Practising Open Science with OpenAIRE

Iryna Kuchma (EIFL)
Alessia Bardi and Paolo Manghi (CNR-ISTI)
Eugenia Kypriotis (Ellinogermaniki Agogi)
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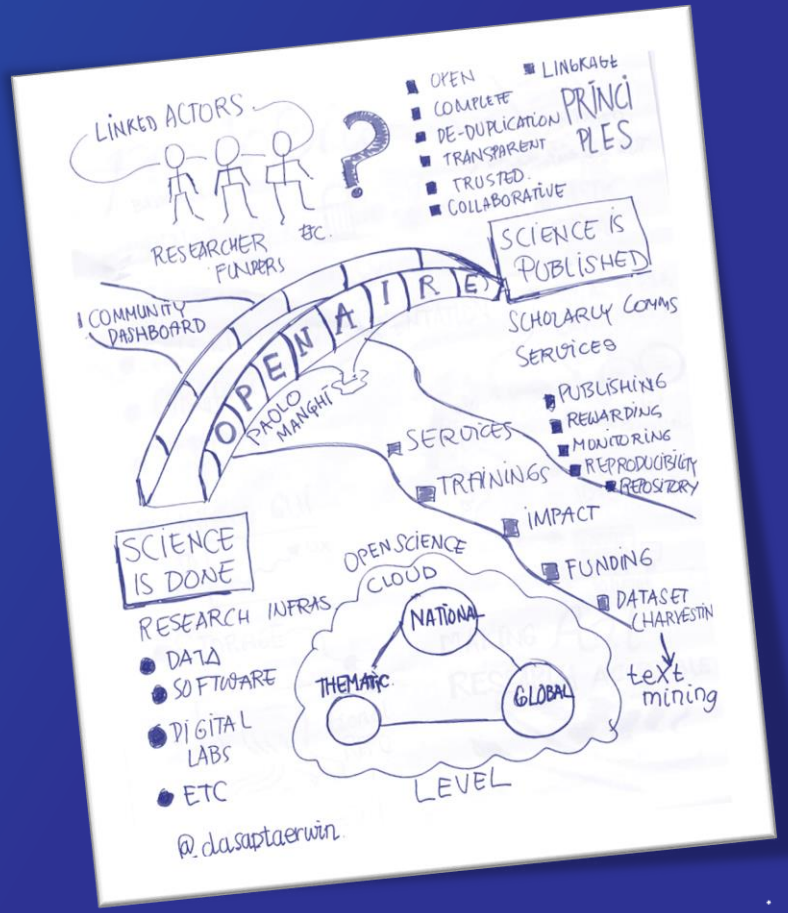

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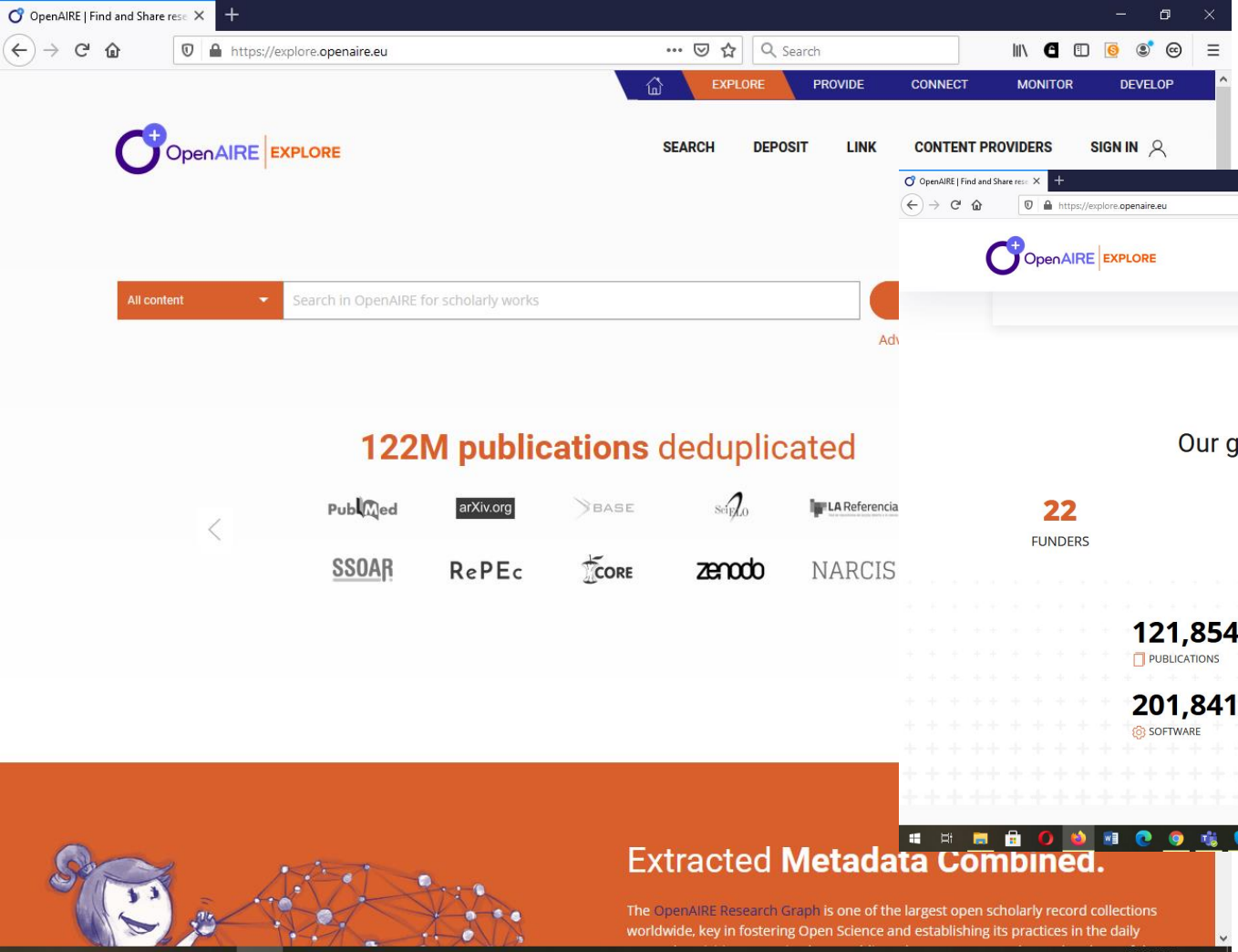

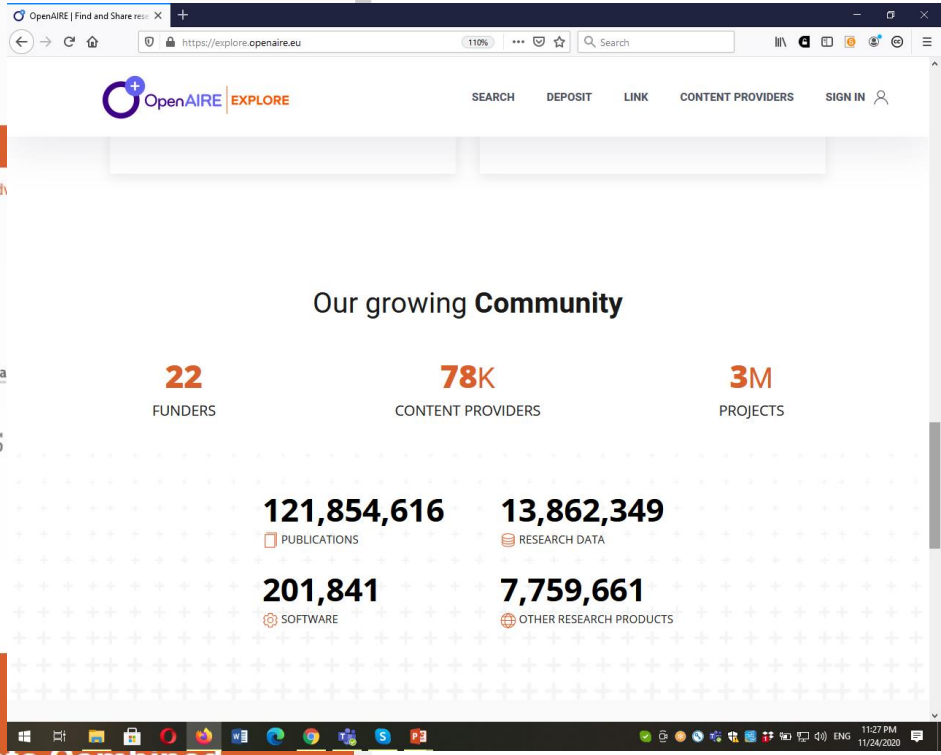

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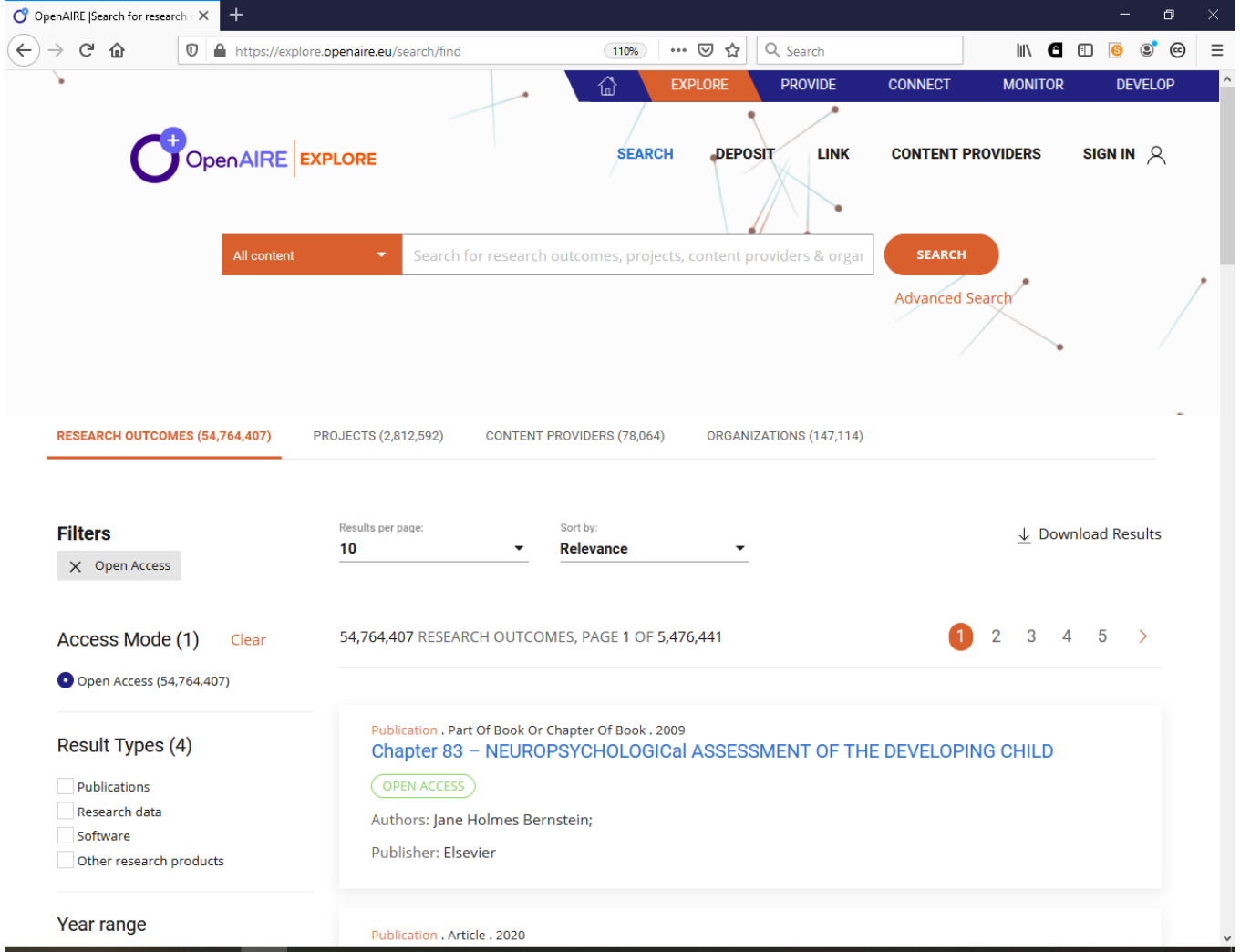
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Chapter 83 – NEUROPSYCHOLOGICal ASSESSMENT OF THE DEVELOPING CHILD
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Publisher: Elsevier
Year range
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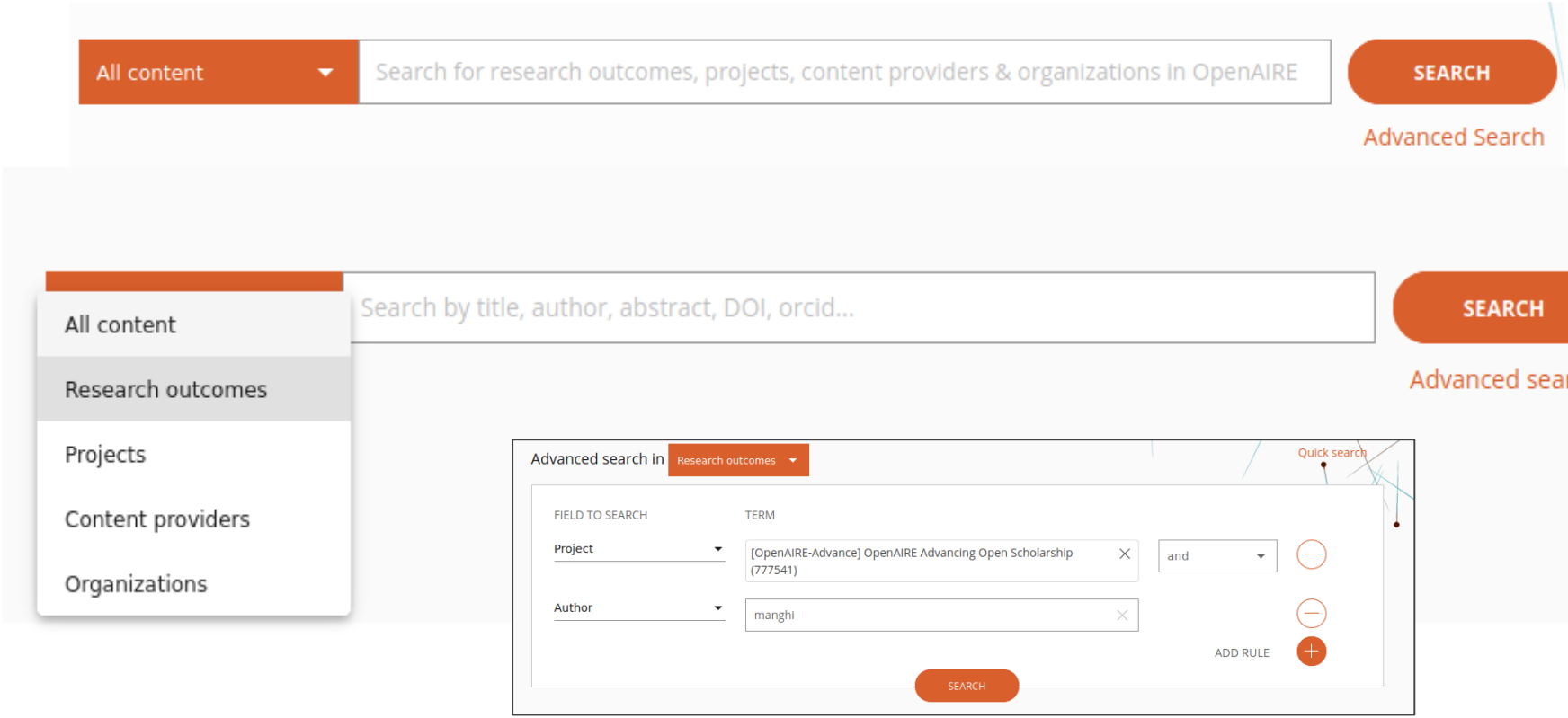
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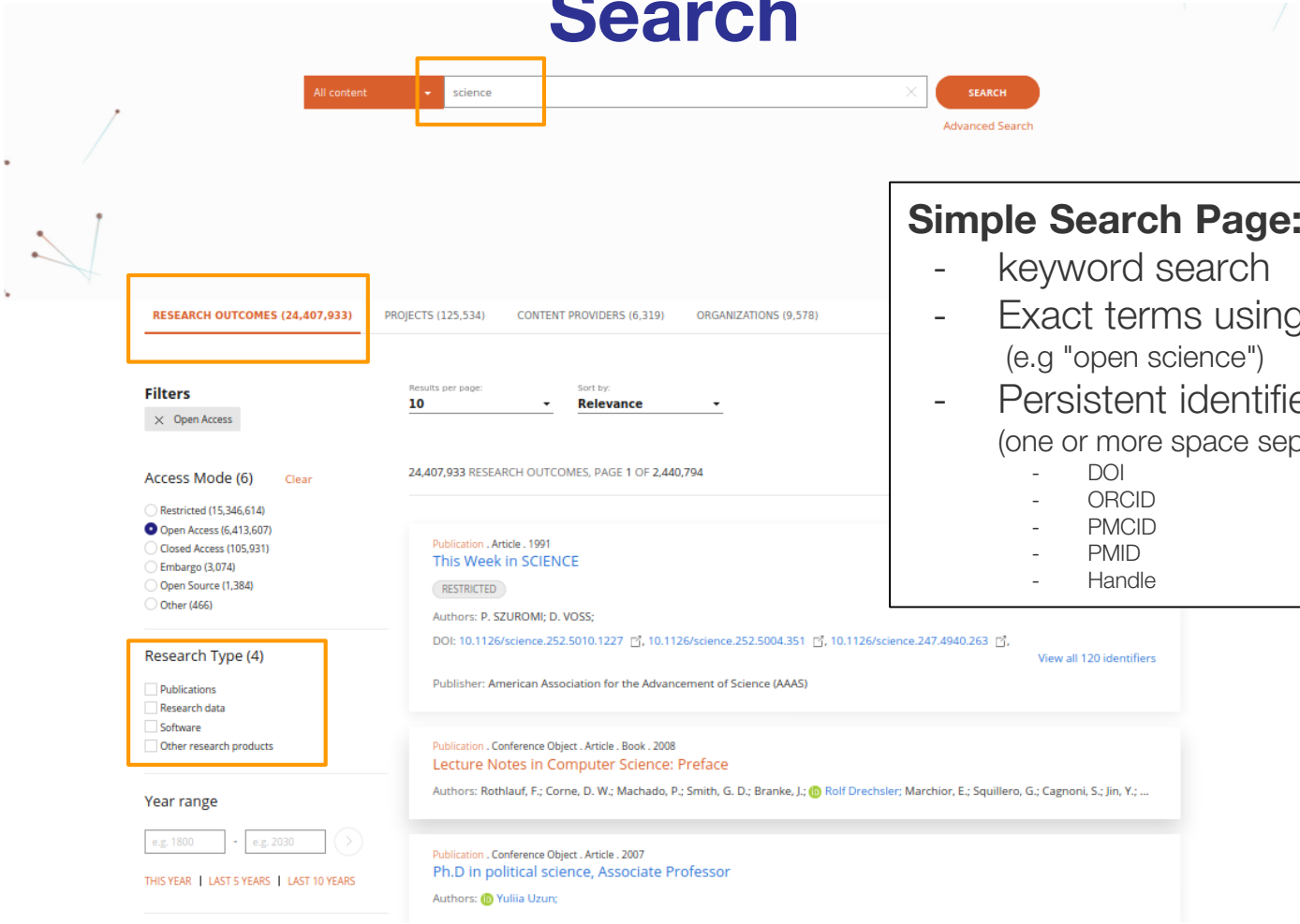

Simple Search Page:

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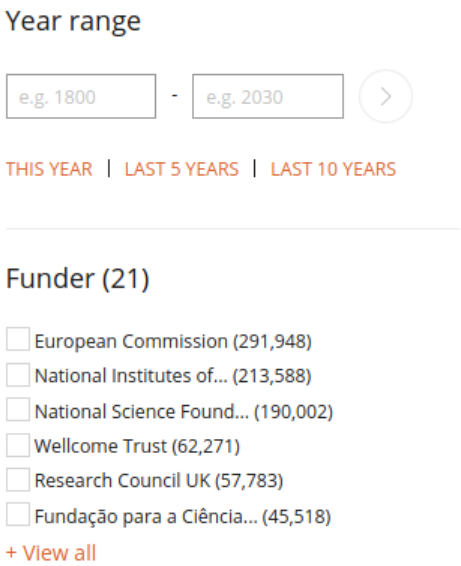
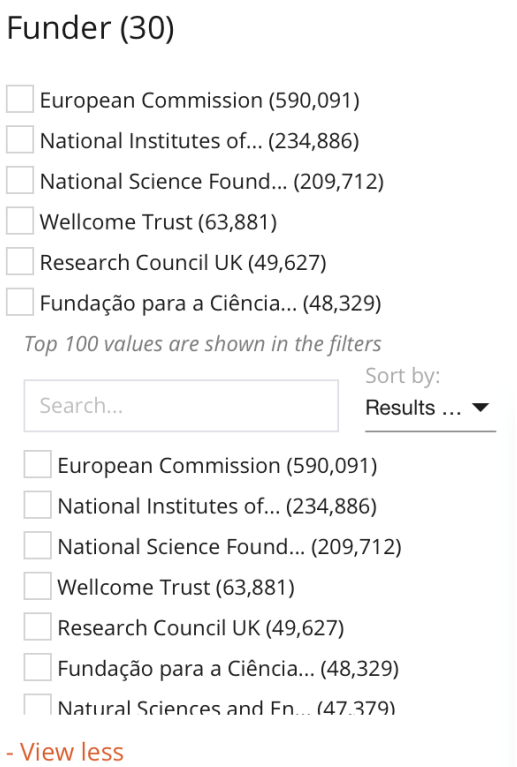
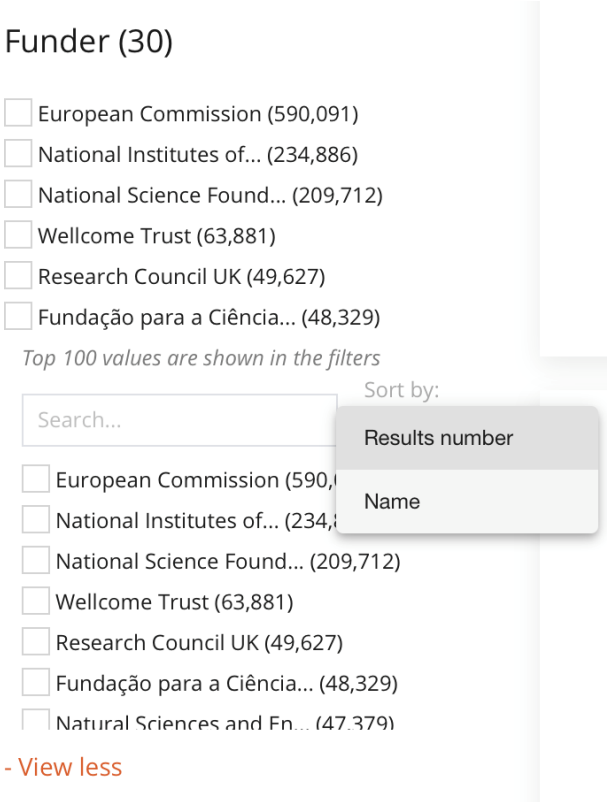
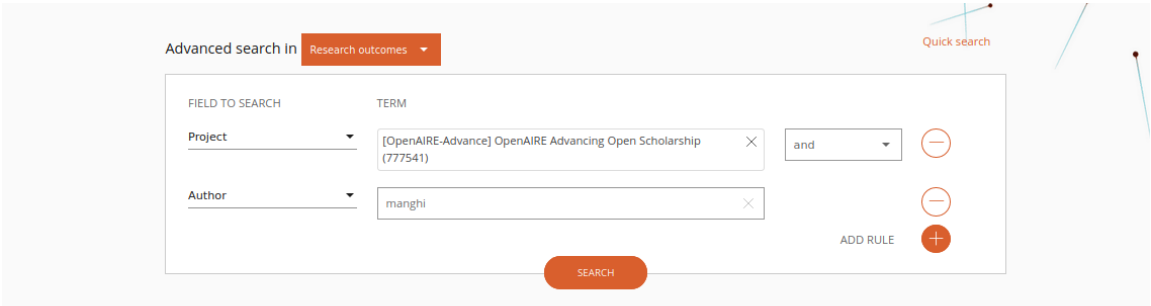


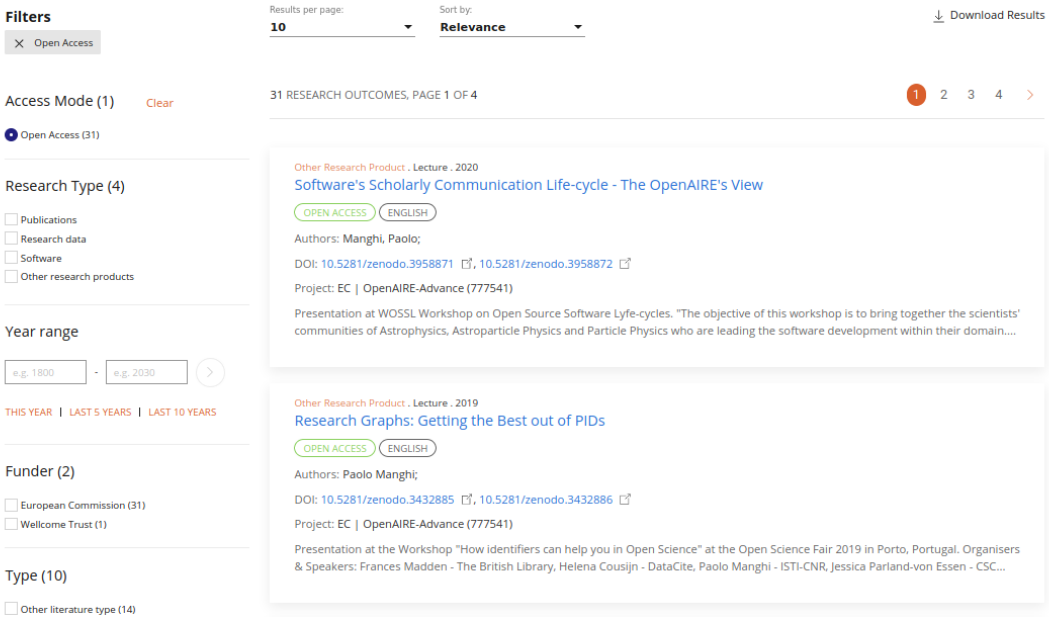




Refine fields depend on the entity

Advanced Search





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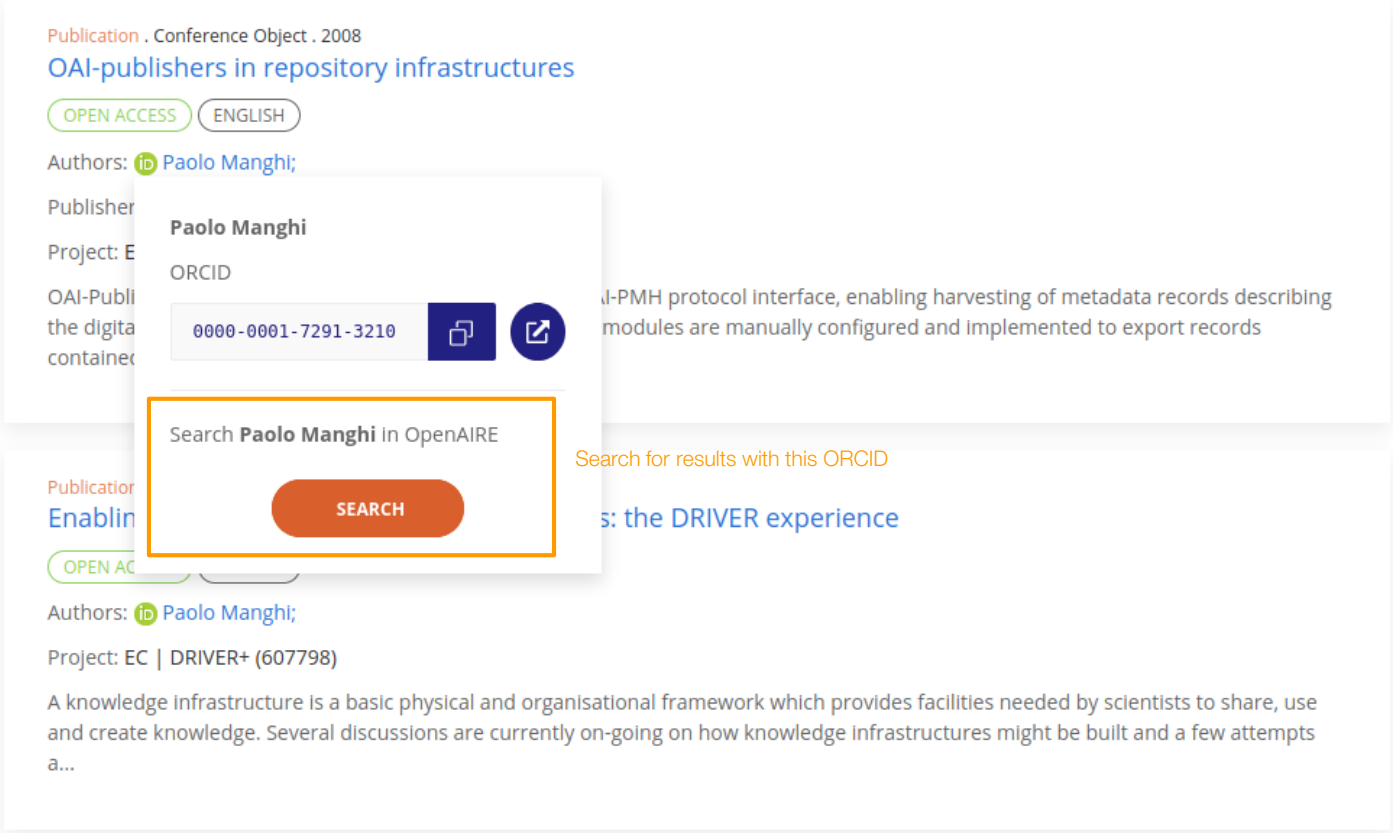

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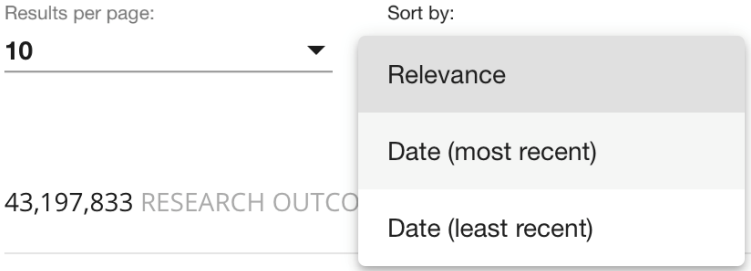

Publication . Article . Preprint . 2017

Quantum properties of the radiation emitted by a conductor in the Coulomb blockade regime

OPEN ACCESS

Authors: Mora, Christophe; Altimiras, Carles; Joyez, Philippe; Portier, Fabien;

DOI: 10.1103/physrevb.95.125311

Publisher: American Physical Society (APS)

Project: EC | NSECPROBE (639039)

We present an input-output formalism describing a tunnel junction strongly coupled to its electromagnetic environment. We exploit it in order to investigate the dynamics of the radiation being emitted and scattered by the junction. We find that the non-linearity imprint...

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Publication . Article . Other Literature Type . 2018

Media uses and production practices: case study with teens from Portugal, Spain and Italy

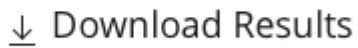
OPEN ACCESS ENGLISH

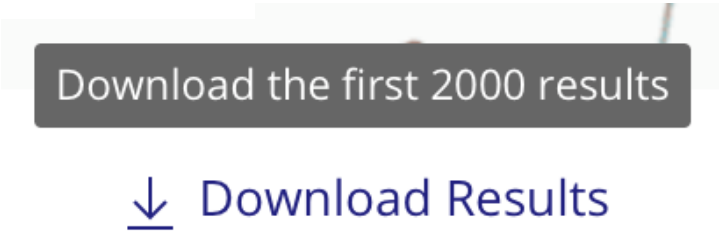
Authors: Pereira, Sara; Moura, Pedro; Masanet, Maria-Jose; Taddeo, Gabriella; Tirocchi, Simona; University of Minho; University of Minho; Universitat Pompeu Fabra; INDIRE (National Institute for Documentation, Innovation and Research in Education);

Publisher: Universidad de Guadalajara

Project: EC | TRANSLITERACY (645238), FCT | UID/CCI/00736/2013 (147330)

This paper presents some of the main results of a study conducted with teens from Portugal, Spain and Italy in the scope of the European project Transmedia Literacy. It analyses the media uses and production practices of teenagers aged 12-19 years. The results show that...





Research outcome landing page

Publication . Article . Other literature type . 2015

A novel liquid organic hydrogen carrier system based on catalytic peptide formation and hydrogenation

Hu, Peng; Fogler, Eran; Diskin-Posner, Yael; Iron, Mark A.; Milstein, David;

OPEN ACCESS ENGLISH

Published: 17 Apr 2015 Journal: Nature Communications, volume 6 (eissn: 2041-1723, Copyright policy)

Publisher: Nature Pub. Group

SUMMARY | REFERENCES 31 | SUPPLEMENTARY OUTCOMES | RELATED RESEARCH

Relations with other research results

Abstract

Hydrogen is an efficient green fuel, but its low energy density when stored under high pressure or cryogenically, and safety issues, presents significant disadvantages; hence finding efficient and safe hydrogen carriers is a major challenge. Of special interest are liquid organic hydrogen carriers (LOHCs), which can be readily loaded and unloaded with considerable amounts of hydrogen. However, disadvantages include high hydrogen pressure requirements, high reaction temperatures for both hydrogenation and dehydrogenation steps, which require different catalysts, and high LOHC cost. Here we present a readily reversible LOHC system based on catalytic peptide format...

Read more

DOI: 10.1038/ncomms7859
PMID: 25882348
PMC: PMC4410633

Subjects

FREE TEXT KEYWORDS: Article, General Biochemistry, Genetics and Molecular Biology, General Physics and Astronomy, General Chemistry, Ethanol, chemistry.chemical_compound, chemistry, Catalysis, Hydrogen carrier, Ethylenediamine, Molecular biology, Ruthenium, chemistry.chemical_element, Nanotechnology, Dipeptide, Biology, Dehydrogenation, Combinatorial chemistry, Hydrogen

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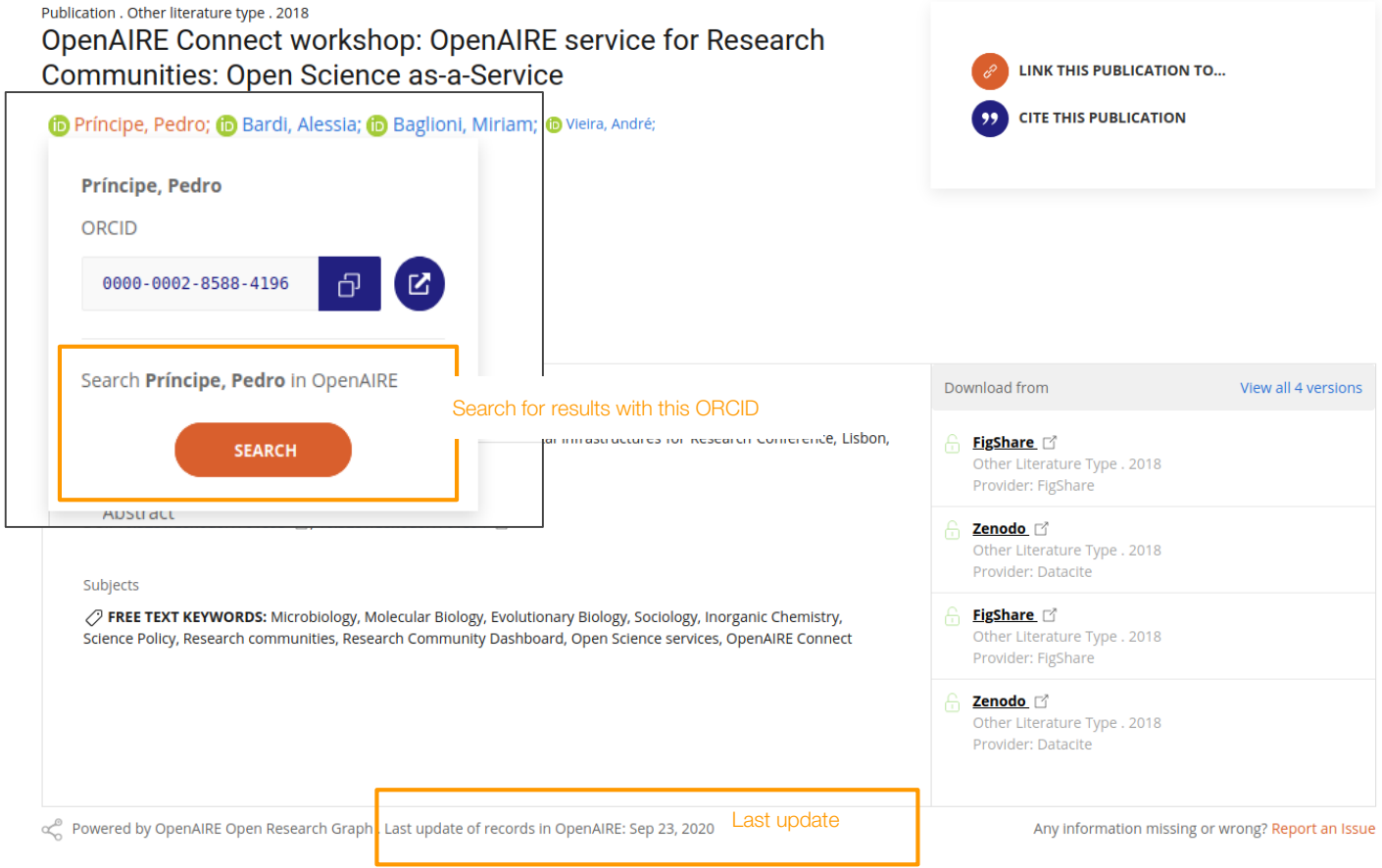
Research outcome landing page



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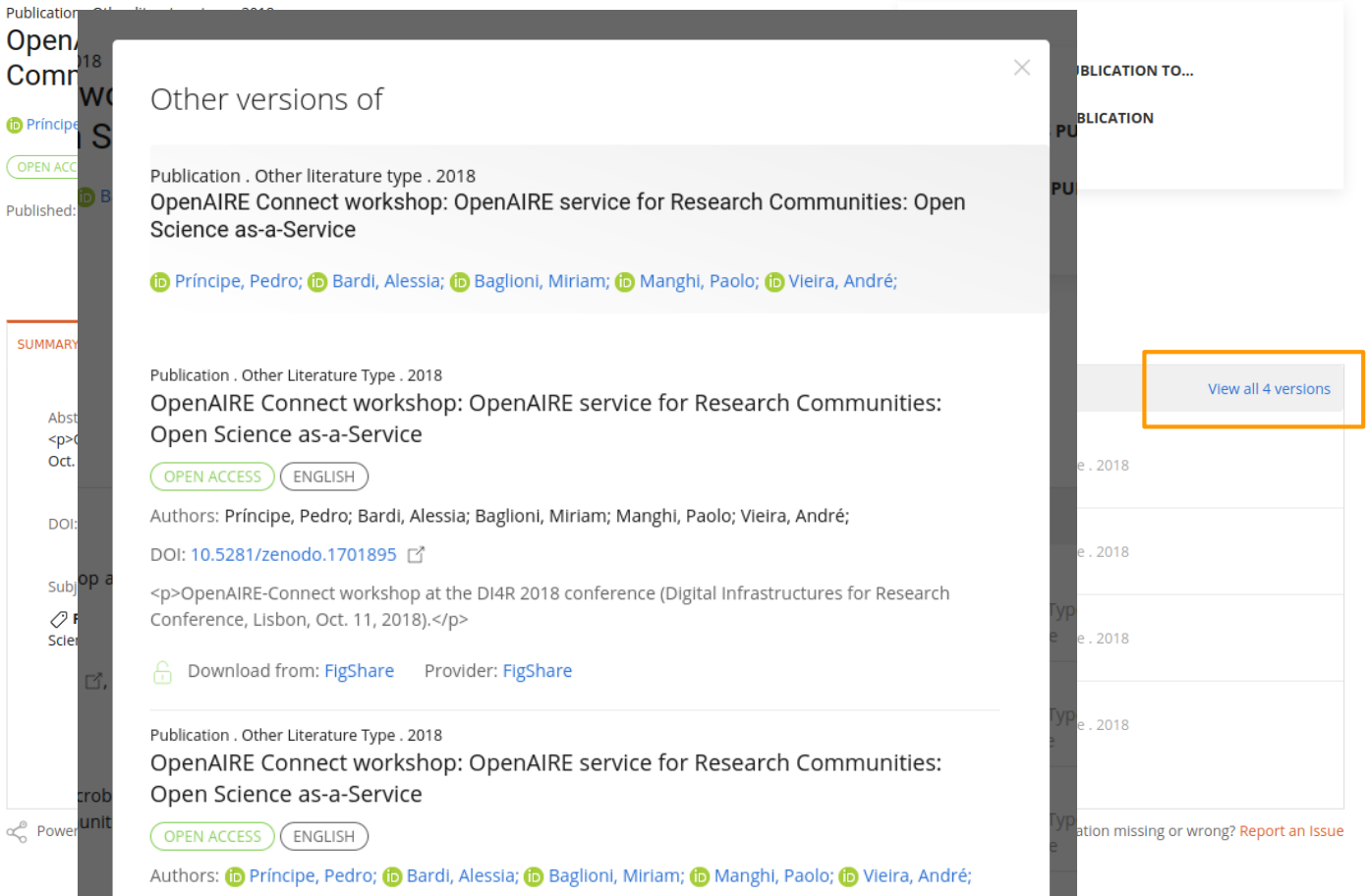
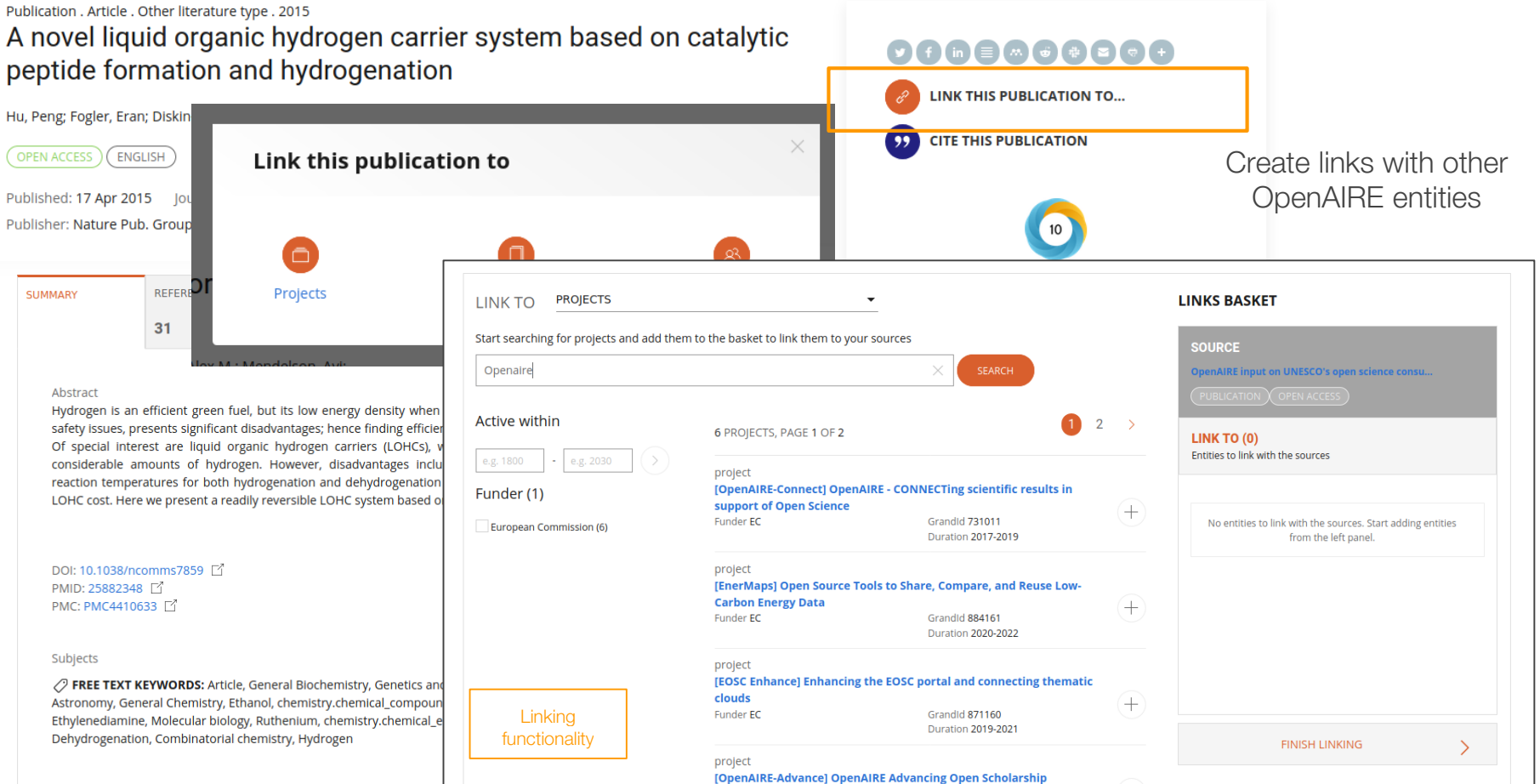


Research outcome landing page



Project landing page

Project . 2018 - 2021 . On going

OpenAIRE-Advance

OpenAIRE Advancing Open Scholarship

OPEN ACCESS MANDATE FOR PUBLICATIONS AND RESEARCH DATA | EUROPEAN COMMISSION

Funder: **European Commission** Project code: 777541 Call for proposal: H2020-EINFRA-2017

Funded under: H2020 | RIA Overall Budget: 10,000,000 EUR Funder Contribution: 10,000,000 EUR

Status: On going

Start Date 01 Jan 2018 | End Date 28 Feb 2021

Detailed project information (CORDIS) →

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Relations with other OpenAIRE entities

SUMMARY	PUBLICATIONS	RESEARCH DATA	SOFTWARE	OTHER RESEARCH	STATISTICS
	65	6	3	73	

Description

OpenAIRE-Advance continues the mission of OpenAIRE to support the Open Access/Open Data mandatesinEurope. By sustaining the current successful infrastructure, comprised of a human network and robust technical services, it consolidates its achievements while working to shift the momentum among its communities to Open Science, aiming to be a trusted e-Infrastructurewithin the realms of the European Open Science Cloud.In this next phase, OpenAIRE-Advance strives to empower its National Open Access Desks (NOADs) so they become a pivotal part within their own national data infrastructures, positioningOA and open science onto national agendas. The capacity building ac...

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Partners

Ghent University, BIU, University of Vienna, CVTI SR, KNAW, University of Southeastern Philippines, UFCA, Universidad Lux, UW, Delft University of Technology, UCY, UH, RBI, ATHENA - RESEARCH AND INNOVATION CENTER, Landspítali University Hospital, COUPERIN, Jisc, University of Edinburgh, LU, University of Konstanz, ...

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Project . 2018 - 2021 . On going

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Funder: **European Commission** Project code: 777541 Call for proposal: H2020-EINFRA-2017

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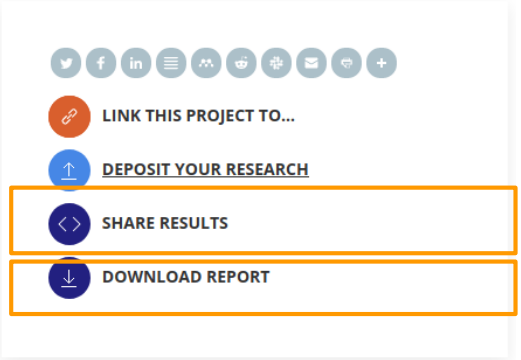

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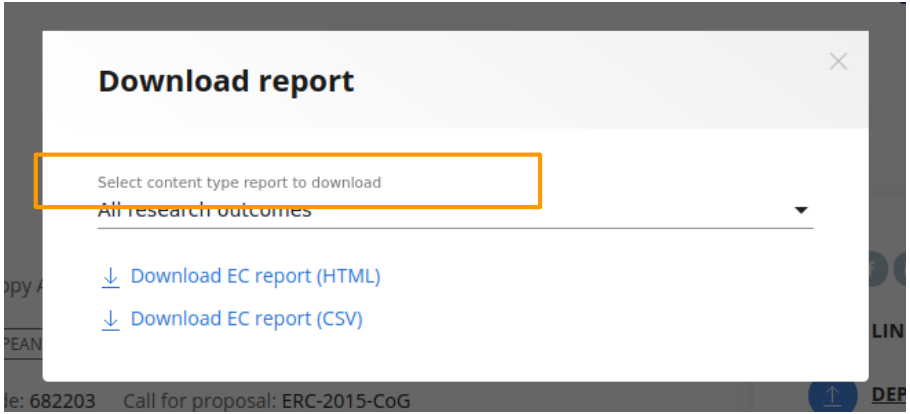

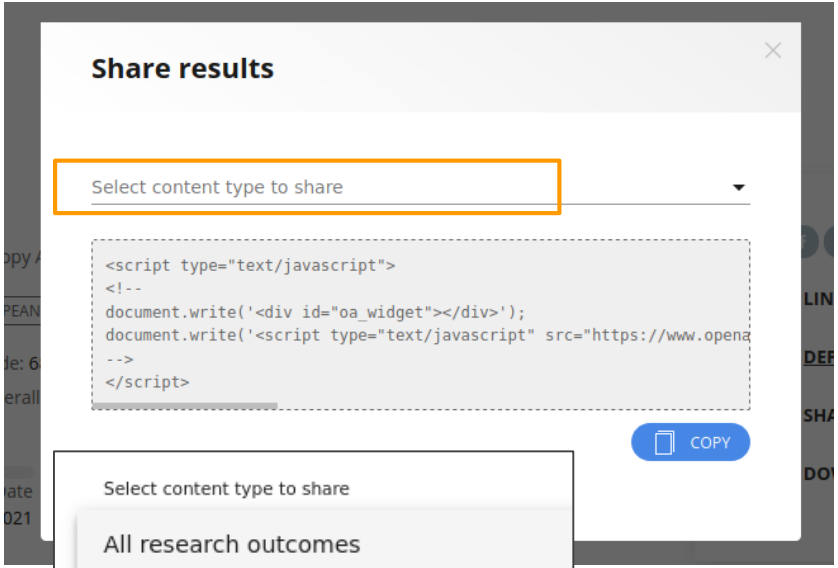

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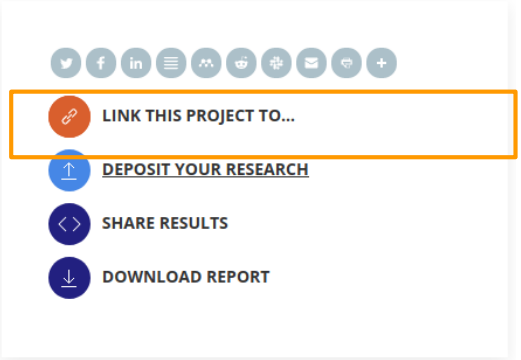

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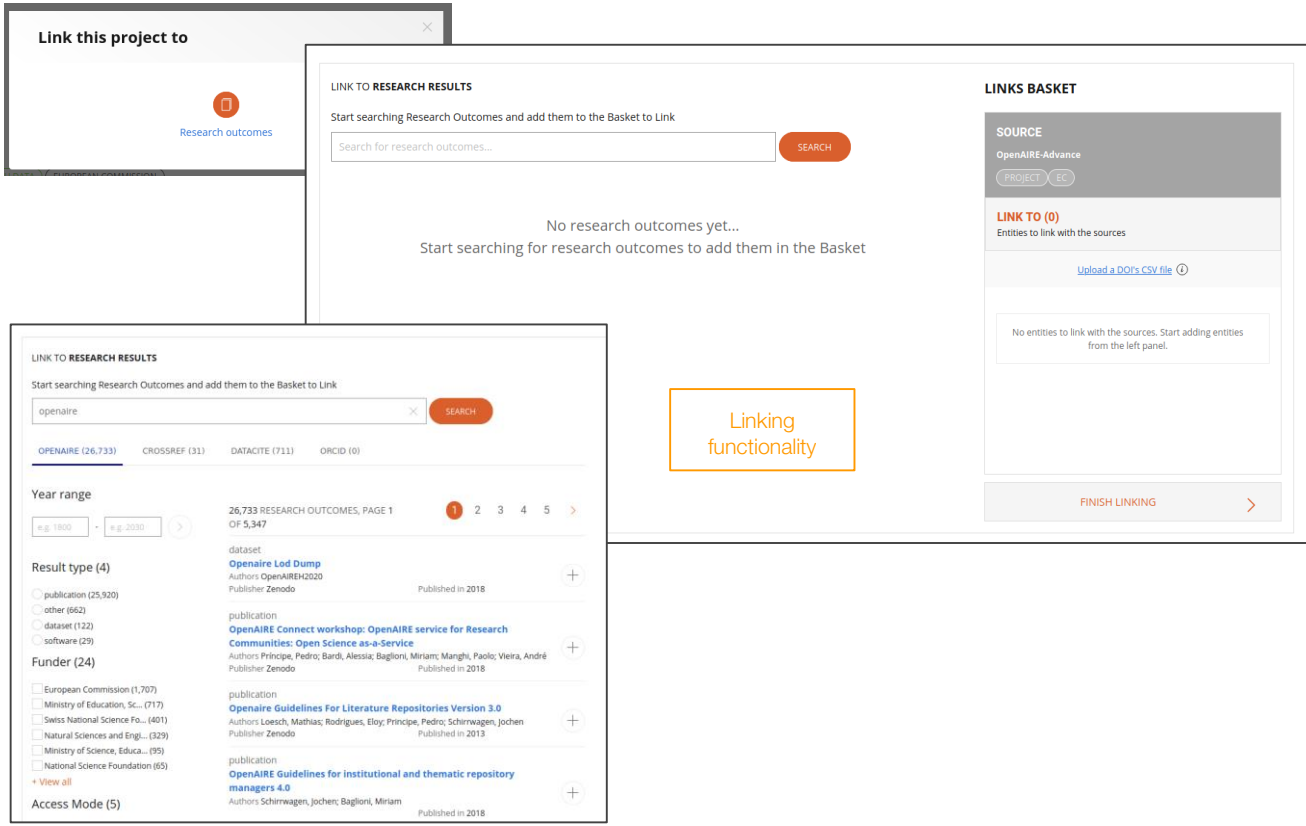

Linking functionality

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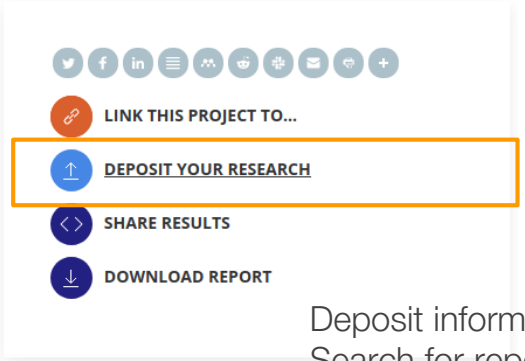

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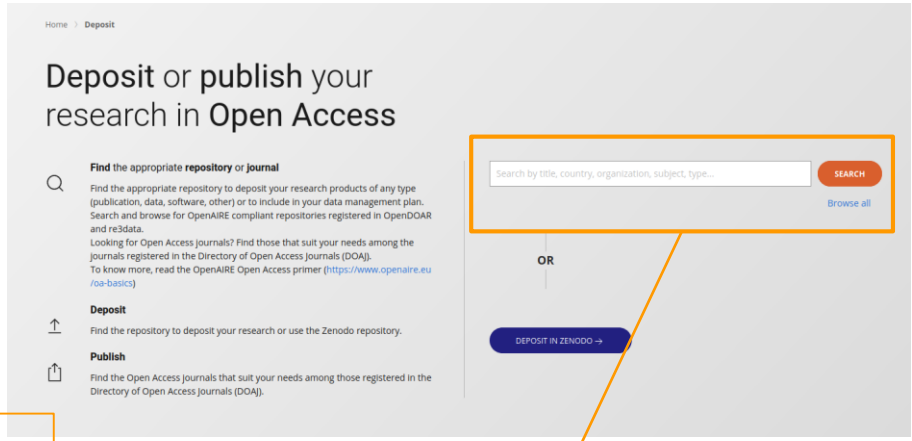
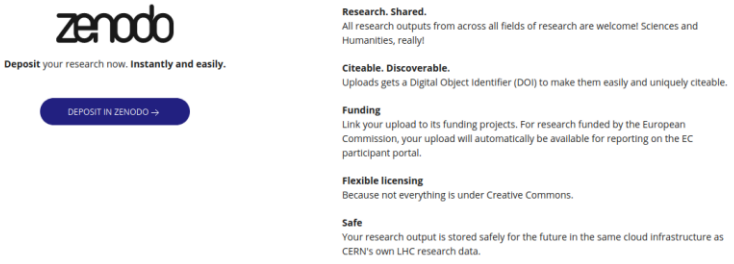
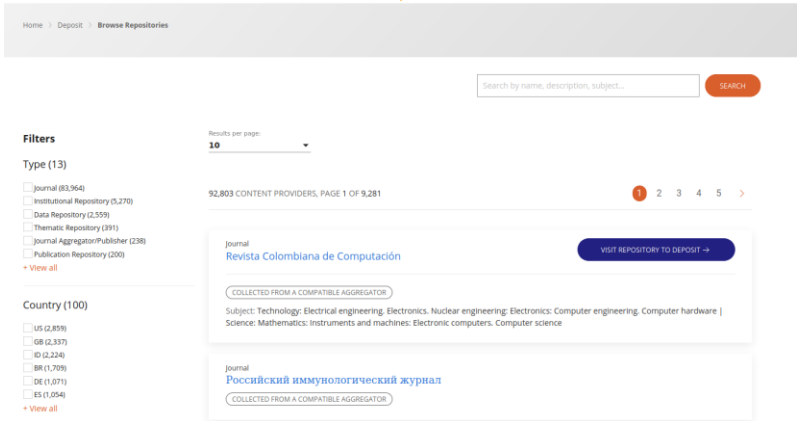
Deposit functionality







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RELATED CONTENT PROVIDERS	PUBLICATIONS	OTHER RESEARCH	STATISTICS
	61,251	1,417	

Description
Repository of the University of Minho, Portugal.

Latest data aggregation: Jul 7, 2020

Subjects
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OAI-PMH: http://repositorium.sdum.uminho.pt/oai/oai

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SUMMARY	RELATED CONTENT PROVIDERS	PUBLICATIONS 60,972	OTHER RESEARCH 1,405	STATISTICS

Recent Publications

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Publication . Article . Other Literature Type . Conference Object . 2020

Minimum information guideline for spectrophotometric and fluorometric methods to assess biofilm formation in microplates

OPEN ACCESS ENGLISH

Authors: Jontana Allkja; Thomas Bjarnsholt; Tom Coenye; Paul Cos; Adyary Fallarero; Joe J. Harrison; Susana P. Lopes; Antonio Oliver; Maria Olivia Pereira; Gordon Ramage; ...

Project: EC | PRINT-AID (722467)

Supplementary data to this article can be found online at https://doi.org/10.1016/j.biofilm.2019.100010. The lack of reproducibility of published studies is one of the major issues facing the scientific community, and the field of biofilm microbiology has been no excepti...

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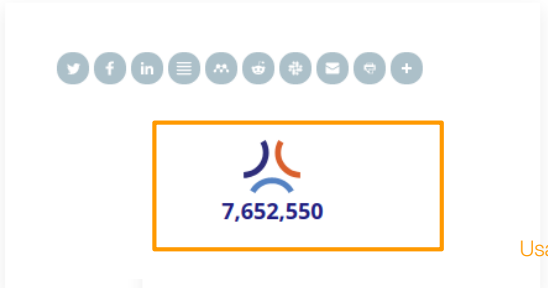

Usage Statistics

Statistics for research outcomes

SUMMARY	RELATED CONTENT PROVIDERS	PUBLICATIONS	OTHER RESEARCH	STATISTICS
		61,251	1,417	

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Latest data aggregation: Jul 7, 2020

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Science General, Technology General, Arts and Humanities General, Social Sciences General

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Organization

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Web page: http://www.technion.ac.il/

Country: Israel

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FUNDING / PROJECTS **369** | PUBLICATIONS **54,387** | OTHER RESEARCH **3**

Relations with other OpenAIRE entities

369 PROJECTS, PAGE 1 OF 74

1 2 3 4 5

Project . 2019 - 2024

NanoProt-ID (Proteome profiling using plasmonic nanopore sensors)

Funder: EC Project Code: 833399

Overall Budget: 2,498,870 EUR Funder Contribution: 2,498,870 EUR

OPEN ACCESS MANDATE FOR PUBLICATIONS

Partners: Technion – Israel Institute of Technology

To date, antibody-free protein identification methods have not reached single-molecule precision. Instead, they rely on averaging from many cells, obscuring the details of important biological processes. The ability to identify each individual protein from within a sing...

Organization landing page

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PUBLICATIONS
54,387

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3

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Recent Publications

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Publication . Other Literature Type . Preprint . 2020

Automated one-loop computations in the SMEFT

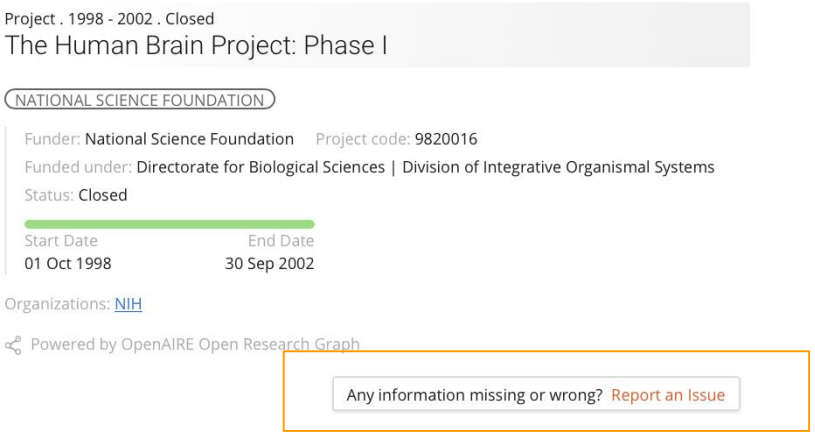
OPEN ACCESS ENGLISH

Authors: Degrande, Céline; Durieux, Gauthier; Maltoni, Fabio; Mimasu, Ken; Vryonidou, Eleni; Zhang, Cen;

Project: EC | MCnetITN3 (722104)

Comment: 5 pages, 3 figures, 2 tables

Landing pages - Report an issue



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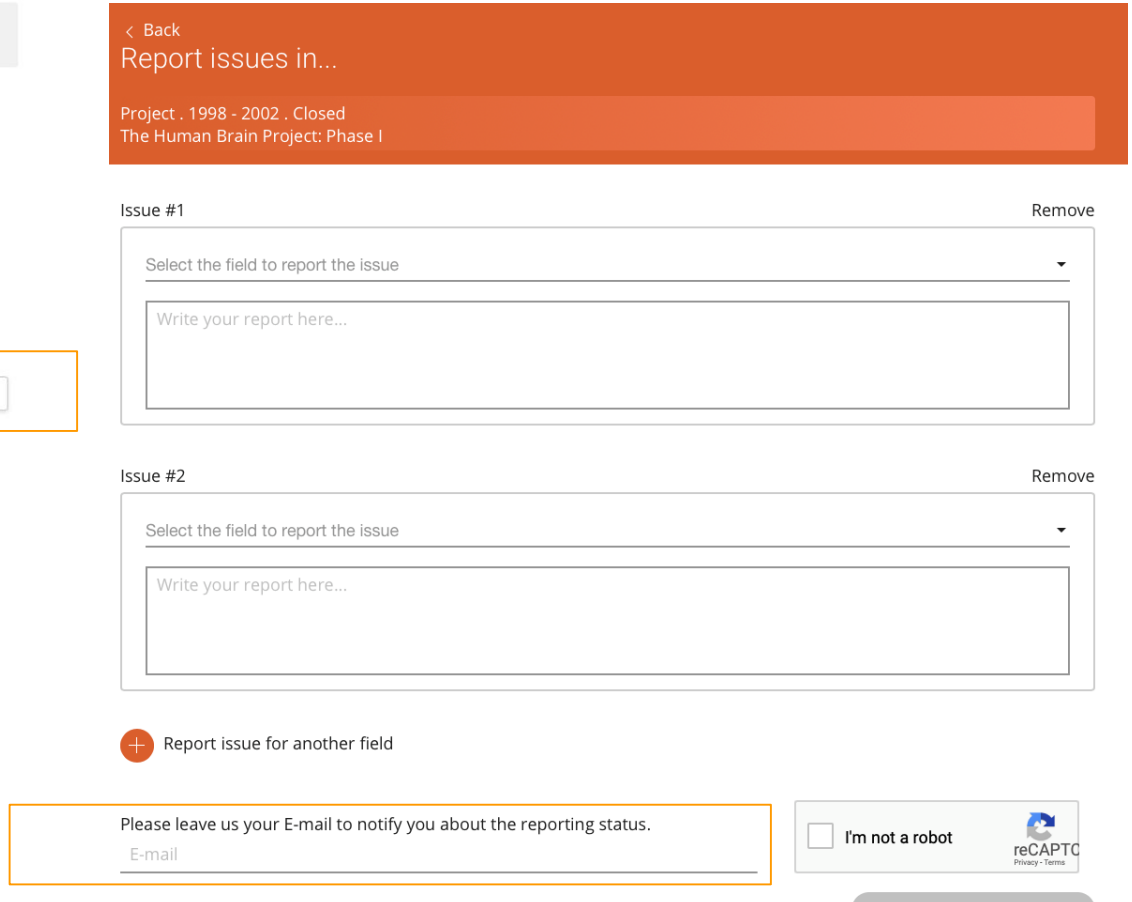

OpenAIRE - Research Graph

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OpenAIRE ResearchGraph

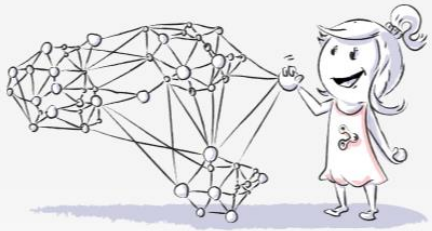
ABOUT RESOURCES SUPPORT

https://graph.openaire.eu

Open. Transparent. Interconnected.

OpenAIRE Research Graph is an open resource that aggregates a collection of research data properties (metadata, links) available within the OpenAIRE Open Science infrastructure for funders, organizations, researchers, research communities and publishers to interlink information by using a semantic graph database approach.

LEARN MORE



OpenAIRE ResearchGraph

Why OpenAIRE Research Graph

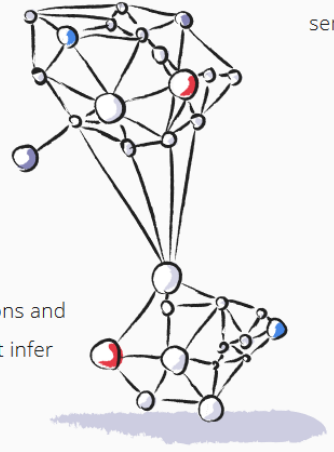
Unlock the power of open science data

Open and transparent

It is available for download and re-use as CC-BY (due to some input sources whose license is CC-BY); parts of the graphs can be re-used as CC-0; provenance is tracked at the level of the records and, when these are the result of full-text mining, of the properties (provenance also includes an indicator of trust, in the range [0..1]).

Decentralized and interoperable

Metadata and links are collected from data sources, such as institutional/data/software repositories, publishers, registries, and re-distributed to such sources via brokering services.



Intelligent linking

Abstracts, full-texts of Open Access publications and links are processed by several algorithms that infer new links and enrich the graph.

Embedded metrics

Powers up calculation of advanced statistics and metrics about Open Science and research impact.

OpenAIRE | CONNECT

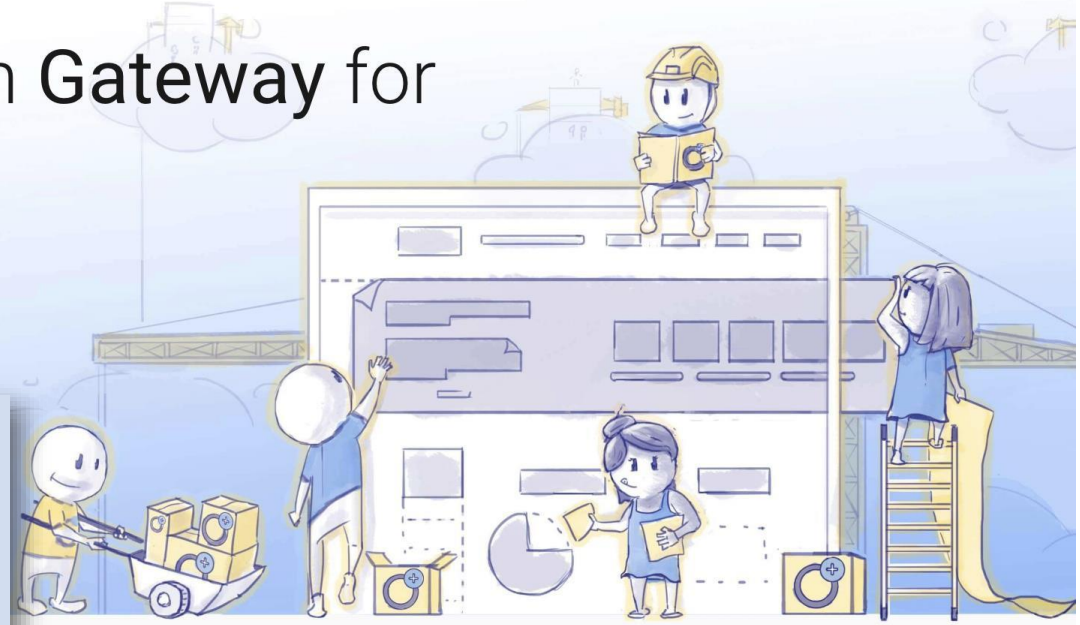
ABOUT COMMUNITIES JOIN

Build an Open Research **Gateway** for your **Community**

Turn Open Science into practice

Share and link your research results.
Across organizations, across borders.
Customized to your needs.

LEARN HOW



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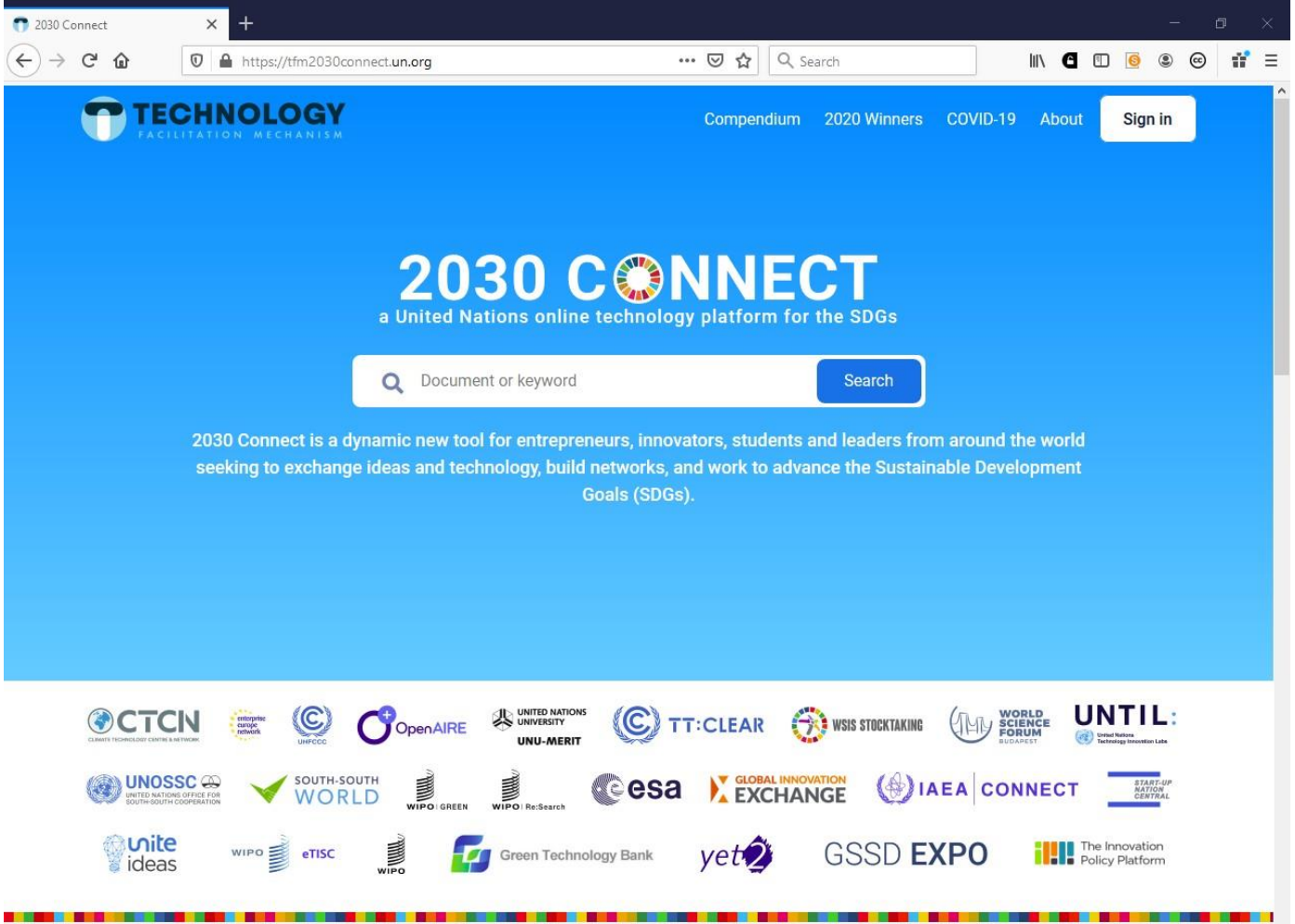

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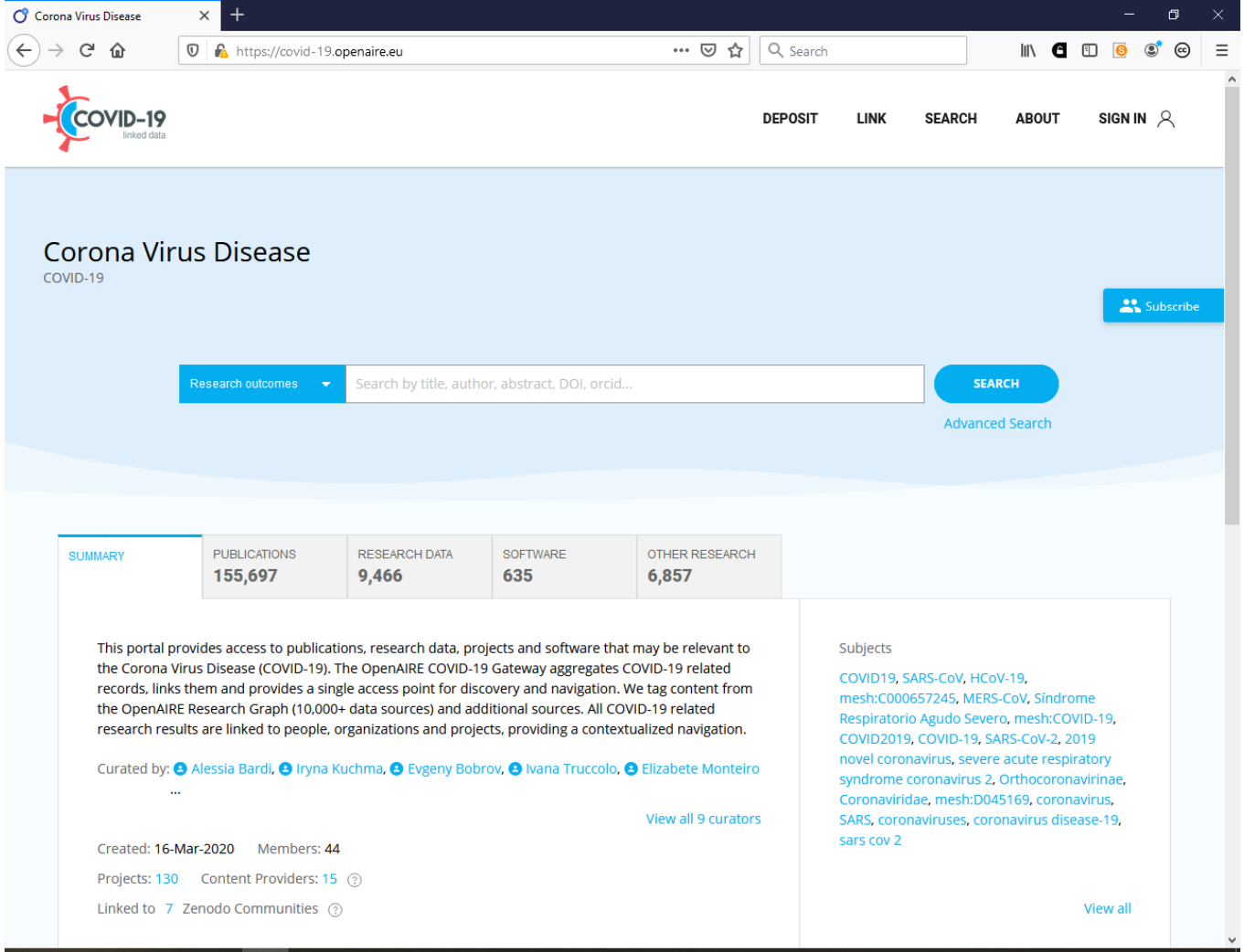

https://covid-19.openaire.eu

OpenAIRE Provide

Services for content providers (repository and CRIS managers, journal publishers)

one stop shop for all OpenAIRE content providers

OpenAIRE

European Commission

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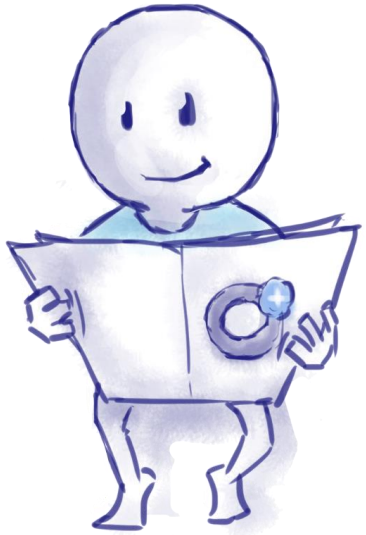
OpenAIRE Content Provider Dashboard

One-stop-shop web service where content providers (repositories, data archives, journals, aggregators, CRIS systems) **interact with OpenAIRE.** It provides the front-end access to many of OpenAIRE's backend services.

OpenAIRE Guidelines



OpenAIRE Guidelines to expose your metadata in order to integrate with OpenAIRE infrastructure.
https://guidelines.openaire.eu/en/latest/

Content Acquisition policy

Literature, Datasets, Software, other research products
OpenAIRE accepts the metadata records of all scientific products whose structure respect the model and semantics as expressed by the OpenAIRE guidelines.

Open Access and non-Open Access material will be included and links to other products will be resolved where this is possible.
https://www.openaire.eu/data-aquisition-policy

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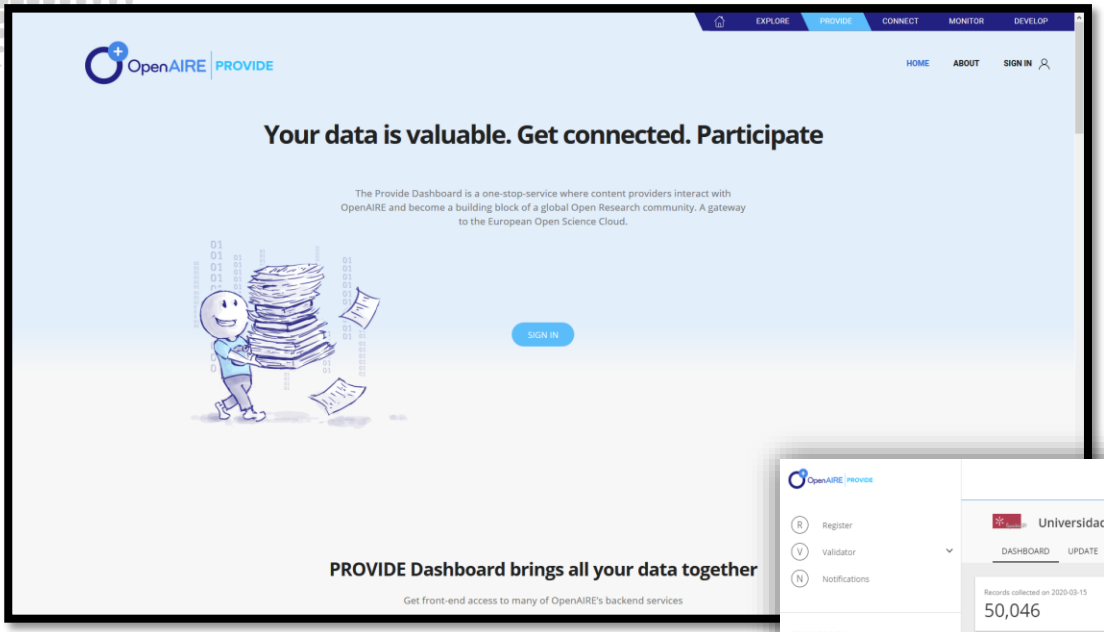

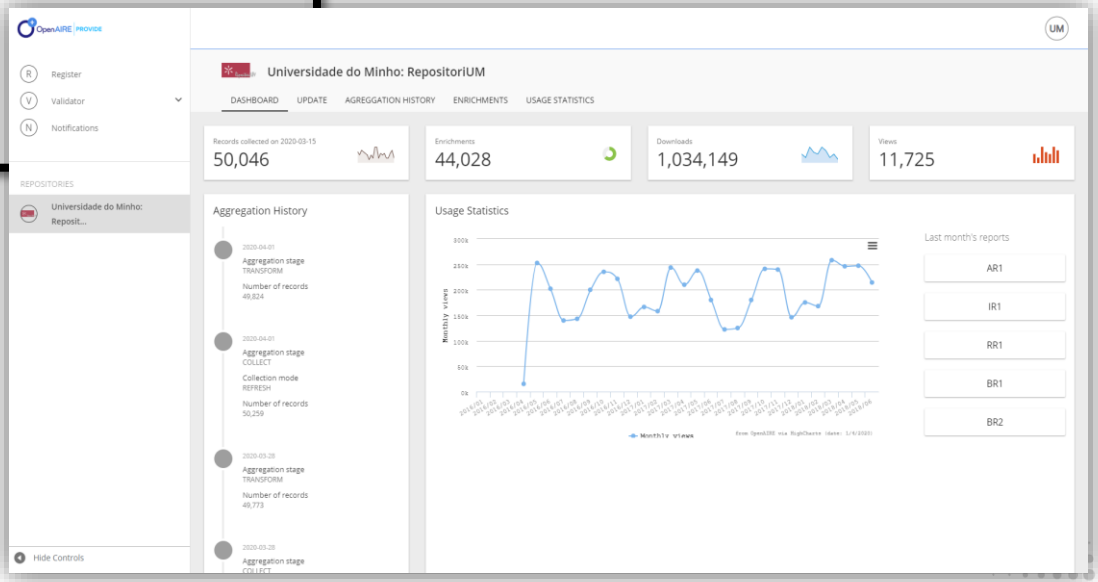

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Added-value services On top of the Research Graph

ENRICH

Improve your metadata.
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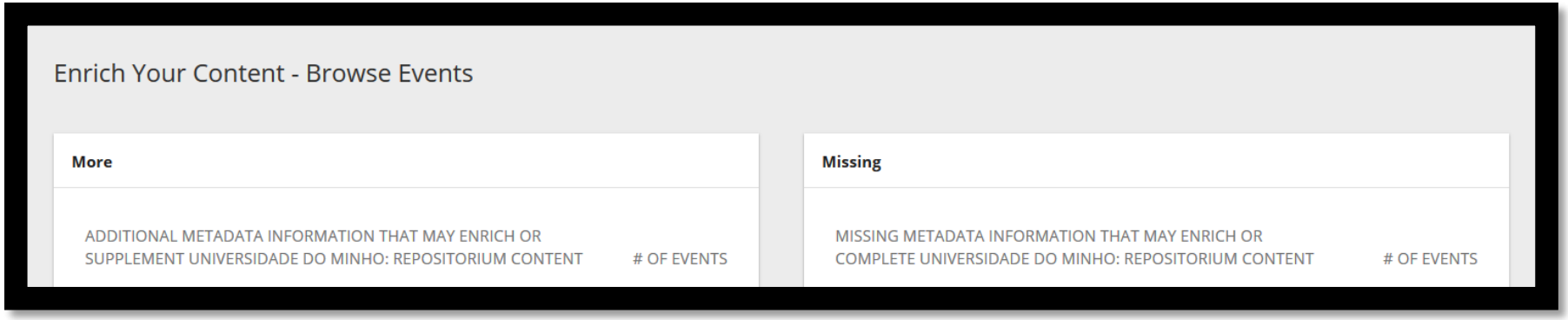
OA Broker service offers a wealth of information on scholarly communication data. Find out what interests you and subscribe to enrich your records.



OpenAIRE | PROVIDE

Integration with third-party services

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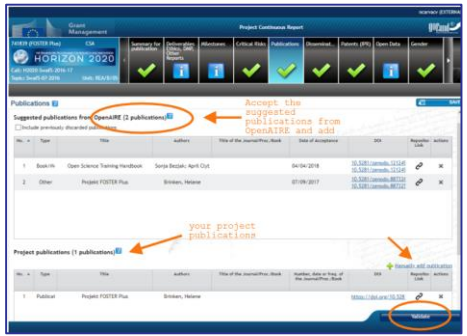

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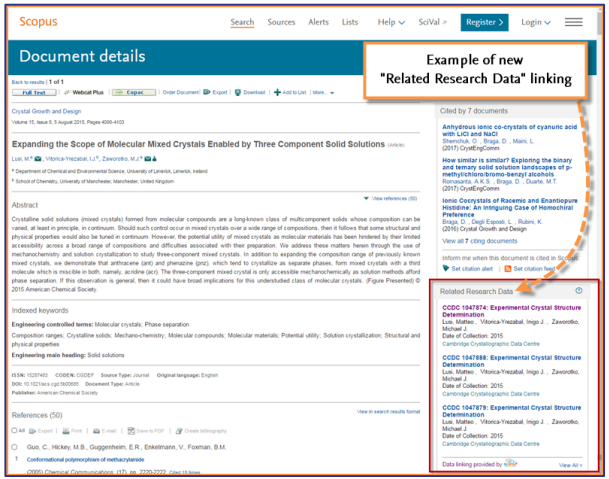

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Open Access Basics

An Open Access primer to get you started

An RDM Handbook

A primer on managing your research data

Toolkit for Policy Makers on Open Science and Open Access

Read more

Content providers

Making your repository Open

Follow the OpenAIRE Guidelines

Follow the OpenAIRE Usage Statistics Guidelines

Funders

Why OpenAIRE Monitor

How to join OpenAIRE

Monitor Dashboard - *Coming soon!*

Research Administrators

OS Policy Checklist for RFOs

OS Policy Checklist for RPOs

Model Policy on OS for RFOs

Model Policy on OS for RPOs

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Zenodo

Anonymize your data
For researchers
Anonymization

Report your publication and data to the EC
For project coordinators
Search & Share

Claim a publication or data to your funding
For researchers
Search & Share

Link literature & data
For content providers
ScholExplorer

Create, Link & Share DMPs
For researchers
ARGOS

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For researchers
CONNECT

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For Repository Managers
OA Broker

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For content providers
Usage Analytics

Register & Validate your repository
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https://www.openaire.eu/guides

Researchers

How to comply with H2020 mandates - publications

How can identifiers improve the dissemination of your research outputs?

› Research Data Management

How to comply with H2020 mandates - research data

Research Data Management costs in H2020 projects

How to make your data FAIR

How to find a trustworthy repository for your data

How to create a Data Management Plan for H2020 projects

Data formats for preservation

How to deal with non-digital data

How to deal with sensitive data

Raw data, backup and versioning

› Legal issues

How do I know if my research data is protected

How do I license my research data

Can I reuse someone else's research data

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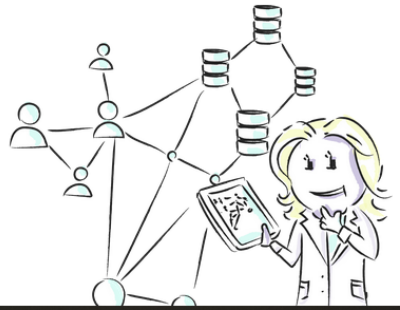
Plan and follow your data

Create machine actionable DMPs.
Configure to best fit your discipline.
Link to EOSC components out of the box.
Share easily in your repository.

Bring your Data Management Plans closer to where data are generated, analysed and stored.

Start your DMP



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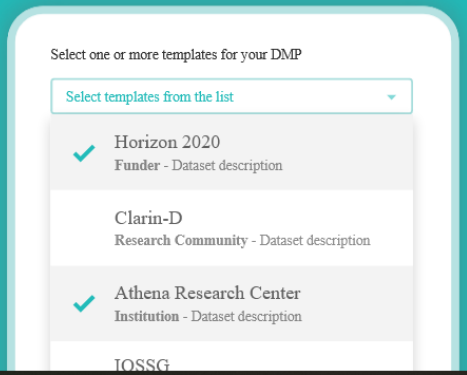
Start your **ARGOS experience**

1 Select Templates

2 Fill the information

3 Share DMP



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Produce DMP outputs

Close the data management planning lifecycle by publishing your DMPs in a FAIR manner. Assign licenses, PIDs and publish DMPs in a repository of your choice.

Update DMPs

Treat DMPs as living documents. Secure their provenance and continue work in new versions (new DOIs assigned).

Re-use datasets & templates

Identify datasets to be re-used in your DMP. Copy or clone dataset descriptions to other DMPs.

Import and Export DMPs

Import a .json file of your DMP and continue work in ARGOS. Export DMPs in machine readable (.xml) and machine-actionable (.json) formats.

Customise dataset descriptions

Differentiate DMPs from dataset descriptions. Describe your datasets with more than one template and tailor its content to your specific needs.

Connect with OpenAIRE & EOSC

Use OpenAIRE and EOSC underlying services, sources and semantics to ease completion of DMPs and trace the quality of your research.

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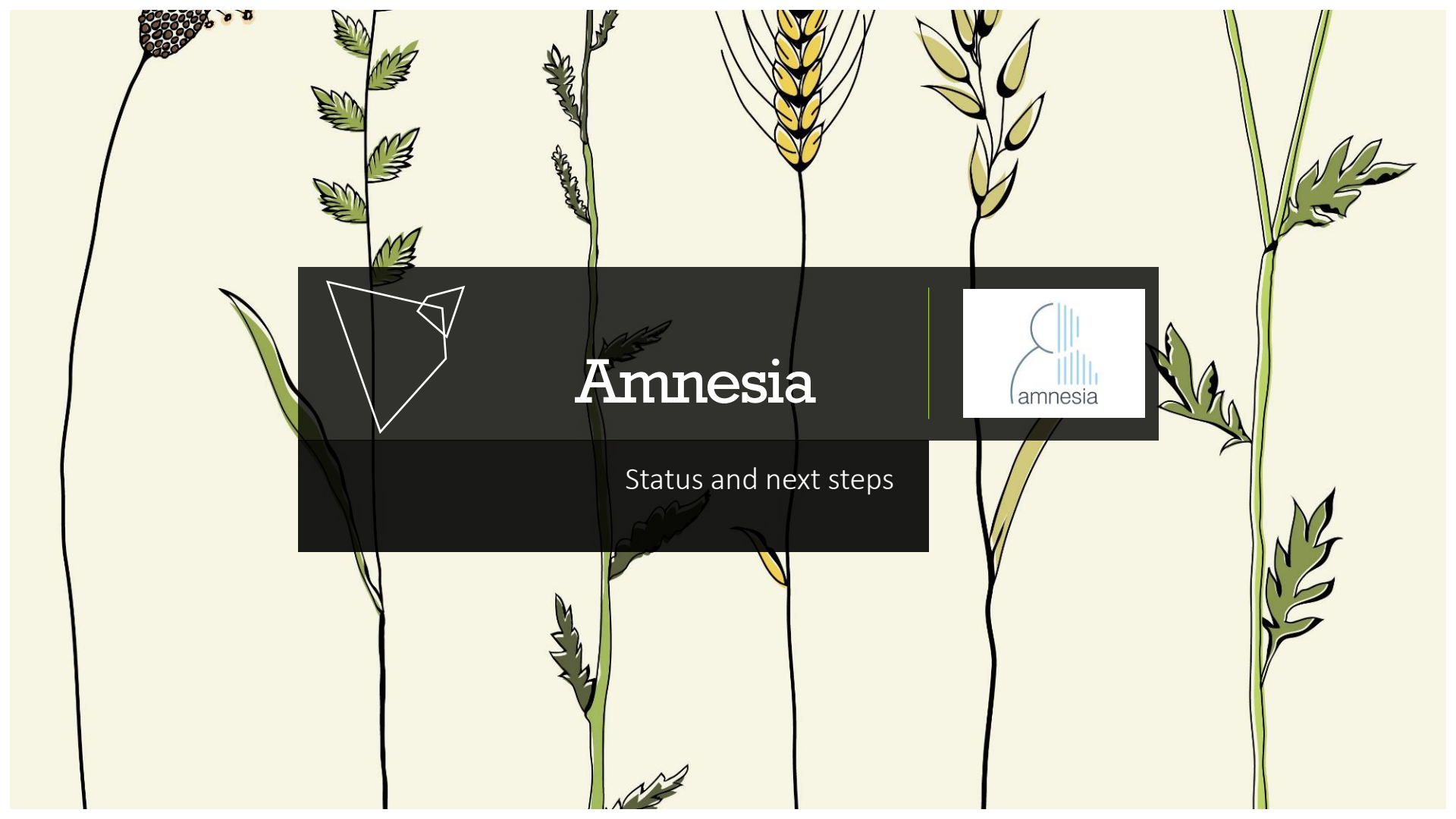


Amnesia

Status and next steps

Why Amnesia

Anonymization provides a statistical guaranty about the risk of information leakage

It is the most suitable way to give information to third parties, without revealing personal data

- User friendly
- Works locally, no data transfer risk
- Allows user to customize the solution
- The only tool to offer anonymization for set-valued data
- The only tool to support k^m-anonymity
- Easy to incorporate to third party information systems

Citizen Science Activities

Schools Seismograph Network

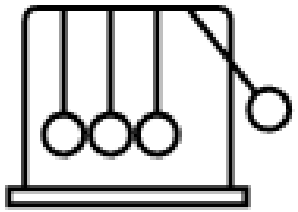
Seismic Data

Open Schools Journal for Open Science

Open Science Journal

Bringing Nobel Prize Physics to Classroom

Access Research Data

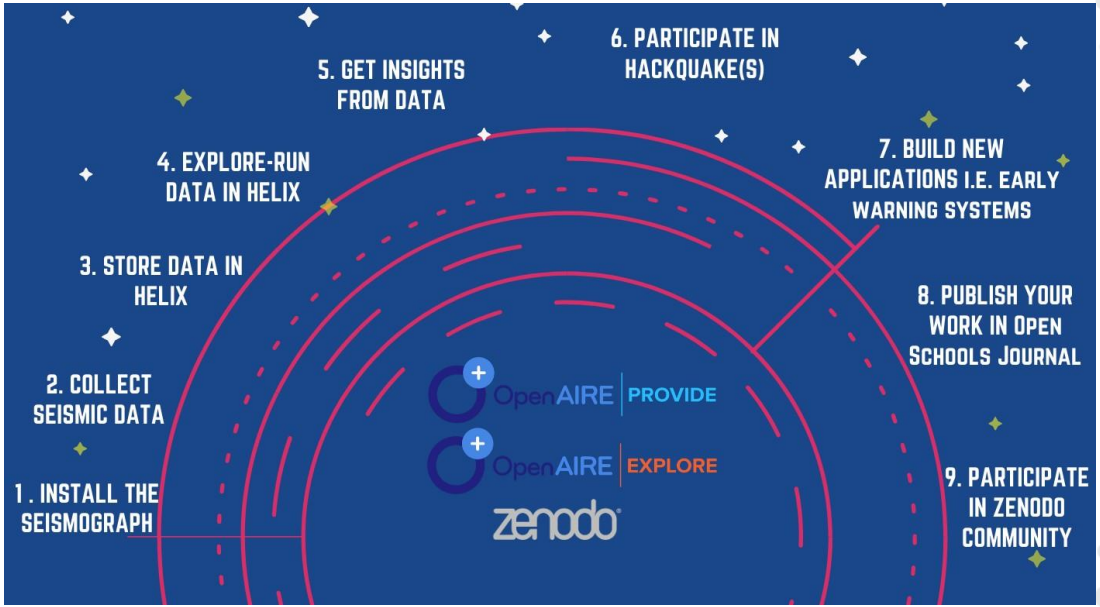


OpenAIRE

Integration with OpenAIRE Services

Journal Articles

- Assigned DOI
- Indexed on OpenAIRE
- Findability
- Accessibility
- Interoperability
- Reusage



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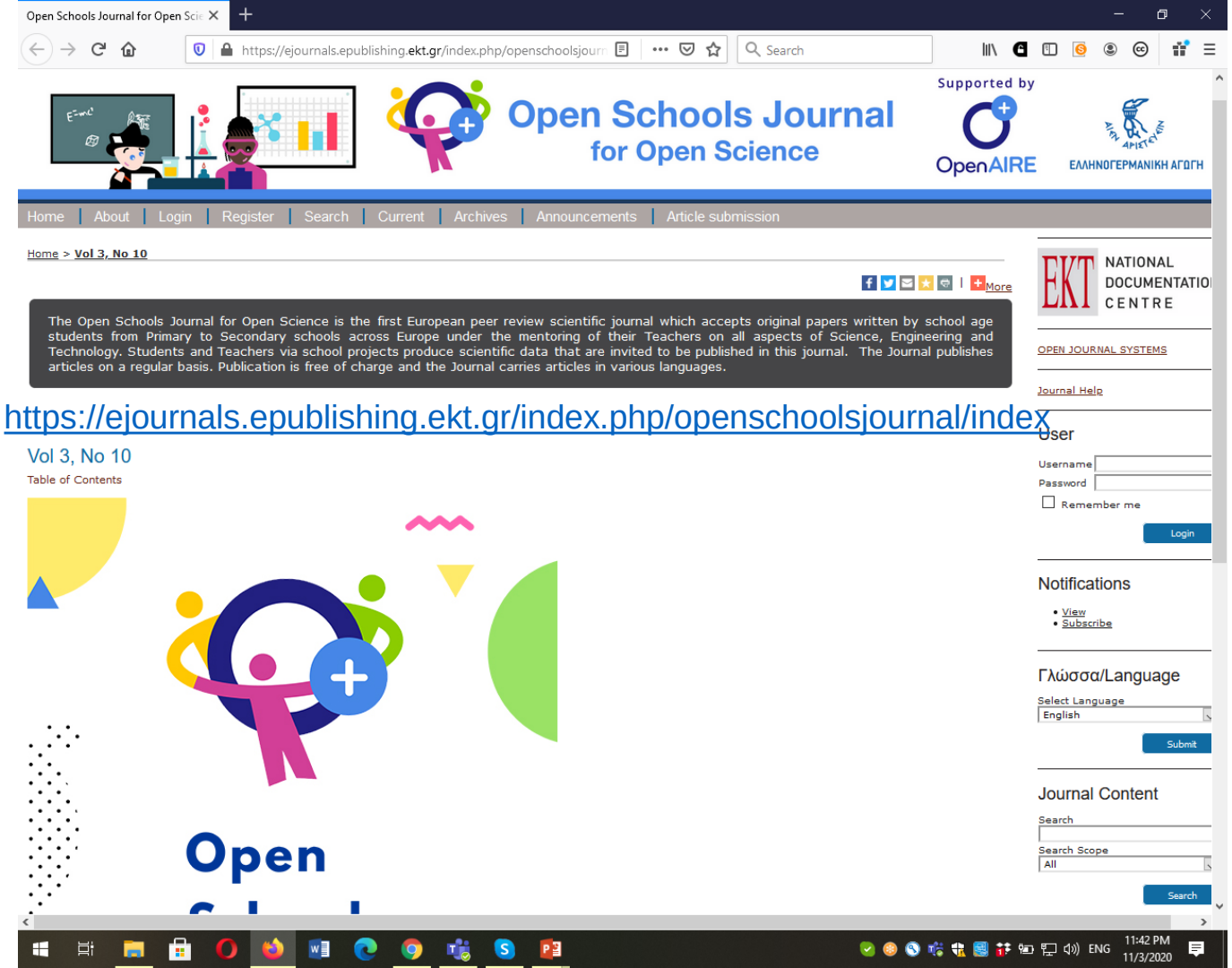
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New discovery!

Κυνήγι Εξωπλανητών

Ανδρέας Βατίστας Βατίστας, Θανάσης Βασίλαινας Βασίλαινας, Εμμέλεια Βουτιέρου, Φωτεινή-Μαρία Δραβίλλα, Γιώργος Καλπαξής, Ρένια Μενέγου, Παναγιώτης Μιχάλαινας, Ιάσονας Παυλόπουλος, Δήμητρα Πίνα, Θωμάς Πιτσαργιώτης, Γιώργος Τσακίρης, Στέλιος Φραγκουδάκης, Δρ. Σωτήριος Τσαντίλας

Views: 64 Downloads: 41

DOI: https://doi.org/10.12681/osj.22398

Abstract

Από το 2009 το διαστημικό τηλεσκόπιο Kepler καταγράφει τις μικρές ελαττώσεις (εκλείψεις) στο φως μακρινών αστέρων που οφείλονται στη διάβαση (transit) πλανητών από μπροστά τους. Σκοπός μας είναι να εντοπίσουμε πλανήτες σε τροχιά γύρω από μακρινά άστρα από τα δεδομένα της αποστολής Kepler, χρησιμοποιώντας τη Μέθοδο των Διαβάσεων με τη βοήθεια δύο προγραμμάτων που έχει γράψει η ομάδα μας σε γλώσσα C. Εφόσον εντοπιστούν και επιβεβαιωθούν οι διαβάσεις, προχωρούμε στην ανάλυση των χαρακτηριστικών του πλανήτη: Ακτίνα, κλίση, απόσταση από το αστέρι, και κυρίως αν βρίσκεται στη λεγόμενη «κατοικήσιμη ζώνη» πράγμα που θα κάνει δυνατή τη διατήρηση ζωής.
Λόγω του πολύ μικρού μεγέθους των πλανητών σε σχέση με το αστέρι τους, ο εντοπισμός αυτός είναι εξαιρετικά δύσκολος. Παρόλα αυτά έχουμε ήδη εντοπίσει έναν τέτοιο εξωπλανήτη σε τροχιά γύρω από τον αστέρα KIC 1432789 τα χαρακτηριστικά του οποίου ανέλυσε η ομάδα μας για πρώτη φορά.

Since 2009, Kepler Space Telescope has been recording small reductions (eclipses) in the light of distant stars due to the transit of planets in front of them. Our goal is to detect planets in orbit around distant stars from Kepler's mission data, following the Reading Method using two programs written by our team in programme language C. If the readings are detected and confirmed, we proceed to their analysis. characteristics of the planet: Ray, inclination, distance from the star, and especially if it is in the so-called "habitable zone" which will make it possible to maintain life.

However, we have already identified such an exoplanet in orbit around the star KIC 1432789, the characteristics of which our team analyzed for the first time.

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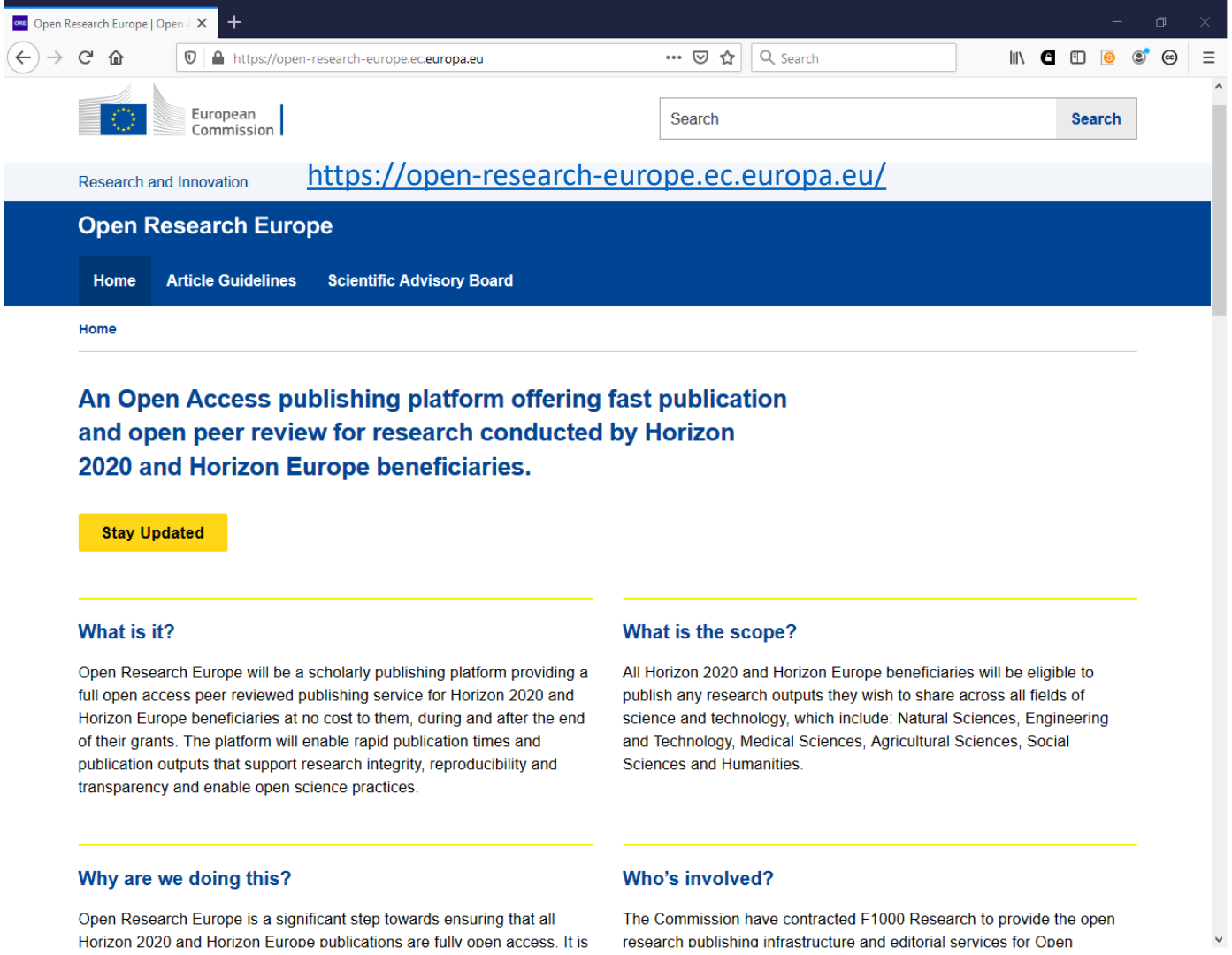
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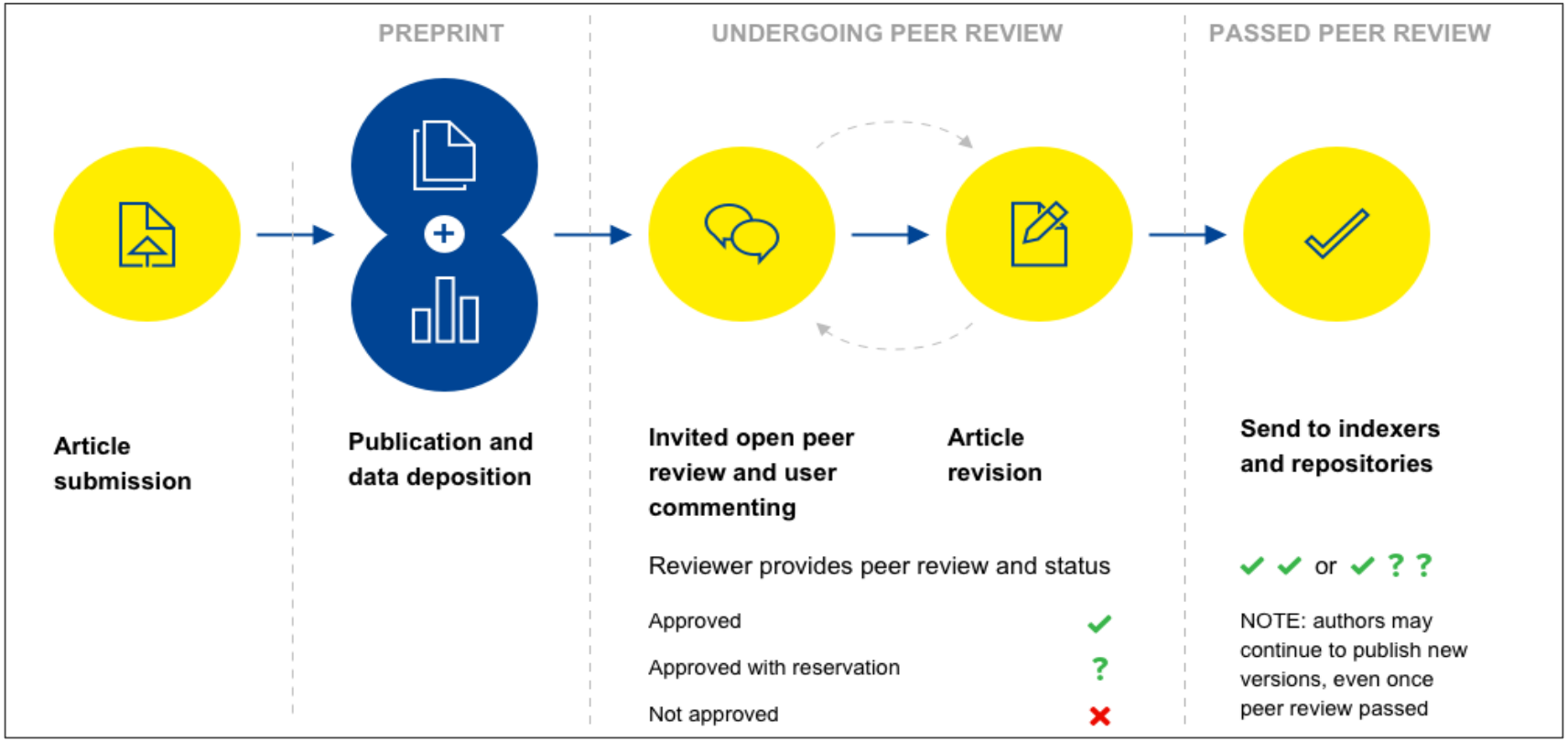
What is it?
Open Research Europe will be a scholarly publishing platform providing a full open access peer reviewed publishing service for Horizon 2020 and Horizon Europe beneficiaries at no cost to them, during and after the end of their grants. The platform will enable rapid publication times and publication outputs that support research integrity, reproducibility and transparency and enable open science practices.
What is the scope?
All Horizon 2020 and Horizon Europe beneficiaries will be eligible to publish any research outputs they wish to share across all fields of science and technology, which include: Natural Sciences, Engineering and Technology, Medical Sciences, Agricultural Sciences, Social Sciences and Humanities.
Why are we doing this?
Open Research Europe is a significant step towards ensuring that all Horizon 2020 and Horizon Europe publications are fully open access. It is
Who's involved?
The Commission have contracted F1000 Research to provide the open research publishing infrastructure and editorial services for Open

Open Research publishing model



Prepublication checks

Upon submission

- Assess the author eligibility
- Check the article is in scope
- Check for plagiarism

Pre-publication checks

- Comprehensive checks on reporting, editorial and ethical guidelines
- Checking for data availability (if applicable)
- Support authors making their related data and software FAIR

Production

- Articles are made available in text and data-mining formats (PDF, HTML, XML)
- Provide proofs and editing if necessary
- Perform quality checks on citations and references, image resolutions, any included multimedia
- Ensure all persistent identifiers are assigned and resolve correctly

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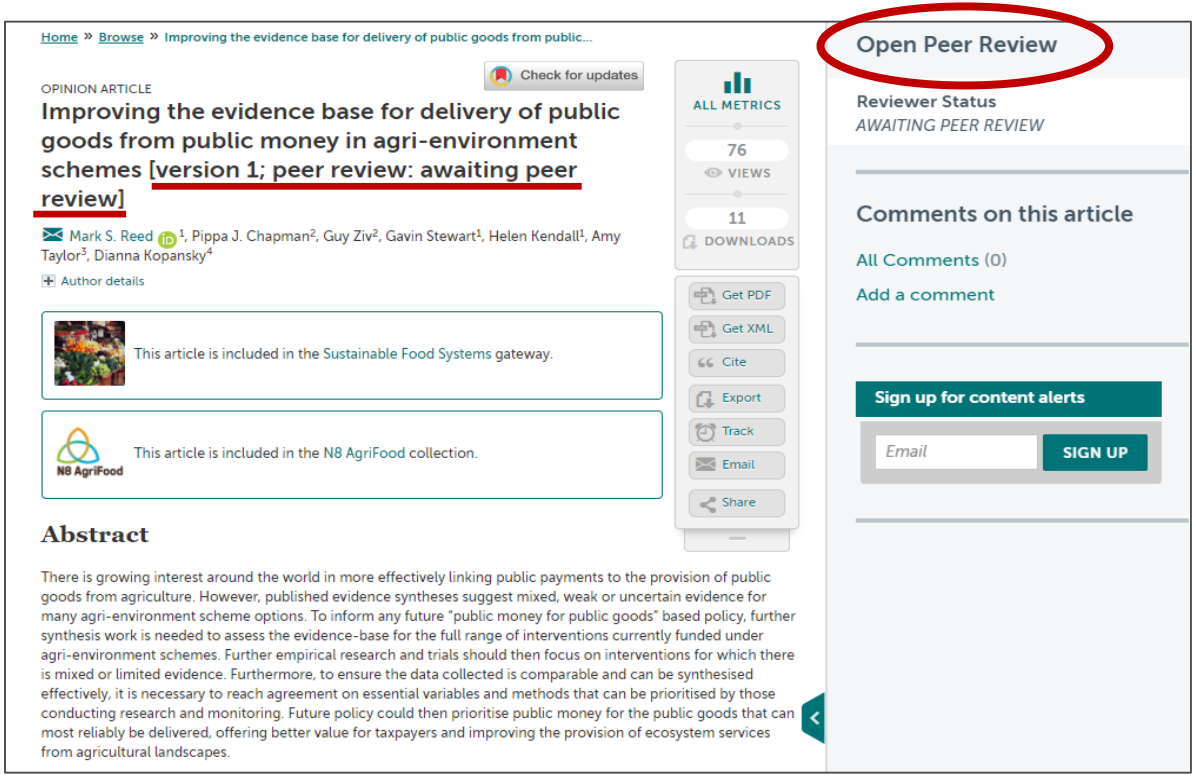
Preprint example



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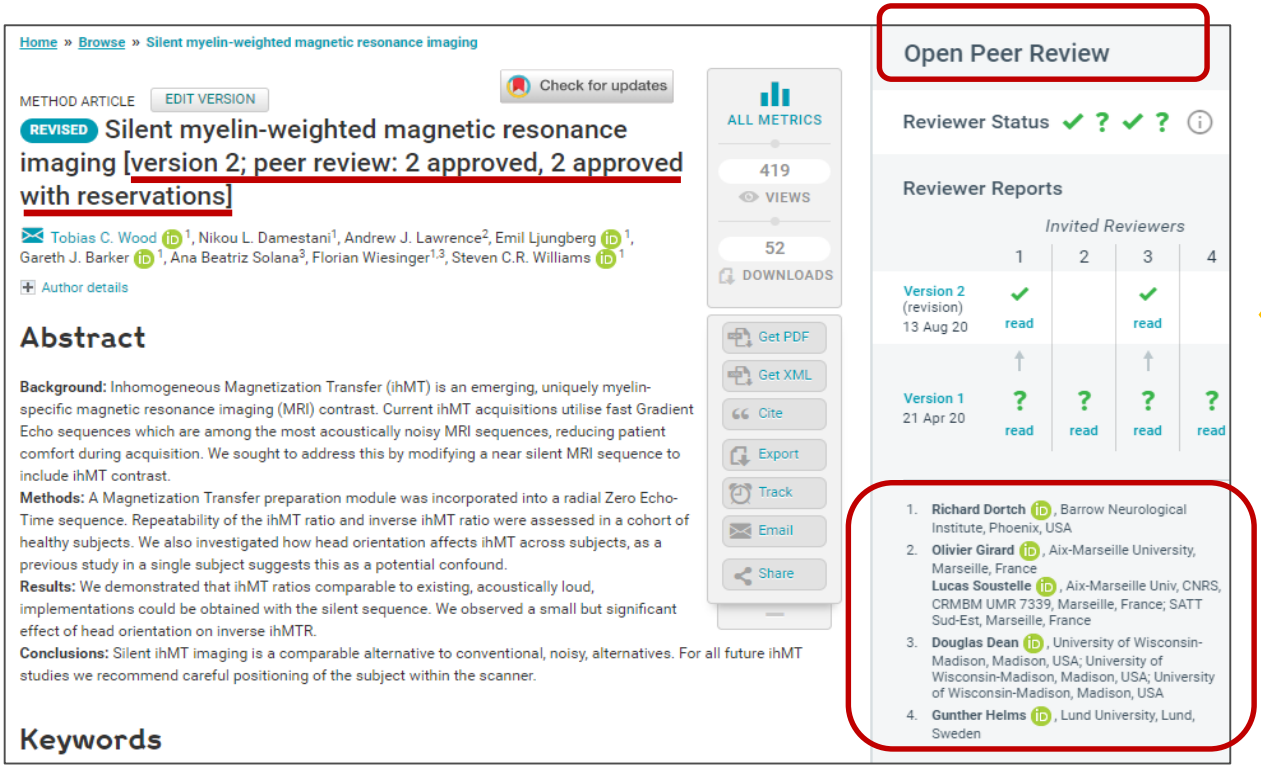
Open Peer Review Example 1



Home » Browse » Silent myelin-weighted magnetic resonance imaging

METHOD ARTICLE EDIT VERSION

Check for updates

REVISED **Silent myelin-weighted magnetic resonance imaging [version 2; peer review: 2 approved, 2 approved with reservations]**

Tobias C. Wood [1], Nikou L. Damestani[1], Andrew J. Lawrence[2], Emil Ljungberg [1], Gareth J. Barker [1], Ana Beatriz Solana[3], Florian Wiesinger[1,3], Steven C.R. Williams [1]

Author details

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Abstract

Background: Inhomogeneous Magnetization Transfer (ihMT) is an emerging, uniquely myelin-specific magnetic resonance imaging (MRI) contrast. Current ihMT acquisitions utilise fast Gradient Echo sequences which are among the most acoustically noisy MRI sequences, reducing patient comfort during acquisition. We sought to address this by modifying a near silent MRI sequence to include ihMT contrast.
Methods: A Magnetization Transfer preparation module was incorporated into a radial Zero Echo-Time sequence. Repeatability of the ihMT ratio and inverse ihMT ratio were assessed in a cohort of healthy subjects. We also investigated how head orientation affects ihMT across subjects, as a previous study in a single subject suggests this as a potential confound.
Results: We demonstrated that ihMT ratios comparable to existing, acoustically loud, implementations could be obtained with the silent sequence. We observed a small but significant effect of head orientation on inverse ihMTR.
Conclusions: Silent ihMT imaging is a comparable alternative to conventional, noisy, alternatives. For all future ihMT studies we recommend careful positioning of the subject within the scanner.

Keywords

Open Peer Review

Reviewer Status ✔ ? ✔ ?

Reviewer Reports

	Invited Reviewers			
	1	2	3	4
Version 2 (revision) 13 Aug 20	✔ read		✔ read	
Version 1 21 Apr 20	? read	? read	? read	? read

1. **Richard Dortch**, Barrow Neurological Institute, Phoenix, USA
2. **Olivier Girard**, Aix-Marseille University, Marseille, France
   Lucas Soustelle, Aix-Marseille Univ, CNRS, CRMBM UMR 7339, Marseille, France; SATT Sud-Est, Marseille, France
3. **Douglas Dean**, University of Wisconsin-Madison, Madison, USA; University of Wisconsin-Madison, Madison, USA; University of Wisconsin-Madison, Madison, USA
4. **Gunther Helms**, Lund University, Lund, Sweden

Alongside their report, reviewers assign a status to the article:

✔ **APPROVED**
The paper is scientifically sound in its current form and only minor, if any, improvements are suggested

? **APPROVED WITH RESERVATIONS**
Key revisions are required to address specific details and make the paper fully scientifically sound

✘ **NOT APPROVED**
Fundamental flaws in the paper seriously undermine the findings and conclusions

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Open Peer Review Example 2

Reviewer Report

26 Views

Cite this report

Responses (1)

14 May 2020 | for Version 1

Richard Dortch, Division of Neuroimaging Research, Barrow Neurological Institute, Phoenix, AZ, USA

? APPROVED WITH RESERVATIONS

This well-written manuscript seeks to develop and evaluate a silent myelin-specific MRI sequence for applications in infants and the elderly, where loud imaging sequences can be problematic. Recent work has demonstrated that so-called inhomogeneous MT (ihMT), which arises primarily from dipolar order effects in myelin lipids, may be a more specific assay of myelin content than other MRI measures (e.g., T_2 relaxation, diffusion, conventional magnetization transfer). As a result, there is significant interest in developing clinically feasible ihMT sequences for applications in neurodegenerative diseases, development, and aging. Overall, the study was well designed (e.g., strong repeatability and ROI analyses) and the results were compelling. However, there are several minor-to-moderate flaws, particularly in the motivation (e.g., the need for silent ihMT sequences) and methods (e.g., the influence of head orientation on ihMT), that slightly reduced my enthusiasm and lead me to recommend a minor revision.

1. The case made for silent MT sequences is not particularly compelling. The authors mention that these are "among the loudest" sequences because they use fast gradient-echo readouts to obtain whole-brain data in clinically feasible scan times. However, these sequences are usually SAR-limited with fairly reasonable TRs (typically between 25-50 ms) that are acquired at lower resolutions to ensure adequate SNR. Together, this results in a sequence with reduced acoustic noise compared to most rapid, high-resolution gradient echo sequences as well as other quantitative approaches that use EPI (e.g., diffusion). (moderate)

2. Furthermore, the benefits of using a silent myelin sequence may not outweigh the drawbacks. For example, the proposed method requires very low flip angles (2 degrees), which results in a significant SNR penalty relative to standard ihMT sequences. In addition, the RUFIS readout results in a small increase in scan time. Given than SNR is already relatively low for ihMT indices, the proposed method may be suboptimal in many clinical scenarios. (moderate)

3. The study was not designed to specifically measure the effect of head orientation on ihMT. Subjects were scanned four times (across two sessions), but head orientation was not directly controlled or measured across these scans. Instead a mixed effects model was used and head orientation was inferred from the images (rather than the orientation of individual tracts being measured using DTI for example). Furthermore, the confounding influences of T_1 and B_1 were not measured. The authors attempt to overcome this by using

Responses (1)

AUTHOR RESPONSE 19 Aug 2020

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We thank the reviewer for their time and insight. There were in total five reviewers, with many helpful suggestions, and hence there have been many edits to the paper. Responses to this particular review follow below.

1. We concede that the acoustic noise from any scan will depend on the precise sequence settings. However, we note that recent ihMT work has used both an MP-RAGE style acquisition, with an imaging TR of 4.3ms and also SSFP with a TR of only 5ms. The introduction has been amended to explicitly reference these papers.

2. We agree that radial sequences are SNR constrained relative to cartesian sequences, this has now been explicitly stated in the discussion. Although the 3D radial readout does imply a time penalty relative to cartesian, we note that our overall scan time is competitive with recent cartesian ihMT papers. This has been added to the discussion.

3. We agree that it would have been preferable to acquire explicit T1 & B1 maps for comparison, but total protocol time prevented that in this study. In our opinion the ihMTRinv maps display more even contrast than the ihMTR maps, we hope that the revised figures with axial and coronal sections make this clearer.

4. We did not have a conventional cartesian ihMT implementation available when this study was conducted. However, as there are multiple such implementations in the literature, it is possible to broadly compare image quality and achieved ihMTR values. We have added a table of ihMTR values to make this comparison easier. We concede that it is not possible to compare acoustic noise levels, because it is not standard in the MR literature to record and report the acoustic noise of a sequence. In previous work (reference 22) we did directly compare noise levels between a radial ZTE and cartesian implementation of Variable Flip-Angle T1 mapping, which in our opinion would be similar to the noise levels in this work and found a 30 dB reduction in noise level.

5. Figure 1 has been updated with a reduced number of spokes to emphasise the stepped gradients. We hope this is clearer.

6. We thank you for pointing out that the frequency offset is not ideal for generating single-sided MT contrast. With hindsight, this is obvious. The discussion has been amended to reflect this.

7. Because the MT pulses are applied off-resonance they should not significantly interact with the

REVISED Amendments from Version 1

The manuscript has been updated in response to the reviewer's helpful and insightful comments. The most important changes are that the figures have been redesigned and the emphasis on the head-orientation study reduced. The MR images have been updated to use a consistent set of slices, Figures 3 & 4 have been merged into a single figure, and the average within-subject CoV has been added. Figure 1 (the number of spokes) and Figure 6 (colour scheme) have been updated for clarity. We hope that these new figures are clearer and more intuitive than the previous figures. The language used to refer to the head orientation study has been clarified to refer to results as "highly statistically significant" rather than "strong". A reviewer provided a plausible explanation for the negative values of ihMTR in CSF, namely the use of Fermi pulses in the preparation module, and this limitation has been discussed. A table with the mean ihMTR and inverse ihMTR values has been added. The discussion has been expanded to better set the context of the paper within existing literature, with better comparisons between our results and previous papers. We think the resulting paper is much improved and thank the reviewers again for their valued input.

See the authors' detailed response to the review by Douglas Dean
See the authors' detailed response to the review by Gunther Helms
See the authors' detailed response to the review by Richard Dortch
See the authors' detailed response to the review by Olivier Girard and Lucas Soustelle

European Commission

Open Data Example

Data availability

Underlying data

Zenodo: IRM raw data (video format) and dataset (csv) supporting platelet attachment to collagen IV or fibrinogen in percentage over time (related to Figure 1), https://doi.org/10.5281/zenodo.3774819[47].

Zenodo: Raw data, temporal profiling for platelet spreading dynamics (related to Figure 3). https://doi.org/10.5281/zenodo.3774823[48].

Zenodo: Raw data for microtubule extension IRM images (videos) and raw data set (csv) (related to Figure 4), https://doi.org/10.5281/zenodo.3774827[49].

Zenodo: Raw data (IRM videos) of Nocodazole experiments (videos) and raw dataset for statistical purposes (csv) (related to Figure 4), https://doi.org/10.5281/zenodo.3774835[50].

Zenodo: Nocodazole experiment low mag images, IRM, raw data. Platelets fixed, imaged by IRM in low magnification for counting purposes. Platelets are either control or treated with nocodazole, https://doi.org/10.5281/zenodo.3774843[51].

Zenodo: Raw data to support percentage of platelets in each morphological state, 1 hour post-platelet seeding (related to Figure 8), https://doi.org/10.5281/zenodo.3774845[52].

Zenodo: Dynamics of platelet spreading over time with/without treatments with manganese and thrombin (related to Figure 8). Raw images of platelets treated with and without Manganese and thrombin (tif, jpegs) and raw data set (csv), https://doi.org/10.5281/zenodo.3774849[53].

Zenodo: Un-cropped and unedited images/movies for all (DIC, movies, cryo-ET, SEM images). https://doi.org/10.5281/zenodo.3773437[54].

Extended data

Figshare: Differential dynamics of early stages of platelet adhesion and spreading on collagen IV- and fibrinogen-coated surfaces, https://doi.org/10.6084/m9.figshare.c.4944738[24].

This project contains the following extended data:

- **Figure S1. Platelet integrated activity.** Integrated activity of platelets: the mean absolute value |ΔIRM| at every time point. X-axis: Time in seconds. Y-axis: Platelet mean activity. Red dotted lines separate the phases: background, prior to platelet attachment, filopodial spreading phase, lamellipodial spreading phase, and the fully spread phase.
- **Figure S2. Interactions with the surface for collagen IV and fibrinogen.** The number of pixels interacting with the surface over time for the surfaces collagen IV and fibrinogen. Time in seconds.
- **Figure S3. Quantification and image analysis of platelet spreading, based on IRM live imaging for fibrinogen.** (A) Platelet spreading viewed by IRM, and the corresponding focal activity map, $\Delta IRM_t = IRM_t - IRM_{t+1}$. Positive values (yellow) imply local attachment; negative values (blue) imply local detachment (bottom right). One filopodia initially attaching and detaching (black arrow). Scale bar 2 µm (B) Integrated tapping activity of platelets: the mean absolute value |ΔIRM| at every time point. X-axis: Time in seconds. Y-axis: Platelet mean activity. Red dotted lines separate the phases: background, prior to platelet attachment, filopodial spreading phase, lamellipodial spreading phase, and the fully spread phase. (C) Total number of pixels interacting with the surface over time. Time in seconds. (D) Accumulated attachment and detachment over time shown by activity map, yellow means more attachment events, blue means fewer attachment event. Right images, correspond IRM images. Scale bar 2 um.
- **Movie S1**. Shows the accumulated number of transitions from interaction to not interacting with the surface at every pixel over time.
- **Movie S2**. Shows an overlay of the highly active regions on top of the IRM images over time on collagen IV.
- **Movie S3**. Shows an overlay of the highly active regions on top of the IRM images over time on fibrinogen.

Data are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

Software availability

IRM spreading dynamics source code available from: https://github.com/assafZaritskyLab/IRM-Spreading-Dynamics

Archived source code as at time of publication: https://doi.org/10.5281/zenodo.3770506[21]

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https://f1000research.com/articles/9-449

Thank you!

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