

Open, Global and Local

Visualizing research with VIVO and other open tools

Karen Hytteballe Ibanez*, Technical University of Denmark, kshi@dtu.dk

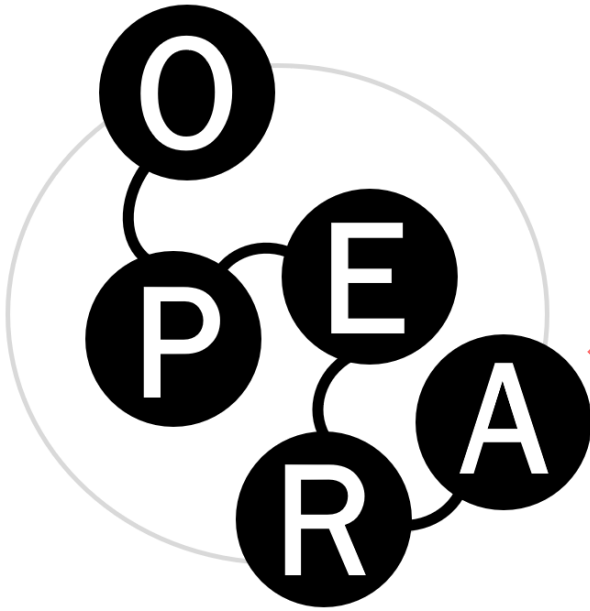
Mogens Sandfær, Technical University of Denmark, mosa@dtu.dk

Brian Lowe, Ontocale, brian@ontocale.com

Pedro Parraguez, Dataverz, pedro@dataverz.net

Christina Steensboe, Technical University of Denmark, chste@dtu.dk

Nikoline Dohm Lauridsen, Technical University of Denmark, nidl@dtu.dk



Open Research Analytics
Project: Danish project w. international partners
Funded by the Ministry of Science and
Higher Education

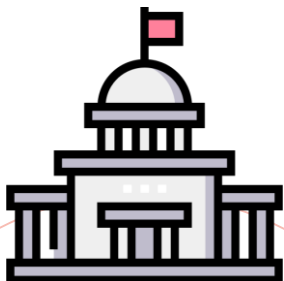
NORA - National Open Research Analytics
A **prototype** built with Dimensions data and open tools —

Work Package 3

More info on <https://deffopera.dk/>
Twitter @deffopera

NORA - National Open Research Analytics

Government



Stakeholders



Universities

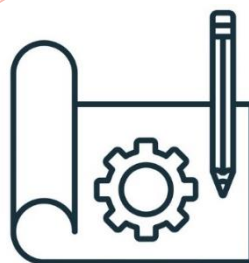


Hospitals



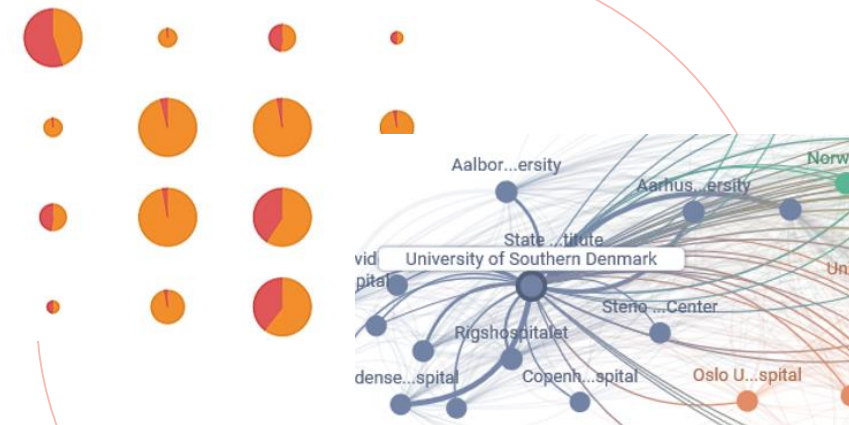
Dimensions
Danish National
RESEARCH DATABASE

Global / Local data
and Indicators



PROTOTYPE

Analytical
Insights



Visualizations and
Networks analysis



OPEN SCIENCE

- Researcher profiles
- Open source
- Open system
- Open Access

Dataflow

Danish research indicators

- Open Access Indicator (DOI matching)
- Bibliometric Research Indicator (DOI matching)

Dimensions
retrieved
by GRID

Dimensions
retrieved by
DOI from
Danish CRIS
systems

Luigi
Workflow

Mongo
NoSQL DB

NORA Mappings

- Subjects FOR 2-digit → Main Subject Areas
- DK Universities → University Acronymns
- DK Hospitals → Main Hospital Regions
- Organisation types → Organisation types
- Countries → Continents
- Citation Impact → High/Medium/Low

VIVO Triple Store & Ontol.

SOLR Search

Neo4J Graph DB

Tableau Dashboard

VOSviewer maps

Elastic Search

Kibana Dashboard

NORA
Web
User
Interface

For a more detailed flowchart
go to Pedro Parraguez'
[presentation](#) from Tuesday

Dimensions data - coverage

Limited sample: 2014 – 2017 (with a few more years to come...)

Publications (with a DOI)

Publications
107.400

Dataset, grants, patents, Clinical trials

Datasets
6.596

Grants
3.057

Patents
450

Clinical trials
2.454

Linked to Danish universities
& Danish hospital regions

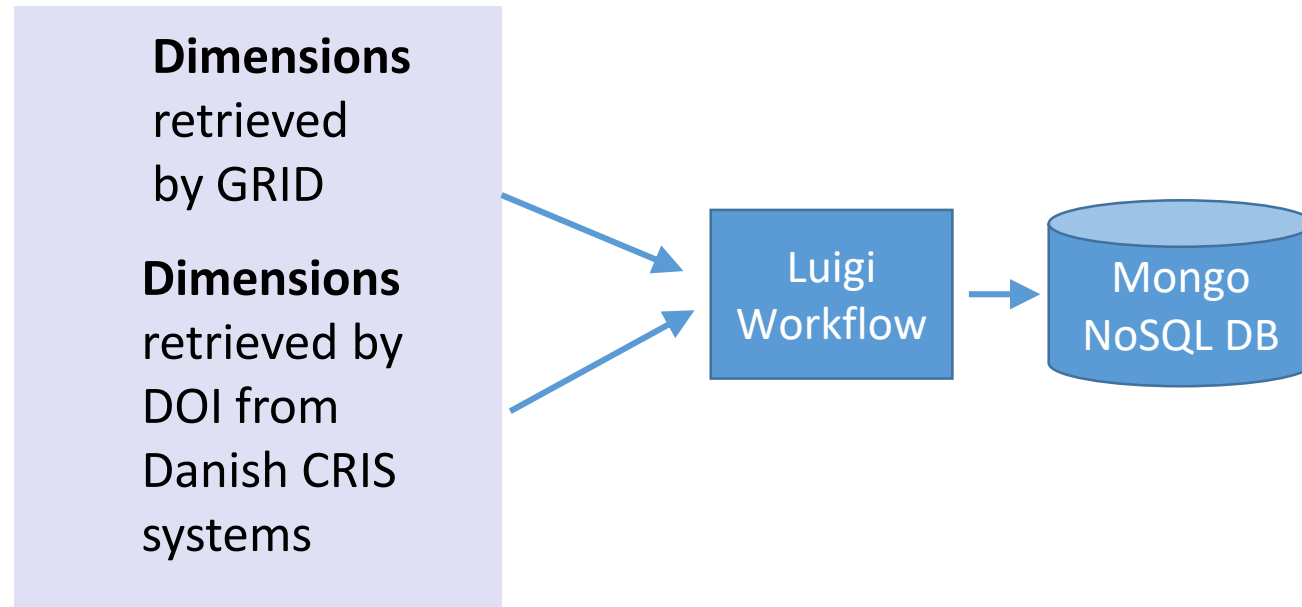
Danish Universities

☐	KU	(29.107)
☐	AU	(19.191)
☐	DTU	(15.222)
☐	AAU	(10.072)
☐	SDU	(9.429)
☐	CBS	(1.559)
☐	RUC	(1.267)
☐	ITU	(427)

Danish Hospitals

☐	Capital Region	(9.982)
☐	Central Denmark Region	(7.468)
☐	Southern Denmark Region	(4.721)
☐	North Denmark Region	(2.190)
☐	Zealand Region	(1.555)
☐	North Jutland Region	(47)

How do we identify the right publications?



70 % identified by GRID in **global** Dimensions

30 % identified by DOI from **local** CRIS systems

 Only publications with DOI

National indicator metrics

Danish research indicators

- Open Access Indicator (DOI matching)
- Bibliometric Research Indicator (DOI matching)



Danish
Open Access Indicator

The Bibliometric Research Indicator

Mappings to facilitate search and analytics

Example

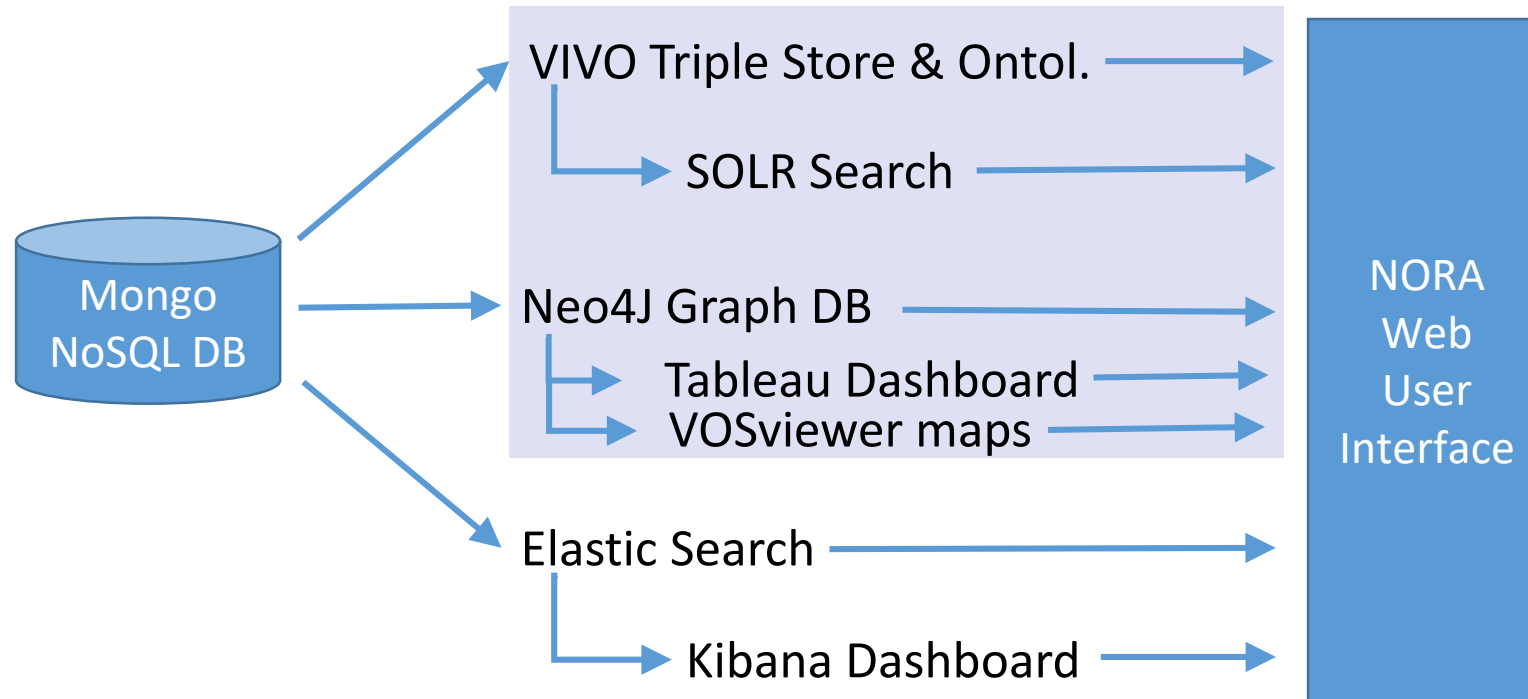
FOR = Field of Research
Article level classification

Main Subject Area	Dimensions 22 FOR divisions
Natural Sciences	01 Mathematical Sciences
	02 Physical Sciences
	03 Chemical Sciences
	04 Earth Sciences
	05 Environmental Sciences
	06 Biological Sciences
	07 Agricultural and Veterinary Sciences

NORA Mappings

- Subjects FOR 2-digit → Main Subject Areas
- DK Universities → University Acronymns
- DK Hospitals → Main Hospital Regions
- Organisation types → Organisation types
- Countries → Continents
- Citation Impact → High/Medium/Low

NORA prototype – current status



NORA Search

Results:

All types
119.957Publications
107.400Datasets
6.596Grants
3.057Patents
450Clinical trials
2.454New
Search

GENERAL FILTERS:

- + Years
- + Danish Universities & Hospitals
- + Other Organizations
- + Funders
- + Main Subject Areas
- + Subject Categories
- + Continents
- + Countries

Search

Sort by year (descending) ▼

[The Sliced Pineapple Grid Feature for Predicting Grasping Affordances](#)

Thomsen, Mikkel Tang , Kraft, Dirk , Krüger, Norbert
2017, Chapter

[The use of light to enhance weaver ant *Oecophylla longinoda* Latreille \(Hymenoptera: Formicidae\) queen catches](#)

Nene, Wilson Angelo , Offenberger, Joachim , Rwegasira, Gratian Mutashoberwa , Mwatawala, Maulid Walad
2017, Sociobiology, Article

[Social Work and Lived Citizenship](#)

Warming, Hanne , Fahnøe, Kristian
2017, Chapter

[Feedback Halves the Dispersion for Some Two-User Broadcast Channels with Common Message](#)

Facets / filters

All types

119.957

Publications

107.400

Datasets

6.596

Grants

3.057

Patents

450

Clinical trials

2.454

GENERAL FILTERS:

- + Years
- + Danish Universities & Hospitals
- + Other Organizations
- + Funders
- + Main Subject Areas
- + Subject Categories
- + Continents
- + Countries

PUBLICATION FILTERS:

- + Publication Types
- + Journals
- + Publishers
- + Open Access
- + Retrieval

DATASET FILTERS:

- + Publication Types
- + Repository

GRANT FILTERS:

- + Start Year

PATENT FILTERS:

- + Publication Types
- + Granted Years
- + Original Assignee
- + Jurisdiction
- + Filing Status
- + Legal Status

CLINICAL TRIAL FILTERS:

- + Start Year
- + Sponsor/collaborator
- + Phase

(Across all content types)

NORA Search

Results:

All types
119.957

Publications
107.400

Datasets
6.596

Grants
3.057

Patents
450

Clinical trials
2.454

New Search

GENERAL FILTERS:

+ Years

- Danish Universities & Hospitals

Check one or more and

Danish Universities

- | | |
|--|----------|
| ☐ KU | (29.107) |
| ☐ AU | (19.191) |
| ☐ DTU | (15.222) |
| ☐ AAU | (10.072) |
| ☐ SDU | (9.429) |
| ☐ CBS | (1.559) |
| ☐ RUC | (1.267) |
| ☐ ITU | (427) |

Sort by

[The Sliced Pineapple Grid Feature for Predicting Grasping Affordances](#)

Thomsen, Mikkel Tang , Kraft, Dirk , Krüger, Norbert
2017, Chapter



[The use of light to enhance weaver ant *Oecophylla longinoda* Latreille \(Hymenoptera: Formicidae\) queen catches](#)

Nene, Wilson Angelo , Offenberger, Joachim , Rwegasira, Gratian Mutashoberwa , Maulid Walad
2017, Sociobiology, Article

[Social Work and Lived Citizenship](#)

Warming, Hanne , Fahnøe, Kristian

GENERAL FILTERS:

+ Years

- Danish Universities & Hospitals

Check one or more and **SEARCH**

Danish Universities

- ☒ [KU](#) (27.457)
- ☐ [AU](#) (1.714)
- ☐ [DTU](#) (1.527)
- ☐ [SDU](#) (1.080)
- ☐ [AAU](#) (478)

GENERAL FILTERS:

+ Years

- Danish Universities & Hospitals

Check one or more and **SEARCH**

Danish Universities

- ☐ [KU](#) (27.457)
- ☐ [AU](#) (1.714)
- ☒ [DTU](#) (1.527)
- ☐ [SDU](#) (1.080)
- ☐ [AAU](#) (478)

NORA Search

Results:

All types
1.550

Publications
1.527

Datasets
17

Grants
4

Patents
2

Clinical trials
0

[New Search](#)

GENERAL FILTERS:

+ Years

+ Danish Universities & Hospitals

+ Other Organizations

Search

☒ Danish Universities & Hospitals: KU X

☒ Danish Universities & Hospitals: DTU X

Sort by

NORA Search

Results:

All types
42.779

Publications
40.421

Datasets
1.082

Grants
1.072

Patents
99

Clinical trials
105

New Search

GENERAL FILTERS:

+ Years

- Danish Universities & Hospitals

Check one or more and

Danish Universities

- | | |
|---|----------|
| ☒ KU | (29.107) |
| ☐ AU | (19.191) |
| ☒ DTU | (15.222) |
| ☐ AAU | (10.072) |
| ☐ SDU | (9.429) |
| ☐ CBS | (1.559) |
| ☐ RUC | (1.267) |
| ☐ ITU | (427) |

Danish Universities & Hospitals: KU OR DTU

Sort by

Results:

All types
19.246

Publications
18.748

Datasets
346

Grants
104

Patents
47

Clinical trials
1

New Search

GENERAL FILTERS:

+ Years

+ Danish Universities & Hospitals

+ Other Organizations

+ Funders

- Main Subject Areas

[Natural Sciences](#)

(19.246)

[Health Sciences](#)

(11.908)

[Technical Sciences](#)

(8.604)

[Social Sciences](#)

(3.353)

[Humanities](#)

(998)

+ Subject Categories

+ Continents

+ Countries

Search

Main Subject Areas: [Natural Sciences](#) X

Danish Universities & Hospitals: [KU OR DTU](#) X

Sort by [year \(descend\)](#)



[Dysregulation of a novel miR-23b/27b-p53 axis impairs muscle stem cell differentiation in humans with type 2 diabetes](#)

Henriksen, Tora Ida , Davidsen, Peter K , Pedersen, Maria [et al.]
2017, Molecular Metabolism, Article



[Powder embossing method for selective loading of polymeric microcontainers with drug formulation](#)

Abid, Zarmeena , Gundlach, Carsten , Durucan, Onur [et al.]
2017, Microelectronic Engineering, Article



[Dynamical dispersion engineering in coupled vertical cavities employing a high-contrast grating](#)

Taghizadeh, Alireza , Chung, Il-Sug
2017, Scientific Reports, Article

[Changes in Microbiota in Rumen Digesta and Feces Due to a Grain-Based Subacute Rumen](#)

NORA Search

Results:



GENERAL FILTERS:

- + Years
- + Danish Universities & Hospitals
- + Other Organizations
- + Funders
- + Main Subject Areas
- + Subject Categories
- Continents
 - [Europe](#) (19.246)
 - [North America](#) (4.759)
 - [Asia](#) (3.366)
 - [Australia and New Zealand](#) (1.538)
 - [South America](#) (1.188)
 - [Africa](#) (1.001)
- + Countries

Main Subject Areas: Natural Sciences X

Continents: South America X

Danish Universities & Hospitals: KU OR DTU X

Sort by year (de

[Arctic and Subarctic Natural Soils Emit Chloroform and Brominated Analogues by Hydrolysis of Trihaloacetyl Compounds.](#)

Albers, Christian Nyrop , Jacobsen, Ole Stig , Flores, Erico Marlon Moraes , Johns Risbjerg

2017, Environmental Science & Technology, Article



Determination of the event collision time with the ALICE detector at the LHC

NORA Search

Results:

All types

62

Publications

61

Datasets

0

Grants

1

Patents

0

Clinical trials

0

New
Search

GENERAL FILTERS:

+ Years

+ Danish Universities & Hospitals

+ Other Organizations

+ Funders

+ Main Subject Areas

- Subject Categories

[02 Physical Sciences](#) (724)[06 Biological Sciences](#) (293)[03 Chemical Sciences](#) (78)[04 Earth Sciences](#) (62)[05 Environmental Sciences](#) (59)[01 Mathematical Sciences](#) (49)[07 Agricultural and Veterinary Sciences](#) (30)[11 Medical and Health Sciences](#) (30)[09 Engineering](#) (19)[10 Technology](#) (11)[21 History and Archaeology](#) (4)[08 Information and Computing Sciences](#) (3)[16 Studies in Human Society](#) (3)[17 Psychology and Cognitive Sciences](#) (2)

Search

Main Subject Areas: Natural Sciences X

Subject Categories: 04 Earth Sciences X

Continents: South America X

Danish Universities & Hospitals: KU OR DTU X

Sort by year (des

[Before the freeze: otoliths from the Eocene of Seymour Island, Antarctica, reveal](#)

NORA Search

Results: All types 62 **Publications 61** Datasets 0 **Grants 1** Patents 0 Clinical trials 0 New Search

GENERAL FILTERS:

- + Years
- + Danish Universities & Hospitals
- + Other Organizations
- + Funders
- + Main Subject Areas
- + Subject Categories
- + Continents

Record Types: grants X

Main Subject Areas: Natural Sciences X

Subject Categories: 04 Earth Sciences X

Continents: South America X

Danish Universities & Hospitals: KU OR DTU X

Sort by year (descending) ▼

[Did a previous collapse of the Antarctic Ice Sheet cause abrupt climate change in the Southern Hemisphere?](#)

2017- 2020, Royal Society of New Zealand, Grant

Grant

Did a previous collapse of the Antarctic Ice Sheet cause abrupt climate change in the Southern Hemisphere?

Funder: Royal Society of New Zealand

Dimensions: [grant.7211638](#)**Investigators**

[Mackintosh, AN](#) (1) [Anderson, Brian M](#) (1) [Carter, L David](#) (1) [Eaves, SR](#) (1) [He, Feng](#) (2)
[Menviel, Laurie](#) (3) [Norton, KP](#) (1) [Pedro, Joel B](#) (4) [Rojas, Maisa](#) (5) [Sagredo, EA](#) (6)

Affiliations

Organisations

- (1) [Victoria University of Wellington](#), [grid.267827.e](#)
- (2) [University of Wisconsin–Madison](#), [grid.14003.36](#)
- (3) [UNSW Sydney](#), [grid.1005.4](#)
- (4) [University of Copenhagen](#), [grid.5254.6](#), [KU](#)
- (5) [University of Chile](#), [grid.443909.3](#)
- (6) [Pontifical Catholic University of Chile](#), [grid.7870.8](#)

Countries

[Chile](#)
[New Zealand](#)
[Australia](#)
[Denmark](#)
[United States of America](#)

Continents

[South America](#)
[Australia and New Zealand](#)
[Europe](#)
[North America](#)

Abstract

In this research, we will utilise geological deposits left behind by mountain glaciers in New Zealand and South America to reconstruct the magnitude and timing of climate change during the Antarctic Cold Reversal. We will then use our new glacier reconstructions with all available quantitative climate proxy archives to evaluate a suite of climate model experiments that are specifically designed to identify whether the Antarctic Cold Reversal was driven largely from the North Atlantic, or the Southern Ocean. Our findings will help to anticipate possible abrupt climate changes that could result from future ice sheet collapse.

NORA University Profiles[University of Copenhagen](#)**Funding information**Funding period: [2017-2020](#)

Funding amount: EUR 572269

Grant number: 17-VUW-094

Research Categories

Main Subject Area

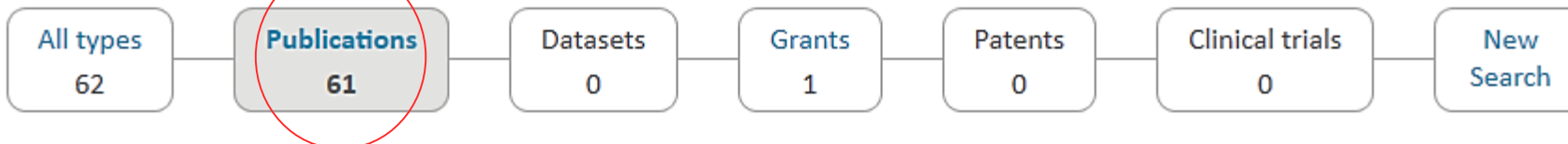
[Natural Sciences](#)

Fields of Research

[04 Earth Sciences](#)

NORA Search

Results:



GENERAL FILTERS:

- + Years
- + Danish Universities & Hospitals
- + Other Organizations
- + Funders
- + Main Subject Areas
- + Subject Categories
- + Continents
- + Countries

PUBLICATION FILTERS:

- + Publication Types

Record Types: publications X

Main Subject Areas: Natural Sciences X

Subject Categories: 04 Earth Sciences X

Continents: South America X

Danish Universities & Hospitals: KU OR DTU X

Sort by



[Before the freeze: otoliths from the Eocene of Seymour Island, Antarctica, reveal d of gadiform fishes \(Teleostei\)](#)

Schwarzahns, Werner W , Mörs, Thomas , Engelbrecht, Andrea [et al.]
2017, Journal of Systematic Palaeontology, Article



[Assessment of the SMAP Level-4 Surface and Root-Zone Soil Moisture Product Usi](#)

Article

Before the freeze: otoliths from the Eocene of Seymour Island, Antarctica, reveal dominance of gadiform fishes (Teleostei)

Journal of Systematic Palaeontology, Taylor & Francis, ISSN 1478-0941

Volume 15, 2, 2017

DOI:10.1080/14772019.2016.1151958, Dimensions: pub.1048688797, PMC: PMC5221741, PMID: 28077930,

Authors

Schwarzjans, Werner W (1) Mörs, Thomas (2) Engelbrecht, Andrea (3)
Reguero, Marcelo Alfredo (4) Kriwet, Jürgen (3)

Affiliations

Organisations

- (1) University of Copenhagen, grid.5254.6, KU
- (2) Swedish Museum of Natural History, grid.425591.e
- (3) University of Vienna, grid.10420.87
- (4) National University of La Plata, grid.9499.d

Countries

Denmark
Austria
Sweden
Argentina

Continents

Europe
South America

Research Categories

Main Subject Area

Natural Sciences

Fields of Research

06 Biological Sciences
04 Earth Sciences

Retrieval

Dimensions and DDF

Links & Metrics

NORA University Profiles

[University of Copenhagen](#)

Danish Open Access Indicator

2017 (SCI): Realized

Danish Bibliometrics Indicator

2017 (SCI): Level 1

Dimensions Citation Indicators

Times Cited: 11

Field Citation Ratio (FCR): 3.87

Relative Citation ratio (RCR): 1.47

Altmetric Social Media Indicators

Attention: 6.5

News:

Twitter: 9

Mendeley: 17

Open Access Info

[Hybrid](#)

Collaborations per Continent - Example

DK University

University of Copenhagen



Year

(All)

Grouped Topics

☒ (All)☐ Health Sciences☐ Humanities☐ Natural Sciences☐ Social Sciences☐ Technical Sciences

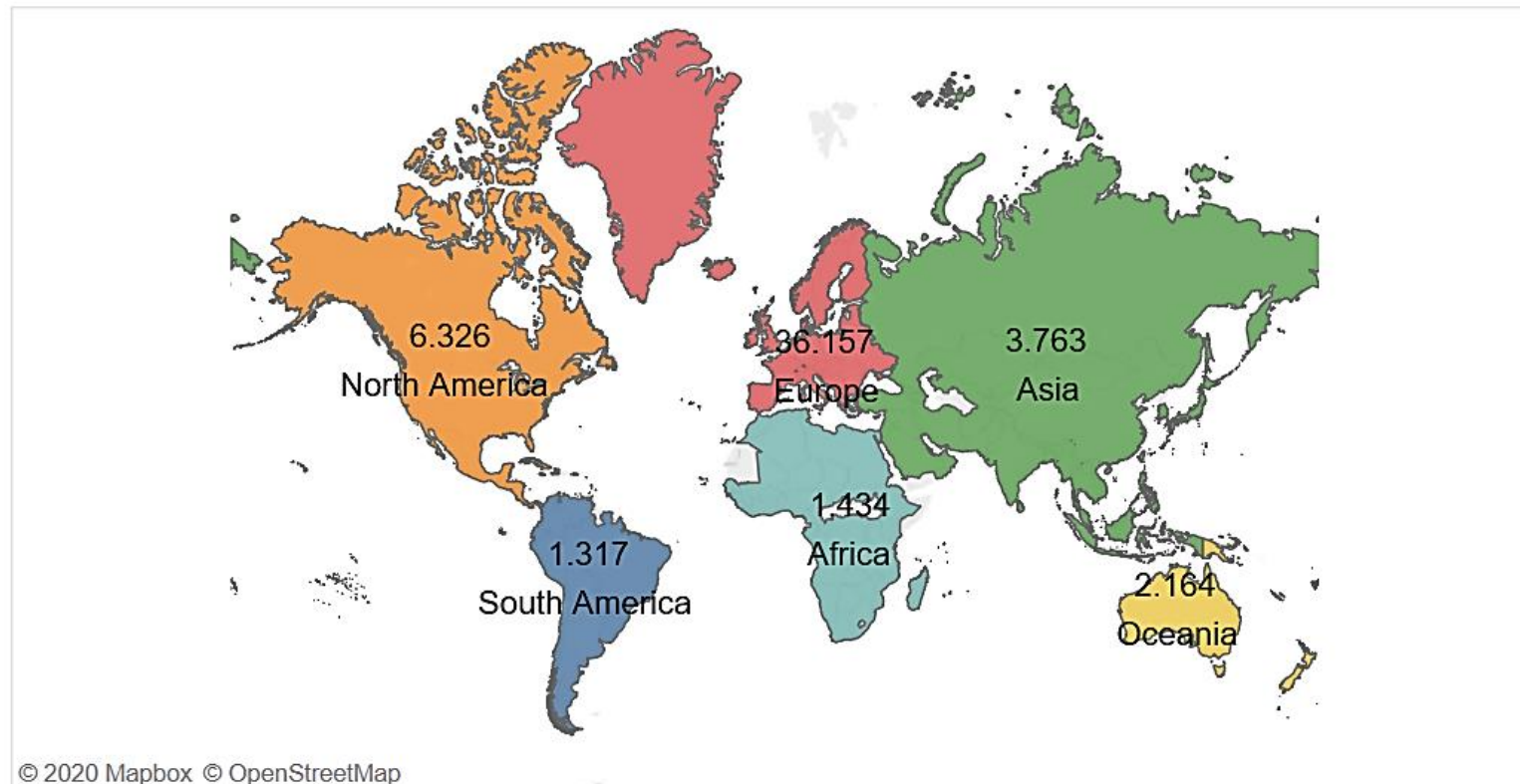
Topics (detail)

(All)

Org. Types

☒ (All)☐ Healthcare☐ Industry☐ Other☐ Research & Education

Collaboration Map



records

36.157

To PDF

Grouped Topics

- ☒ (All)
☐ Health Sciences
☐ Humanities
☐ Natural Sciences
☐ Social Sciences
☐ Technical Sciences

Topics (detail)

(AII)

Org. Types

- ☒ (All)
☐ Healthcare
☐ Industry
☐ Other
☐ Research & Education

Collaboration Map



Collaboration Map

University of Sao Paulo	University of Buenos Aires	Instituto de Física La Plata	Federico Santa María Technical University	Federal University of São João del-Rei
Pontifical Catholic University of Chile	Federal University of Rio de Janeiro	Universidad Antonio Nariño	Universidade Federal de Juiz de Fora	State University of

Grouped Topics

- ☒ (All)
☐ Health Sciences
☐ Humanities
☐ Natural Sciences
☐ Social Sciences
☐ Technical Sciences

Topics (detail)

(AII)

Org. Types

- ☒ (All)
☐ Healthcare
☐ Research & Education

Collaboration Map



records

313

To PDF

Collaboration Map

[illegible]

Grouped Topics

- ☒ (All)
- ☐ Health Sciences
- ☐ Natural Sciences
- ☐ Social Sciences
- ☐ Technical Sciences

Topics (detail)

(All)

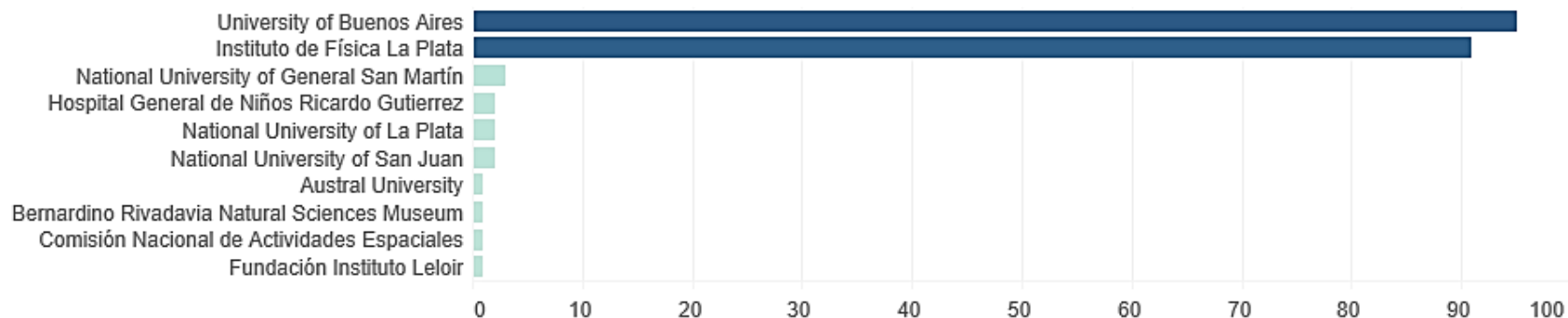
Org. Types

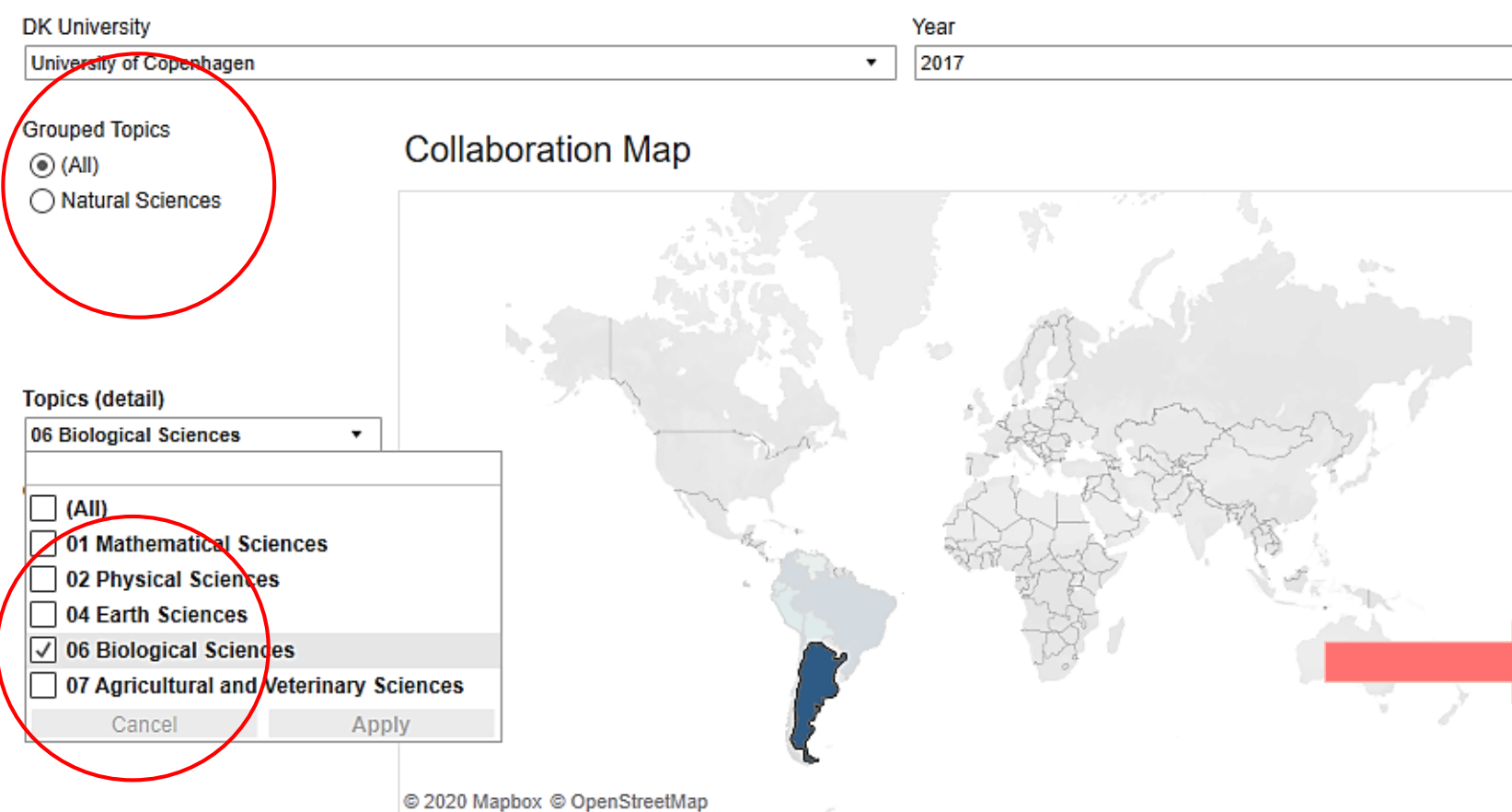
- ☒ (All)
- ☐ Healthcare
- ☐ Research & Education

Collaboration Map



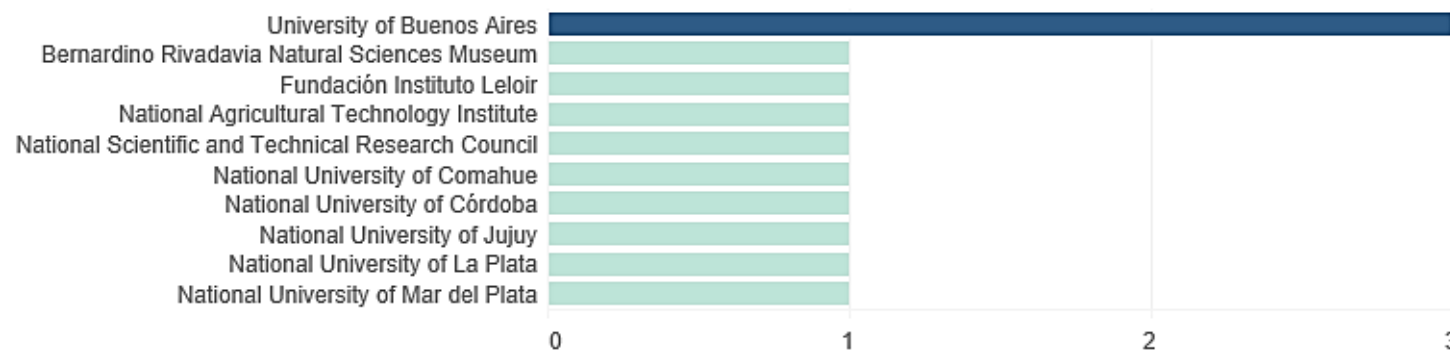
Collaboration partners





- [Before the freeze: otoliths from the Eocene of Seymour Island, Antarctica, reveal dominance of gadiform fishes \(Teleostei\)](#)
Schwarzans, Werner W , Mörs, Thomas , Engelbrecht, Andrea [et al.]
2017, Journal of Systematic Palaeontology, Article
- [The Effects of Captivity on the Mammalian Gut Microbiome.](#)
Mckenzie, Valerie J , Song, Se Jin , Delsuc, Frederic [et al.]
2017, Integrative and Comparative Biology, Article
- [Community recommendations on terminology and procedures used in flooding and low oxygen stress research](#)
Sasidharan, Rashmi , Bailey-Serres, Julia N , Ashikari, Motoyuki [et al.]
2017, New Phytologist, Article
- [Highlights of the São Paulo ISEV workshop on extracellular vesicles in cross-kingdom communication](#)
Soares, Rodrigo P. , Xander, Patrícia , Costa, Adriana Oliveira [et al.]
2017, Journal of Extracellular Vesicles, Article
- [The database of the PREDICTS \(Projecting Responses of Ecological Diversity In Changing Terrestrial Systems\) project](#)
Hudson, Lawrence N , Newbold, Tim , Contu, Sara [et al.]
2017, Ecology and Evolution, Article
- [Functional control of polypeptide GalNAc-transferase 3 through an acetylation site in the C-terminal lectin domain](#)
Lorenz, Virginia , Cejas, Romina B , Bennett, Eric Paul [et al.]
2017, Biological Chemistry, Article
- [The spider tree of life: phylogeny of Araneae based on target-gene analyses from an extensive taxon sampling](#)
Wheeler, Ward C , Coddington, Jonathan A , Crowley, Louise M [et al.]
2017, Cladistics, Article
- [Identification and evolution of a plant cell wall specific glycoprotein glycosyl transferase, ExAD](#)
Møller, Svenning Rune , Yi, Xueying , Velasquez, Silvia Melina [et al.]
2017, Scientific Reports, Article

Collaboration partners



University of Buenos Aires

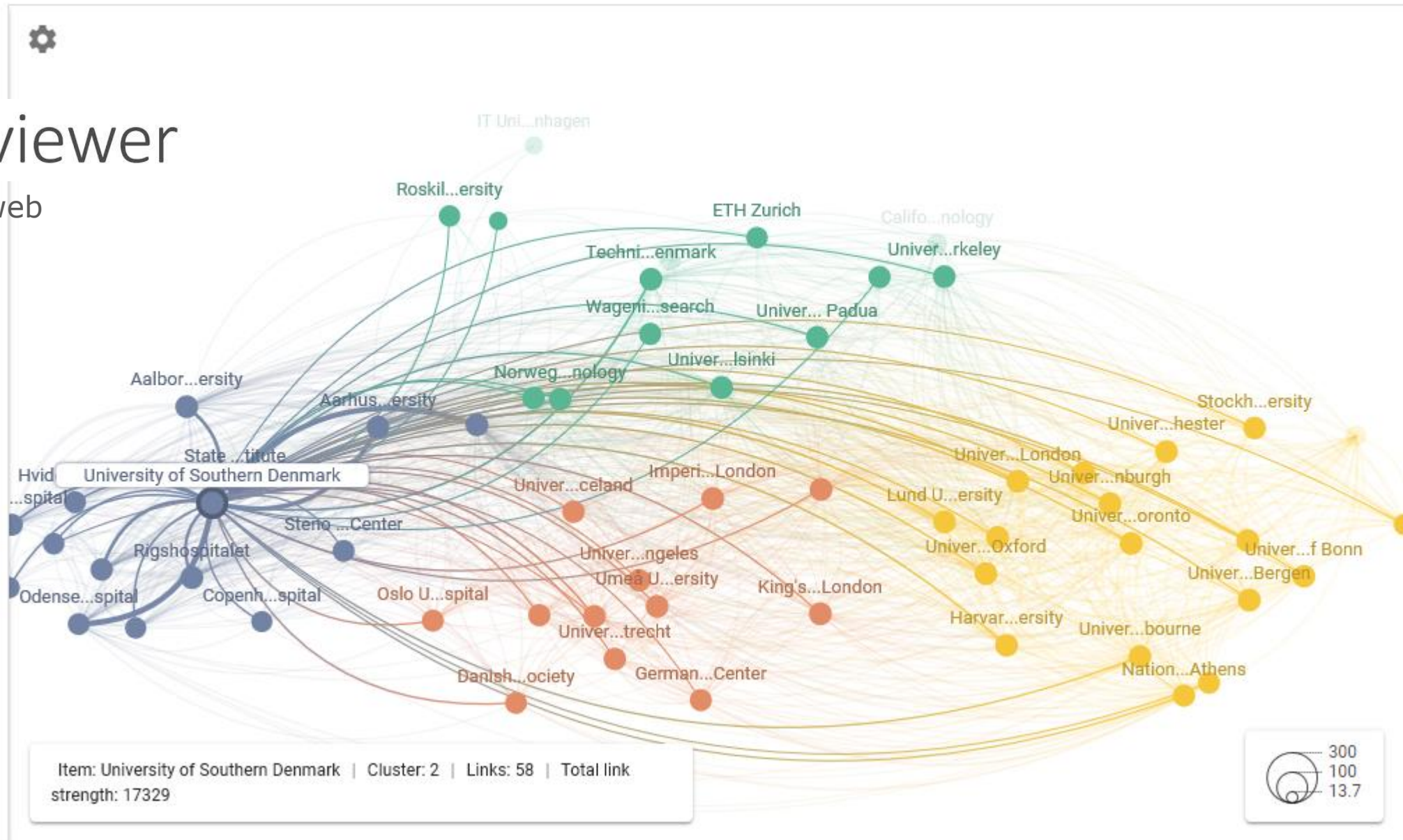


- 
[Performance of the ATLAS track reconstruction algorithms in dense environments in LHC Run 2](#)
 Aaboud, M , Aad, G , Abbott, B. [et al.]
 2017, The European Physical Journal C, Article
- 
[Search for direct top squark pair production in events with a Higgs or Z boson, and missing transverse momentum in \$\sqrt{s}=13\$ TeV pp collisions with the ATLAS detector](#)
 The ATLAS collaboration , Aaboud, M , Aad, G [et al.]
 2017, Journal of High Energy Physics, Article
- 
[Measurement of multi-particle azimuthal correlations in pp, p + Pb and low-multiplicity Pb + Pb collisions with the ATLAS detector](#)
 Aaboud, M , Aad, G , Abbott, B. [et al.]
 2017, The European Physical Journal C, Article
- 
[Measurements of long-range azimuthal anisotropies and associated Fourier coefficients for pp collisions at \$\sqrt{s}=5.02\$ and 13 TeV and p+Pb collisions at \$\sqrt{s_{NN}}=5.02\$ TeV with the ATLAS detector](#)
 Aaboud, M , Aad, G , Abbott, B. [et al.]
 2017, Physical Review C, Article
- 
[Measurement of charged-particle distributions sensitive to the underlying event in \$\sqrt{s}=13\$ TeV proton-proton collisions with the ATLAS detector at the LHC](#)
 The ATLAS collaboration , Aaboud, M , Aad, G [et al.]
 2017, Journal of High Energy Physics, Article
- 
[Performance of the ATLAS trigger system in 2015](#)
 Atlas Collaboration , Aaboud, M , Aad, G [et al.]
 2017, The European Physical Journal C, Article
- 
[Search for new phenomena in a lepton plus high jet multiplicity final state with the ATLAS experiment using \$\sqrt{s}=13\$ TeV proton-proton collision data](#)
 The ATLAS collaboration , Aaboud, M , Aad, G [et al.]
 2017, Journal of High Energy Physics, Article
- 
[A measurement of the calorimeter response to single hadrons and determination of the jet energy scale uncertainty using LHC Run-1 pp-collision data with the ATLAS detector](#)
 Aaboud, M , Aad, G , Abbott, B. [et al.]
 2017, The European Physical Journal C, Article
- 
[Search for new phenomena in dijet events using 37 fb⁻¹ of pp collision data collected at \$\sqrt{s}=13\$ TeV with the ATLAS detector](#)
 Aaboud, M , Aad, G , Abbott, B. [et al.]
 2017, Physical Review D, Article

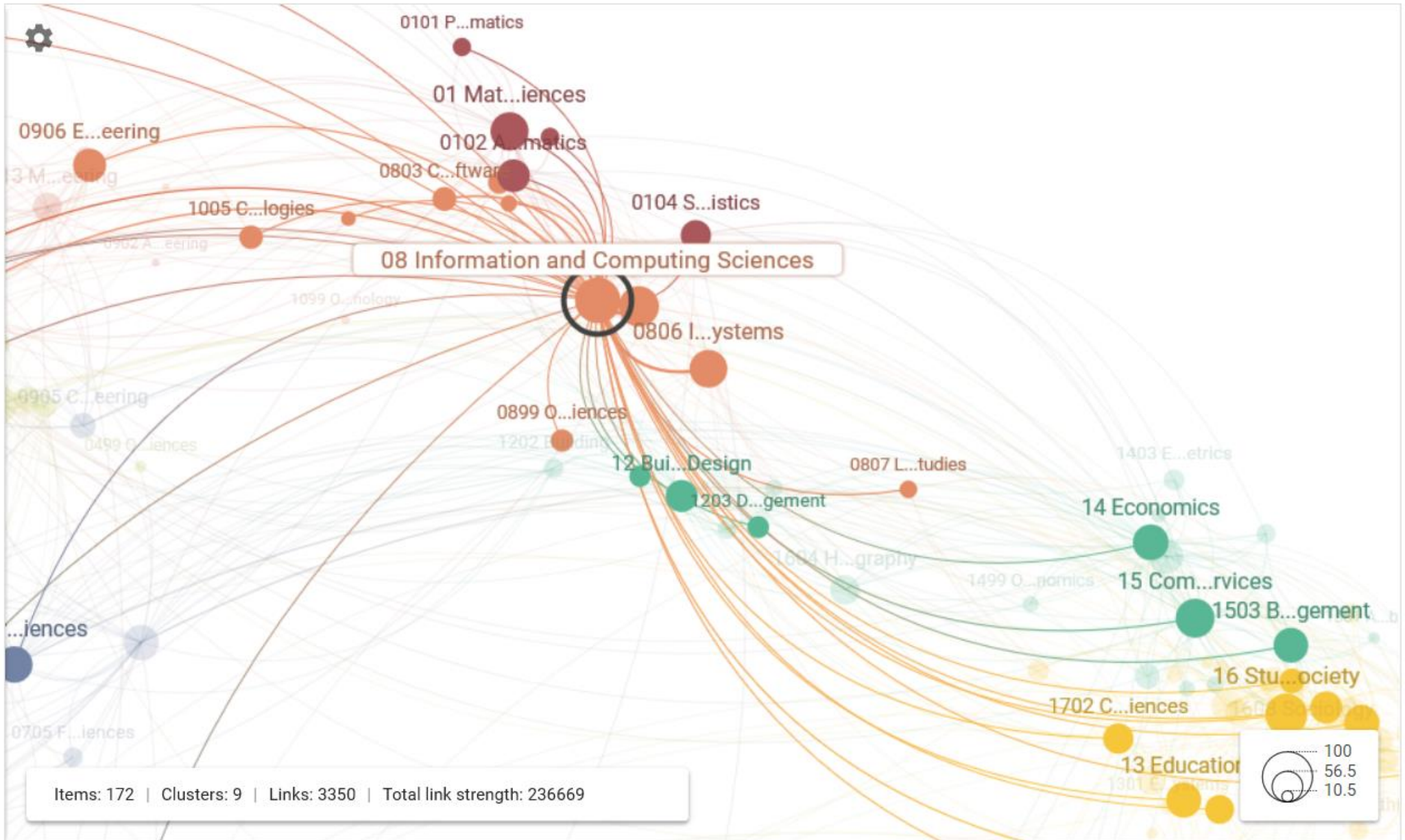
Top collaborations across the Danish research ecosystem

 VOSviewer

For the web



Connections between topics based on their appearance in the same articles



What's next?

- Citation mapping
- SDG categories and additional visual analytics
- Open Science Researcher profiles
- Launch late summer

Project reports and articles

OPERA WP1 Project Report no. 1

Web of Science & InCites Data for VIVO Research Analytics Platform (VIVO RAP)

Falcoz, F. , Steensboe, C. , Lauridsen, N. D. , Lowe, B. , Ibanez, K. H. , & Sandfær, M.  (2020).

DOI: 10.6084/m9.figshare.11743341.v1

URL: <https://doi.org/10.6084/m9.figshare.11743341.v1>



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Test of DTU Research Analytics Platform, Collaboration Module

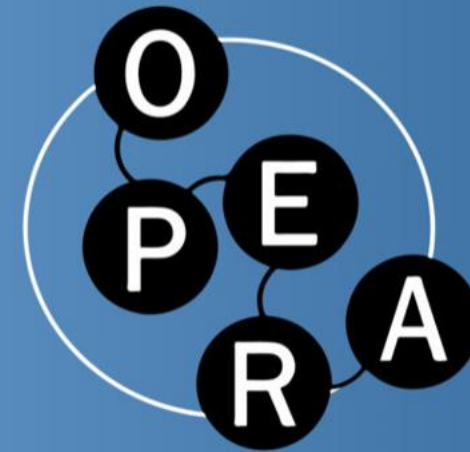
Steensboe, C. , Ibanez, K. H. , Lauridsen, N. D. , & Sandfær, M.  (2020).

DOI: 10.6084/m9.figshare.11882064.v1

URL: <https://doi.org/10.6084/m9.figshare.11882064.v1>

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