

# Exploring **Science for Sustainability**

...using publications and network analysis

Part II

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# The idea of the project

Exploring **S4S** using a data-driven approach  
going from **people** to **authors** to **publications**  
to **content** and back



Using this data to gain insights which can  
be used in the future

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**quick recap + updates**



Publications in **Scopus**<sup>®</sup>  
have **keywords** associated  
to them


12,000 in total,  
from which 2,575 are used  
more than once

We want to use those to  
build a keyword **network**

*AiChE Journal* • Open Access • Volume 68, Issue 3 • March 2022 • Article number e17549

## Enhancing electrocatalytic N<sub>2</sub> reduction via tailoring the electric double layers

Tao, Haolan<sup>a</sup>; Lian, Cheng<sup>a, b</sup>  ; Jiang, Hao<sup>c</sup>  ;

Li, Chunzhong<sup>a, c</sup>; Liu, Honglai<sup>a</sup>  ; van Roij, René<sup>b</sup>

### Author keywords

electric double layer; electrocatalytic N<sub>2</sub> reduction; modified Poisson-Nernst-Planck equations; reaction-transport process

### Indexed keywords

% reductions; Electrocatalytic; Electrocatalytic N<sub>2</sub> reduction; Modified poisson-nernst-planck equation; Nitrogen reduction; Poisson-Nernst-Planck equations; Reaction transport; Reaction-transport process; Reduction reaction; Transport process

### Primary topic

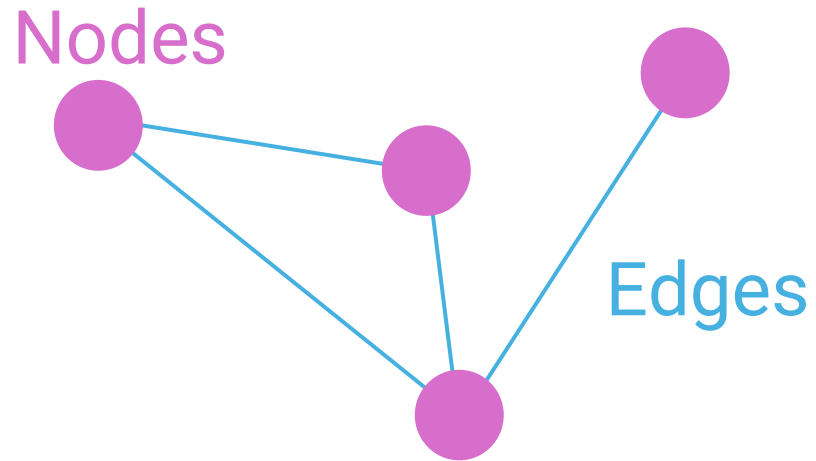
Ammonia Synthesis and Electrocatalysis

**new**



OpenAlex assigns **topics** to publications

# *A quick* introduction to (force based) networks

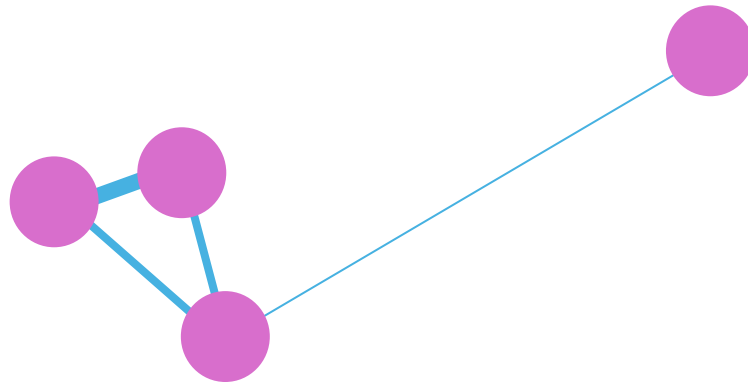


This could be:  
nodes = keywords and  
edges = co-occurrences

or

nodes = authors and  
edges = co-publications

# A *quick* introduction to (force based) networks



Force based

Each edge has a **weight** (number of co-occurrences/publications)

This could be:  
nodes = keywords and  
edges = co-occurrences

or

nodes = authors and  
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Where we left...

## Making a version of the keyword network available

[Exploring the S4S  
community - Science for  
Sustainability - Utrecht  
University \(uu.nl\)](#)



# Potential of this method

Where we *are* going...

Identifying **relevant** topics


Relevant

1. a lot of people working on it
2. a lot of papers published
3. release dates of the papers not long ago

- ... finding researchers (at UU, in NL, etc.) that work on similar topics
- ... provide recommendations for collaborations
- ... find topics for cafés
- ... invite people to the community



# Potential of this method

- Easily expendable (e.g. other PtS communities etc.)
- Implementation of  Ricgraph for easy (automated) data harvesting
- Comparing how the existence of S4S changed the community structures
- as either user-controlled and interactive tools and/or in the background

# Where do we want to go?

- The first stint of the project was used to develop a methodology and a easy visualisation tool...

Additional graphics

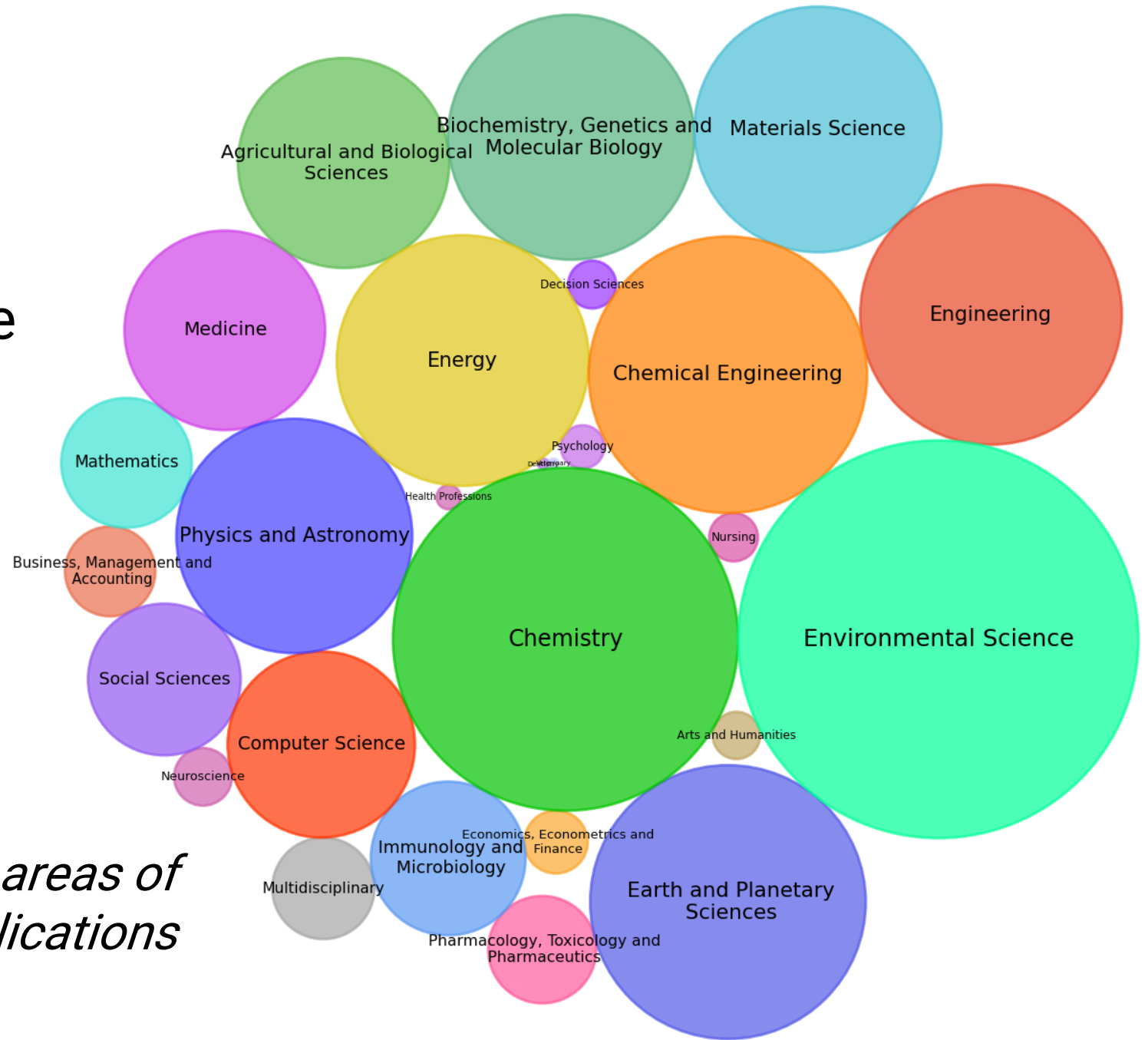
Topic	Number of publications	Number of authors
Impacts of Climate Change on Glaciers and Water Availability	180	11
Climate Change and Paleoclimatology	113	14
Microplastic Pollution in Marine and Terrestrial Environments	78	17
Global Methane Emissions and Impacts	125	12
Anaerobic Methane Oxidation and Gas Hydrates	35	8
Electrochemical Reduction of CO2 to Fuels	36	10
Hydrological Modeling and Water Resource Management	24	12
Marine Biogeochemistry and Ecosystem Dynamics	29	8
Catalytic Nanomaterials	35	8
Biodiversity Conservation and Ecosystem Management	44	7

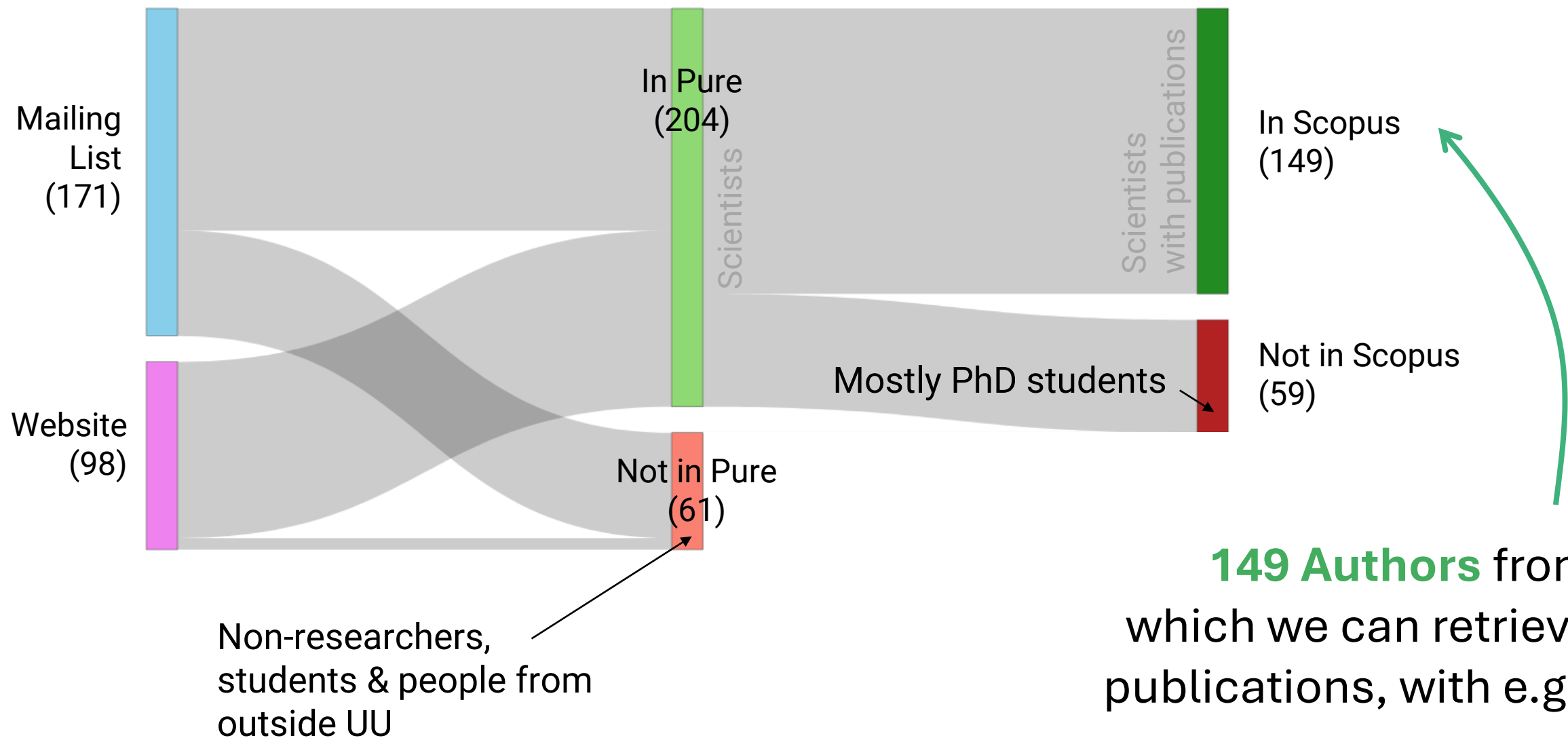
Zwaan	Aart
Jauhari	Agung
Vonk	Aike
Amanatidis	Anestis
Tabak	Annechien
Verhoef	Bryan
Hoffman	Catrien
Eastment	Conor
Ruijsch	Denise
Keusters	Dorine
Mulder	Egbert
Daniels	Emma
Brakkee	Esther
Sluijs	Fieke
Verbeek	Florian
Schulpen	Geert
Elsayed	Hamdy
Thuijs	Hannah
Ceelen	Iline
Barnhoorn	Isabell
Steyaert	Jennie
McCaughey	Jey
van Duin	Jochem
Jonasse	Just Pé
Timmerman	Kirsten
Elwenspoek	Klara
Anisimova	Ksenia
Weiper	Maike
Cagnoni	Marco Federico
Constantin	Maria

Bijl	Marianne
Broekman	Marieke
Perxés i Perich	Marta
Hut	Martijn
Toghani	Maya
Bączyk	Michał
Sadreghaemy	Milad
Valibeknejad	Mohammad
Vergunst	Nieske
Puskas	Niki
Vazquez Villegas	Orlando
Kooijman	Pieter
Thijssen	Pieter
Subert	Rodolfo
Maas	Roy
Leal Pedroso de Lima	Rui
Filippini	Sara
Warnau	Sarah
Schwartmann	Sibylle
Klein	Sophie
Mascarini de Souza Romero	Suelene
Seitzinger	Sybil
Blad	Syl
Willemse	Thom
Wigmans	Thomas
Gerritsen	Tom
Felici	Tommaso
Kroese	Willem
Piao	Yuang

**2130 publications**  
**from 149 authors**

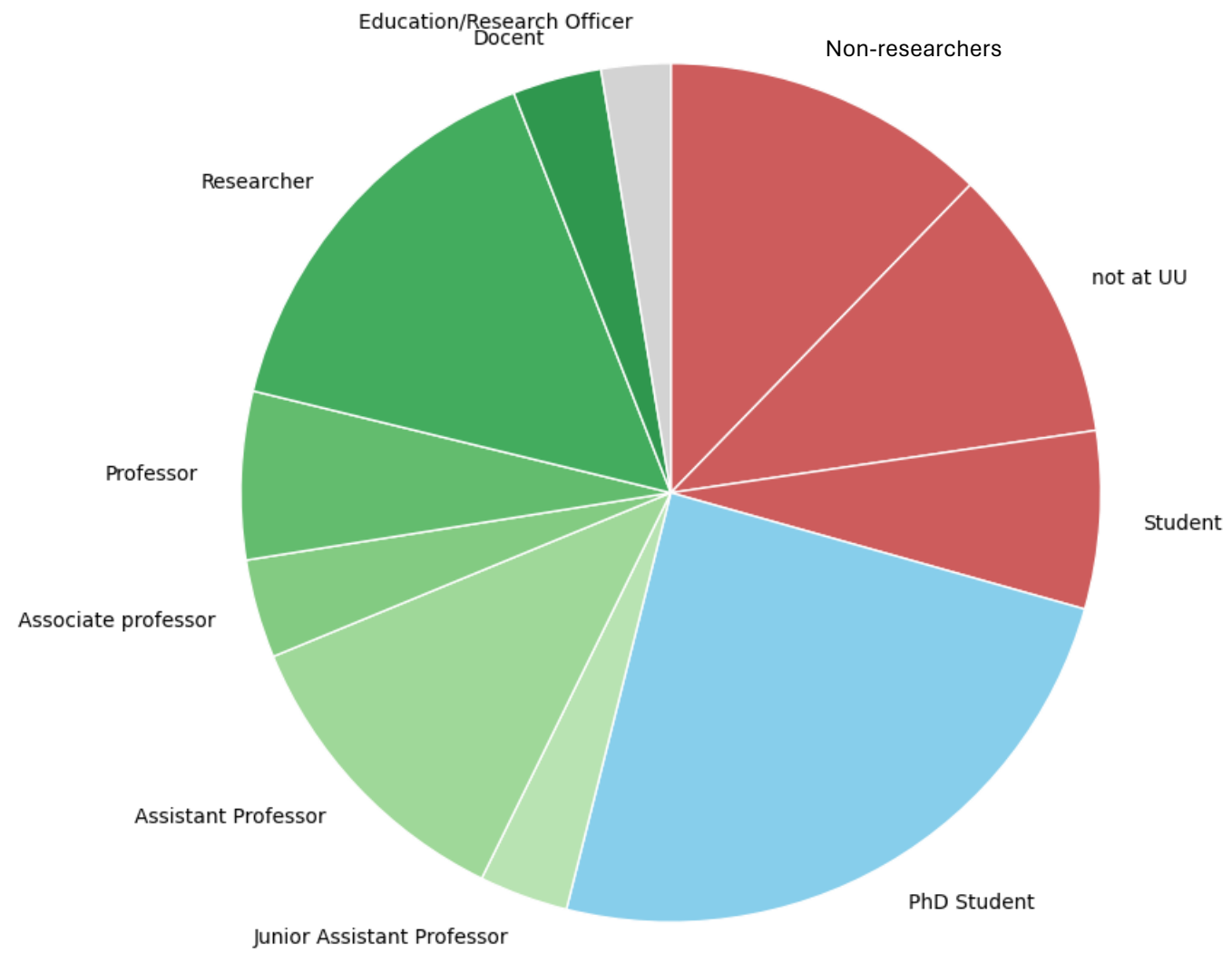
## *Subject areas of publications*



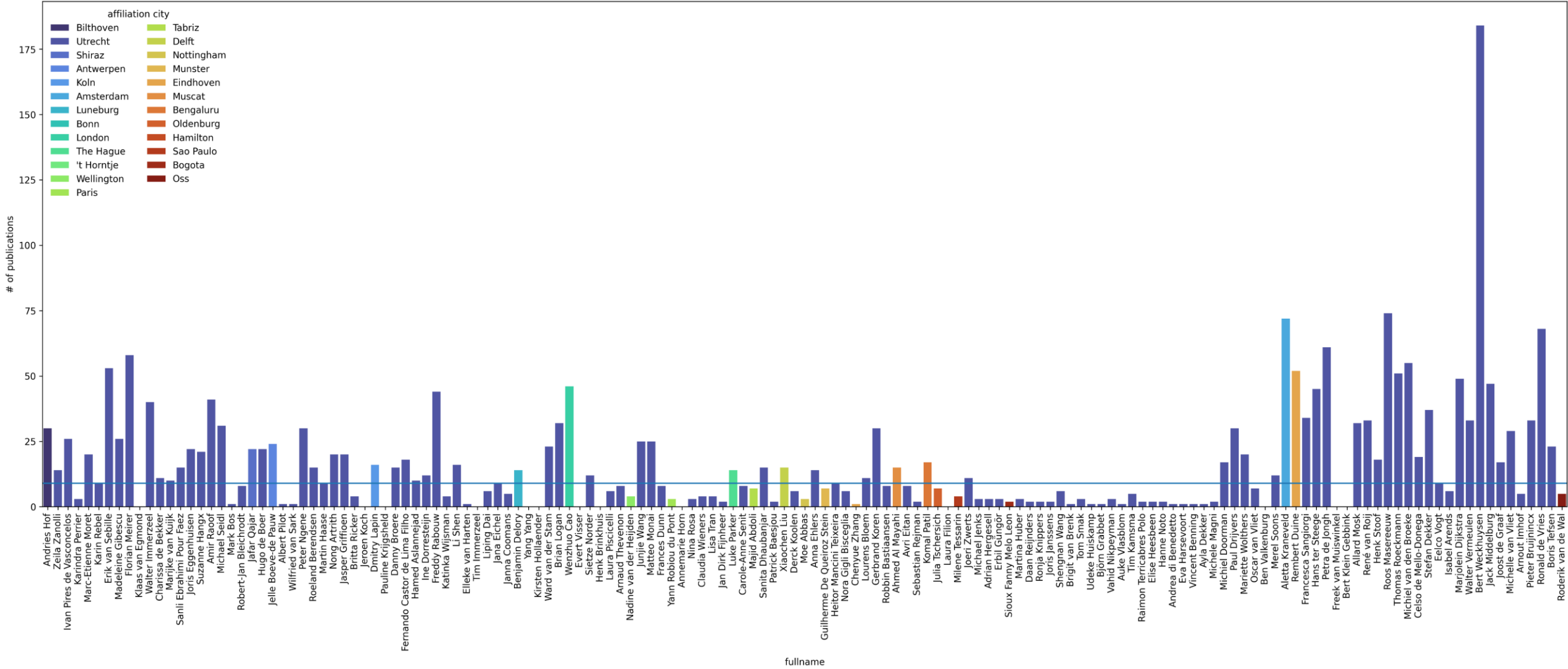


**149 Authors** from which we can retrieve publications, with e.g.:



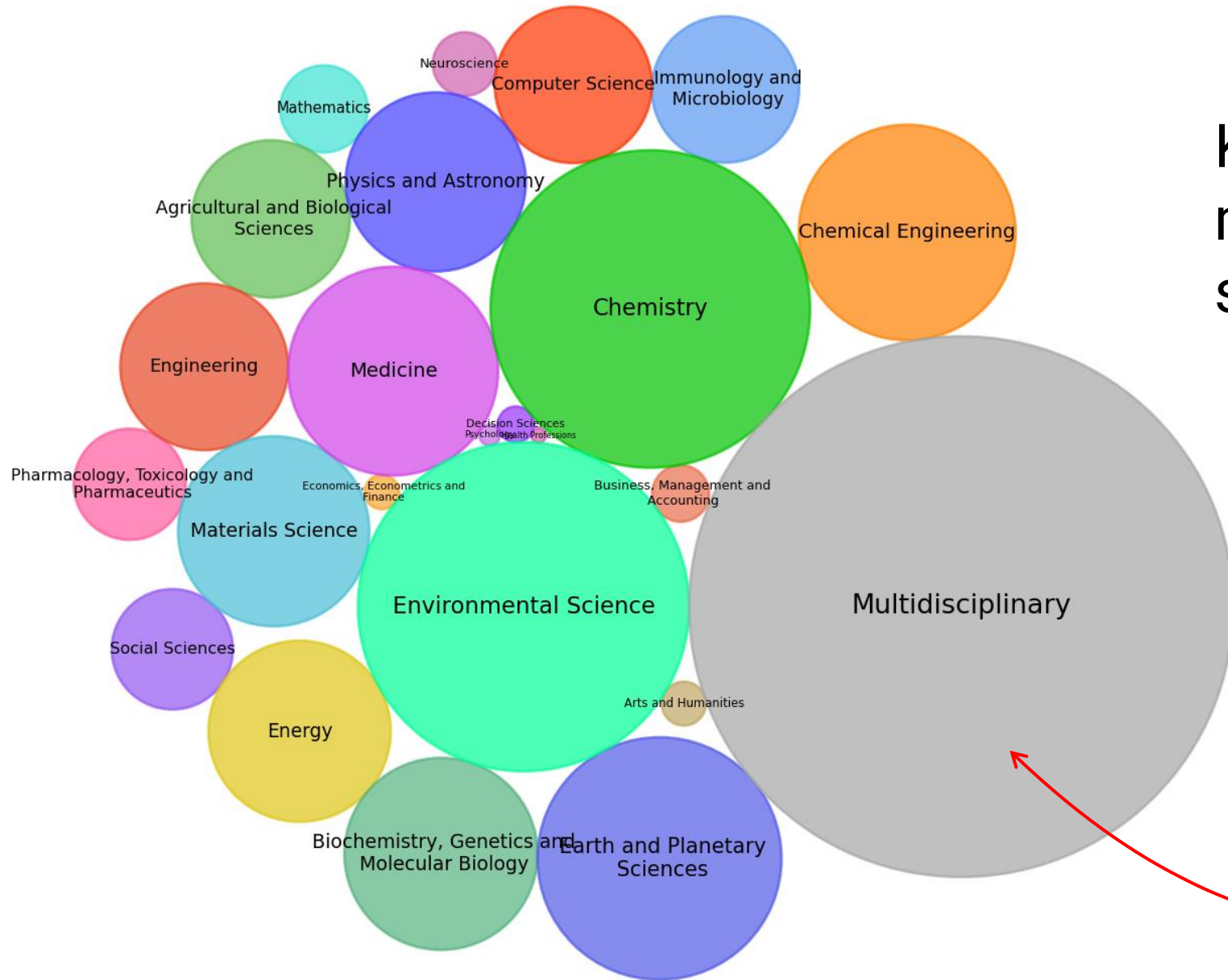






All publications





Keywords with their  
most dominant  
subject area

No dominant area

