefanie J. 



Lizenz: [Creative Commons Namensnennung 4.0 International](#)  
PDF – Veröffentlichte Version  
 (976kB)

Veröffentlichungsdatum dieses Volltextes: 17 Mrz 2020 11:47

Alternative Links zum Volltext:  

Details

Details	
Dokumentenart:	Artikel
Höhe Gebühr (aus OpenAPC):	1661.24
Institution der Zahlung:	TU Muenchen
Titel eines Journals oder einer Zeitschrift:	BMC Cancer
Verlag:	BMC

## PUB - Publikationen an der Universität Bielefeld






### Expertise-dependent perceptual performance in chess tasks with varying complexity

Küchelmann T, Velentzas K, Essig K, Koester D, Schack T (2022)  
Frontiers in Psychology 13: 1-13.

Zeitschriftenaufsatz | Veröffentlicht | Englisch

Download  fpsyg-13-986787.pdf 933.51 KB  
DOI <https://doi.org/10.3389/fpsyg.2022.986787>  
URN <urn:nbn:de:hbz:5:1-65688-pub-29668840>

Details Dateien

Autor\*in [Küchelmann, Thomas](#)  [Velentzas, Konstantinos](#)  [Essig, Kai](#)  [Koester, Dirk](#)  [Schack, Thomas](#) 

Einrichtung [Center of Excellence - Cognitive Interaction Technology CITEC](#)  
[Fakultät für Psychologie und Sportwissenschaft > Abteilung Sportwissenschaft > Arbeitsbereich II - Neurokognition und Bewegung - Biomechanik](#)

Abstract / Bemerkung Perceptual performance, anticipating opponents' strategies, and judging chess positions especially in subliminal processing is related to expertise level and dependent on chunking processes. It becomes obvious that chess expertise is a multidimensional phenomenon related predominantly to

### Export

- ☐ Markieren/ Markierung löschen
- ☒ Markierte Publikationen
- ☒ Open Data PUB

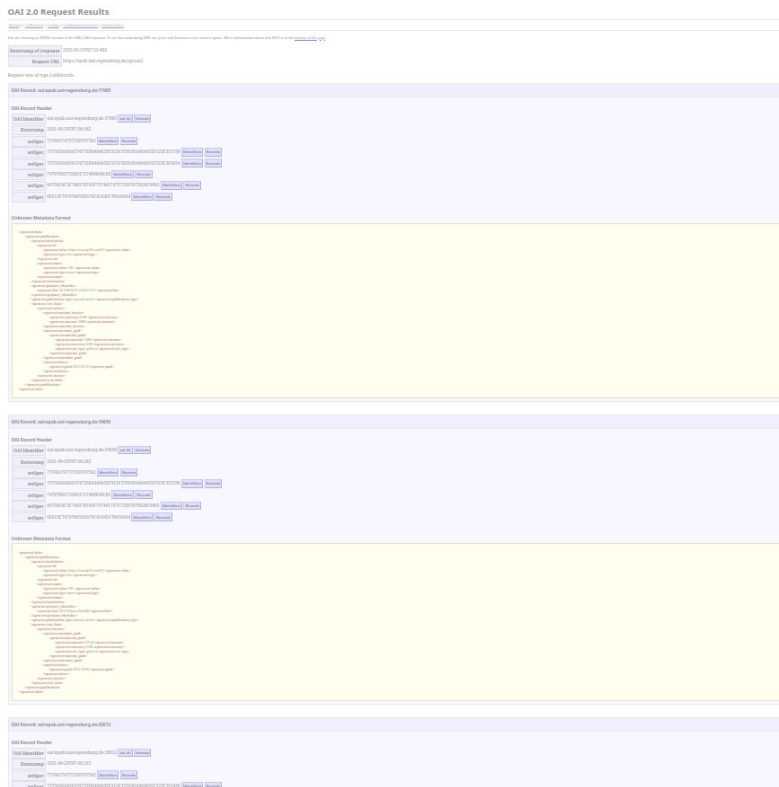
### Finanzierung

Quelle: [OPEN APC](#)  
Publikationskosten von 3401€  
finanziert durch [Bielefeld University](#).

## Finanzierung

Quelle: [OPEN APC](#)  
Publikationskosten von 3401€  
finanziert durch [Bielefeld University](#).


# OAI-Interface for cost data



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<https://epub.uni-regensburg.de/cgi/oai2?verb=ListRecords&metadataPrefix=openCost&set=openCost>

# Examples: agreements




Universität Regensburg

EN DE Search the Publication Server FIND


CONTACT LEGAL NOTICE PRIVACY


HOMEPAGE UR







UR HOME

**<sup>19</sup>F NMR Untersuchung des Konformationsaustauschs mehrerer Zustände im synthetischen Neomycin-bindenden Riboschalter**



URN to cite this document:  
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DOI to cite this document:  
10.5283/EPUB.58451 


Overbeck, Jan H. ; Vögele, Jennifer; Nussbaumer, Felix; Duchardt-Ferner, Elke; Kreutz, Christoph; Wöhnert, Jens; Sprangers, Remco 


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PDF - Published Version  
 (2MB)


**Date of publication of this fulltext: 18 Jun 2024 09:42**

**Alternative links to fulltext:**  DOI  Publisher

This publication is part of the [DEAL contract with Wiley](#).

Details 

Preview 


Export bibliographical data 

**Abstract**

Der synthetische Neomycin-bindende Riboschalter interagiert mit seinem Liganden Neomycin sowie mit den verwandten Antibiotika Ribostamycin und Paromomycin. Die Bindung dieser Aminoglykoside induziert sehr ähnliche Grundzustandsstrukturen in der RNA, allerdings kann nur Neomycin die Initiierung der Translation effizient umsetzen.

University Library

Publication Server



Wiley (1 January 2019 - 31 December 2023)

Information

Essential: The "responsible corresponding author" must be a member of the University of Regensburg!

hybrid: terms and conditions for free OA option:

- Articles accepted in 2019-2022
- Article types: "primary research articles" and "review articles" (not "editorial pieces" such as "letters" or "book reviews")
- No acceptance of color/page charges etc.

Gold OA: Discount of 20% on the APCs

For more information:

- Information page on DEAL
- Open Access Agreement with Germany (Wiley Verlag)
- DEAL agreement with Springer

Contract period

1 January 2019 - 31 December 2023

Invoices

Number	Creditor	From	To	Amount	Currency
R-2019-00028	MPDL Services GmbH	1 January 2019	31 December 2019	305648	EUR
R-2019-00480-c	MPDL Services GmbH	1 January 2019	December 2019	16275.2	EUR
R-2020-00682-a	MPDL Services GmbH	1 January 2020	31 December 2020	291281	EUR
W-2021-00091-a	MPDL Services GmbH	1 January 2021	31 December 2021	302651	EUR
W-2022-00119-a	MPDL Services GmbH	1 January 2022	31 December 2022	302651	EUR
W-2022-00837-d	MPDL Services GmbH	1 January 2022	31 December 2022	-418.96	EUR
W-2023-00115-a	MPDL Services GmbH	January 2023	31 December 2023	282474	EUR

Payments


Invoice	Amount	Currency	Type
R-2019-00028	256847	EUR	Read and Publish
R-2019-00028	48800.9	EUR	VAT


Export


[openCost XML](#)

Links to other Systems

EZB  
ESAC


Publications 

Baird, D. L., Nahlawi, A., Crossley, K., Lupton, John M. and  (2020) [Electric Field Effects on Photoluminescence-Detected Magnetic Resonance of a  \$\pi\$ -Conjugated Polymer](#); Physica Status Solidi (B), p. 1900493.

Sager, Tanguy and König, Burkhard  (2020) [Photocatalytic Synthesis of Polycyclic Indolones](#). Chemistry - A European Journal, 7004-7007.

Funded by the German Research Deutsche Foundation (DFG) Project number 457354095

# Example: infrastructure





EN DE

[CONTACT](#) [LEGAL NOTICE](#) [PRIVACY](#)

HOMEPAGE UR

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## Directory of Open Access Journals (DOAJ) (2019 - UNSPECIFIED)

### Information

DOAJ is a unique and extensive index of diverse open access journals from around the world, driven by a growing community, committed to ensuring quality content is freely available online for everyone.

OPEN - DOAJ is a vital part of the global open access infrastructure.

GLOBAL - DOAJ is a global community, with team members, ambassadors and volunteers based in 45 countries around the world, speaking 36 languages.

TRUSTED - Globally, DOAJ's criteria have become a gold standard for open access publishing.

### Contract period

2019 - UNSPECIFIED

### Invoices

Number	Creditor	From	To	Amount	Currency
L18115	DOAJ	2018	2018	499.8	EUR
L19098	DOAJ	2019	2019	535.5	EUR
L20092	DOAJ	2020	2020	565.25	EUR
L21120	DOAJ	2021	2023	2127.72	EUR
220928	DOAJ	2024	2024	2000	EUR
220237	DOAJ	2025	2025	4000	EUR

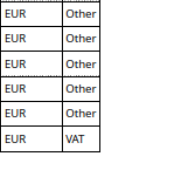
### Payments

Invoice	Amount	Currency	Type
L18115	499.8	EUR	Other
L19098	535.5	EUR	Other
L20092	565.25	EUR	Other
L21120	2127.72	EUR	Other
220928	2000	EUR	Other
220237	4000	EUR	Other
220237	760	EUR	VAT

Export

[openCost XML](#)

### University Library



CONTACT:

Publishing: [ga@ur.de](mailto:ga@ur.de)  
0941 943 -4239 or -69394

Dissertations:  
[dissertationen@ur.de](mailto:dissertationen@ur.de)  
0941 943 -3904

Research data:  
[datahub@ur.de](mailto:datahub@ur.de)  
0941 943 -5707

[Contact persons](#)

<https://epub.uni-regensburg.de/id/contract/2>

## Sharing of data

Are libraries/repository providers willing to openly share their publication cost data?



## Goal: Transparency

Fairness and cost transparency in scientific publishing can only be achieved if this data is shared!

openCost:

- Automated standard reduces workload
- OAI interface: harvesting of cost metadata
- Cost transparency for publishing and reading
- Comparisons on institutional, national and international level



## OpenAPC

The Open APC initiative releases data sets on fees paid for Open Access journal articles by universities and research institutions under an Open Database License.

Select a region from the map or use the list below to view APC data for individual institutions.

You may also browse the following aggregated collections:



- Releases data sets on fees paid for OA journal articles by universities and research institutions under an Open Database License
- Willingness to share cost data:  
419 institutions from Europe have contributed to the OpenAPC project
  - Sweden: 27 institutions
  - Germany: 122 institutions
  - France: 105 institutions
- OpenAPC metadata schema has been extended to the openCost metadata schema

# Reuse of OpenAPC information in the Electronic Journals Library

▼ Publish in this journal

**Secondary publication of your own articles from this journal in Open Access**

**Publisher's Open Access Policy**

Publisher / Provider: Public Library of Science (PLOS); PubMed Central

Sherpa Romeo: [Find the publisher's Open Access policy in Sherpa Romeo](#)

**Contribution to publication costs by your own institution**

Person to Contact: Cornelia Lang (electronic publishing, publishing fund, electronic dissertations, research data), [oa@ur.de](mailto:oa@ur.de)

Funding\*: For journal articles with an invoice date of 2023/2024, a contribution of €2000 will be provided if the journal is listed in <https://doaj.org/>, the article originated at UR, the corresponding author is a member of UR, and as a result, lists UR as their first affiliation in the article. All information and publishing agreements regarding free or discounted publishing are available at <https://epub.uni-regensburg.de/oa-publizieren.html>.

\*This information is provided by your institution for guidance purposes. For binding information, please contact the appropriate contact person at your institution.

Website: <https://epub.uni-regensburg.de/oa-publizieren.html>

**Information about Publishing**

The Directory of Open Access Journals

Instructions for authors: [Link to the instructions](#)

Languages the journal accepts: English

APCs: Yes

APC amount: 2290 USD

Journal license: CC BY

Quality seal: DOAJ Seal

Review process: Anonymous

Plagiarism screening policy: Publisher's policy

Duration of publishing process: 24 Weeks

**Cost Information from OpenAPC**

Institutions report the publication costs (APC) paid for this journal to OpenAPC:

Year	2021	2022	2023	2024
Average APC per article worldwide	1,557 EUR (777 record(s))	1,792 EUR (665 record(s))	1,756 EUR (258 record(s))	1,721 EUR (7 record(s))
Average APC per article in your institution	1,705 EUR (13 record(s))	2,003 EUR (8 record(s))	1,980 EUR (2 record(s))	- (no records)

**Cost Information from OpenAPC**

Institutions report the publication costs (APC) paid for this journal to OpenAPC:

Year	2021	2022	2023	2024
Average APC per article worldwide	1,557 EUR (777 record(s))	1,792 EUR (665 record(s))	1,756 EUR (258 record(s))	1,721 EUR (7 record(s))
Average APC per article in your institution	1,705 EUR (13 record(s))	2,003 EUR (8 record(s))	1,980 EUR (2 record(s))	- (no records)

## Conclusion

First time, that cost data are published

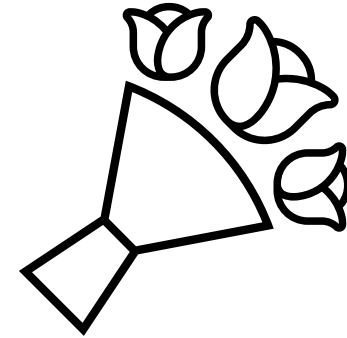
- Freely available
- Standardized
- Human readable
- Machine readable

## Fulfilling **FAIR**-principles

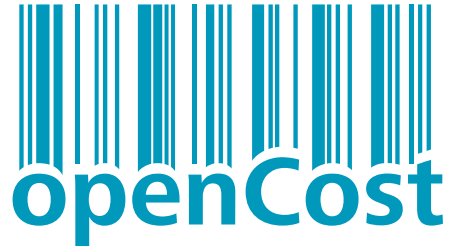


# Thanks

- openCost
- DFG-Grant 457354095



- Team
- Julia Bartlewski, Christoph Broschinski, Dirk Pieper (Bielefeld)
- Lisa-Marie Stein, Alexander Wagner (Hamburg)
- Bianca Schweighofer (thanks for slides), Colin Sippl, Lisa-Marie Stein, Alexander Wagner, Silke Weisheit (Regensburg)



# Thank you for the attention!

- Website: <https://opencost.de/en>
- openCost publications: <https://www.opencost.de/en/publications/>
- openCost mailing list: [opencost.info@mailman.uni-regensburg.de](mailto:opencost.info@mailman.uni-regensburg.de)
- Github repository: <https://github.com/opencost-de/opencost>
- Contains the schema and its documentation (including FAQs, tabular description, XSD file for formal verification, and folder with valid sample files)
- Tracks the evolution of the schema in a transparent way