

Engineering Research Center Observatory

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Goal: Develop and deploy interactive data visualizations for NSF staff, researchers, and students to increase their understanding of temporal, geospatial, topical, and network patterns and trends in engineering.

BibTeX Data Upload & Curation

Importing data
 BibTeX (.bib) file format is supported.
 Upload files via drag and drop into the indicated area at the top of the page, or click and browse files. You may add multiple files.

Data Curation
 Interface allows the user to clean and correct data in their publication bibtext file.

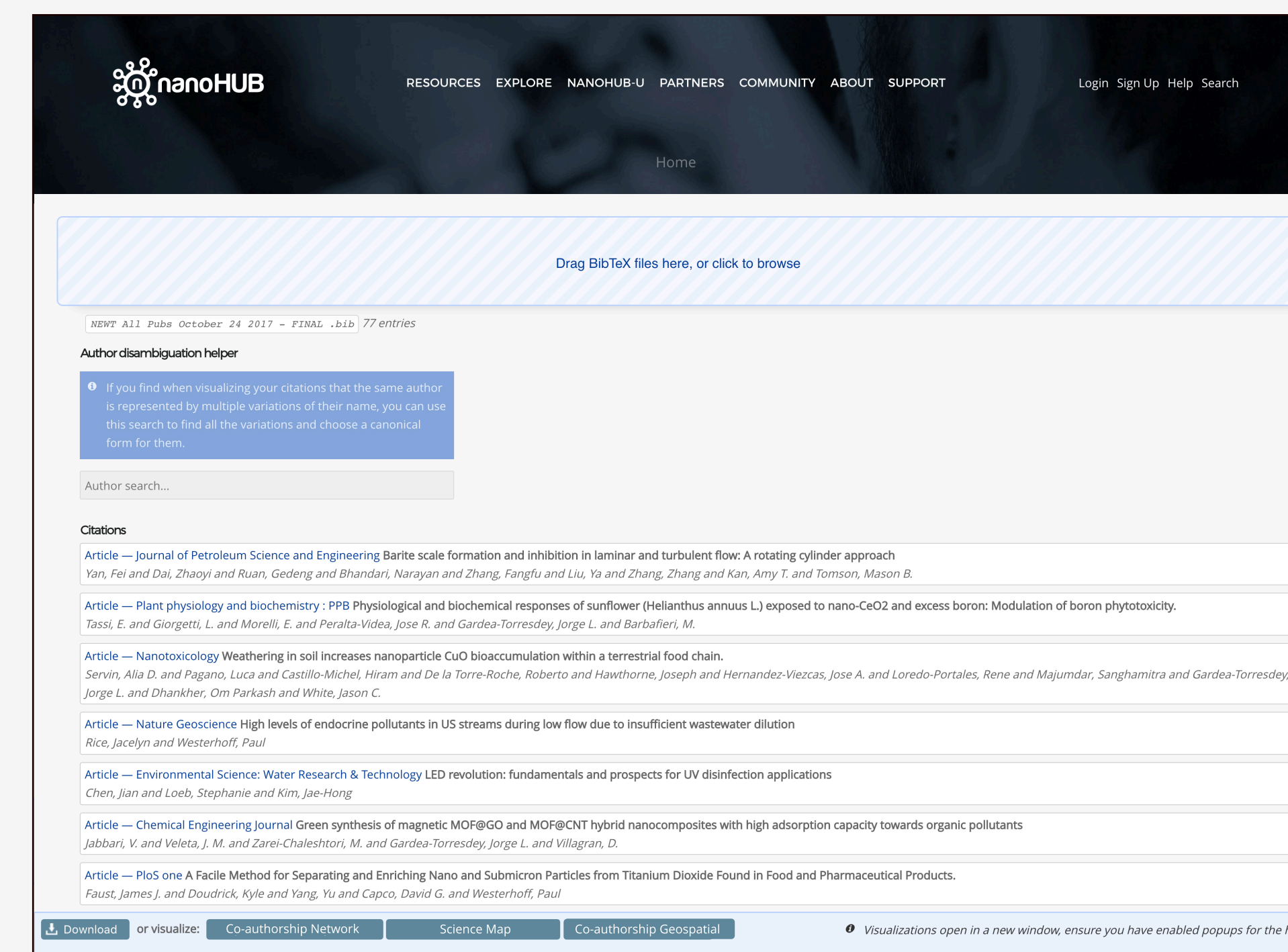
Author Disambiguation
 The same author may be represented by multiple variations, this feature allows the user to find all variations and combine all to the preferred name.

Editing Citations

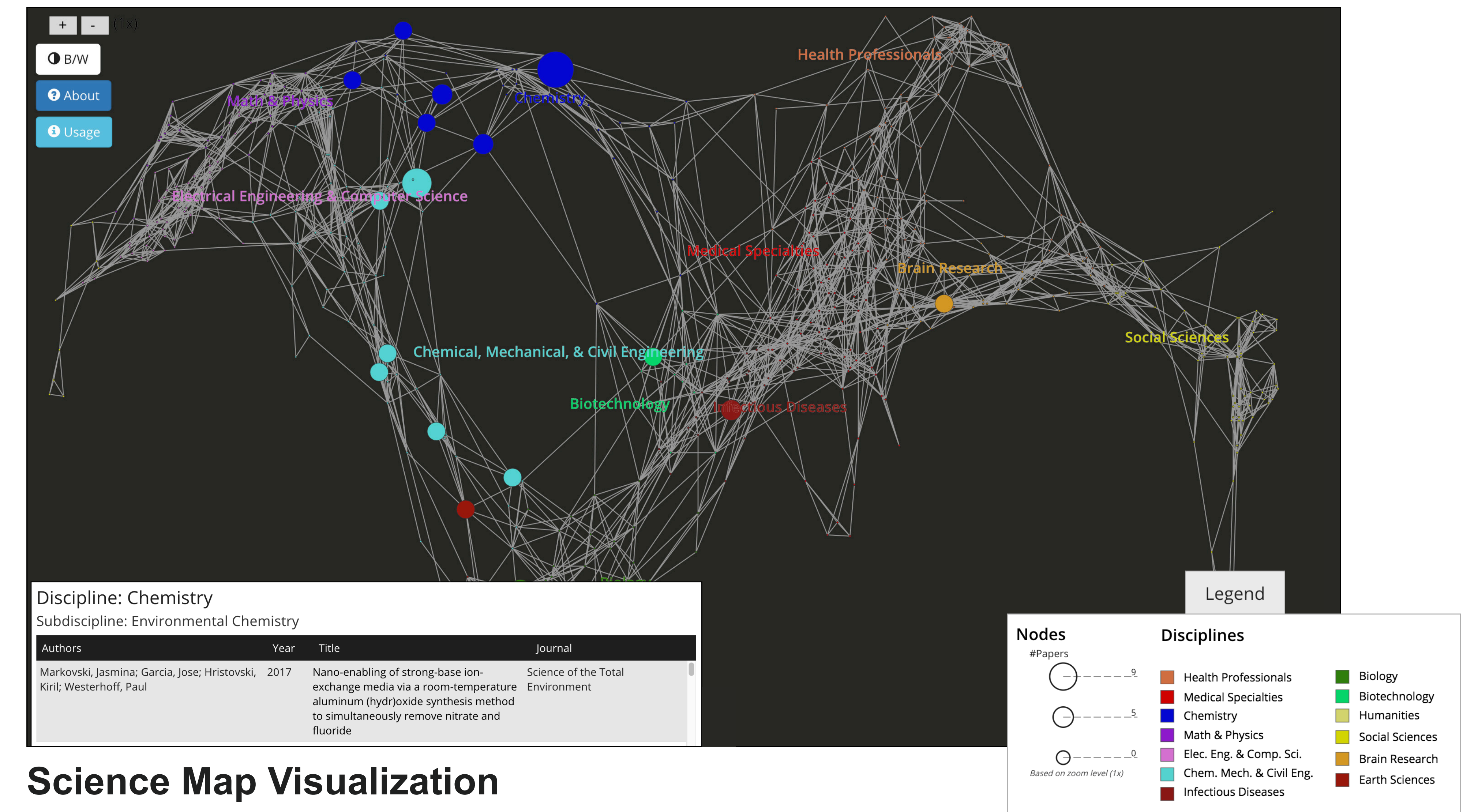
- **Role:** Allows the user to select an author role (student, faculty, post-doc, staff, other)
- **Gender:** User has the option to select either unreported, female, or male.
- **Geolocation:** Location field accepts several types of input including city names and zip codes. After entering the information, the field will turn green if the information was found.

Exporting and Visualizing

- Download allows user to save their BibTeX file after making edits.
- Visualization buttons open a new tab for each visualization.



nanohub.org/erc-citations

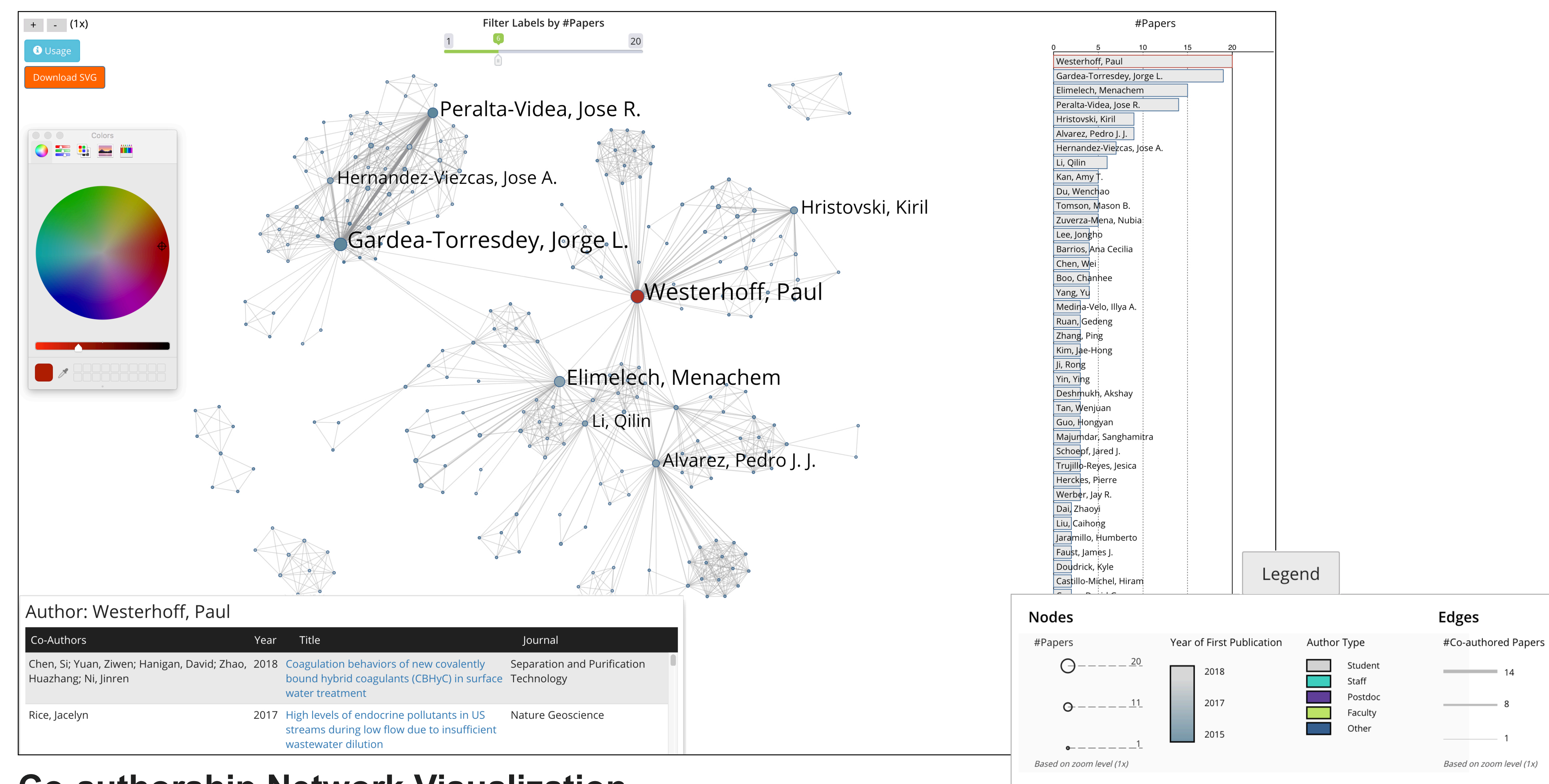


Science Map Visualization

This interactive map supports the exploration of expertise profiles for a researcher, center, department, or university overlaid on a science map so that outliers, clusters, and trends can be discerned.

- 554 subdisciplines of science are shown, aggregated into 13 color-coded, labelled disciplines.
- Each circle denotes a subdiscipline.
- Circle area sizes are proportional to the number of papers published per subdiscipline.
- Clicking on a subdiscipline brings up a panel in lower-left with a listing of papers in that subdiscipline.
- The legend details how the information is being encoded.

goo.gl/ZshV4a

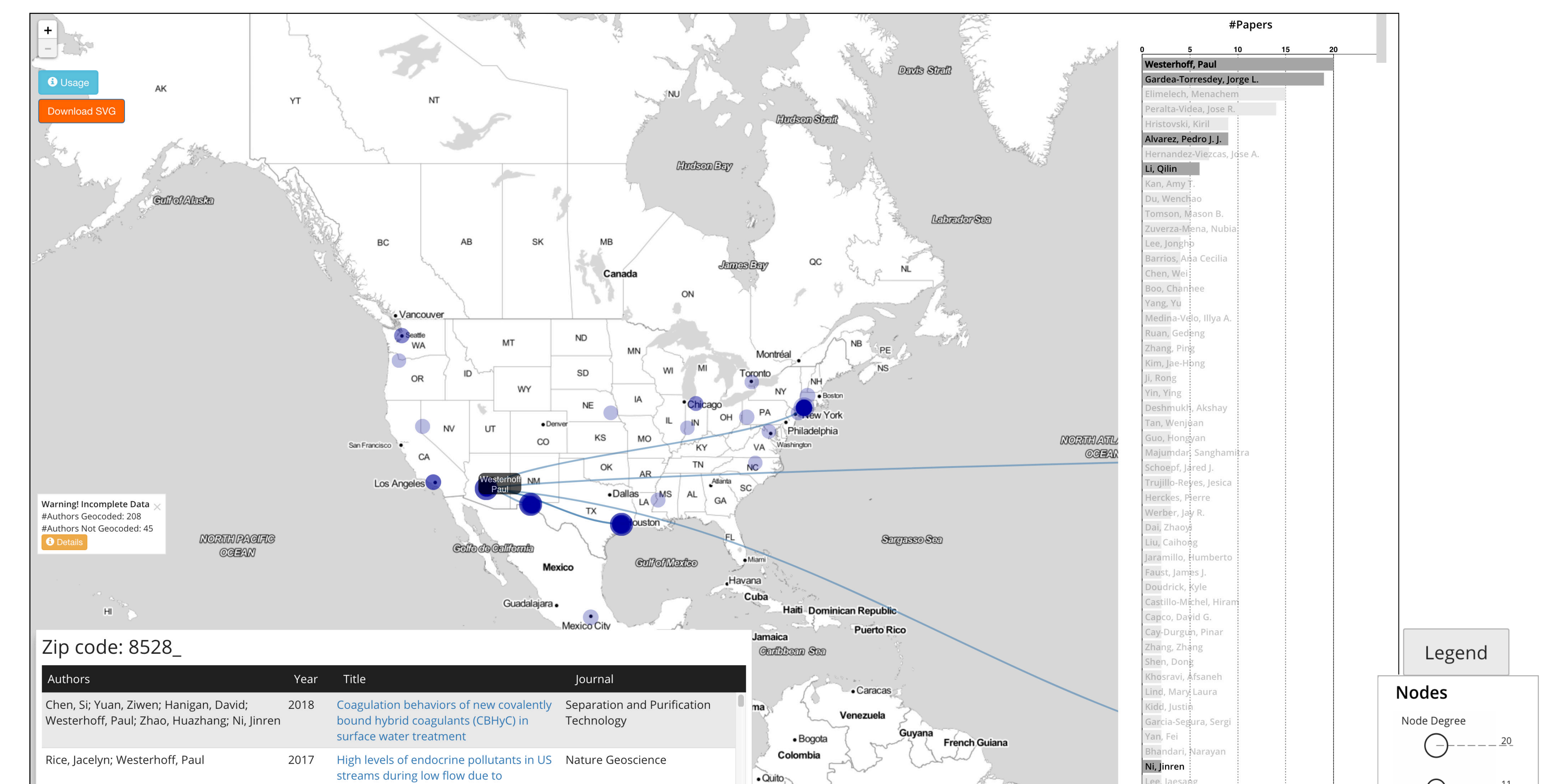


Co-authorship Network Visualization

This interactive visualization shows the collaboration network based on co-authorship relations extracted from the bibtext file. It helps identify clusters of authors that collaborate frequently; to detect those authors that serve as gatekeepers by interconnecting different clusters; understand the backbone of strong co-author linkages that likely serve as main collaboration and knowledge diffusion pathways.

- Each node represents an author.
- Two authors are connected if they have authored a paper together.
- Fill color denotes the year of first publication.
- Node outline color indicates author type (student, faculty, post-doc, staff, other)
- Node size and label size denote the number of papers authored.
- Edge thickness denotes the number of times two authors appeared on a paper together.
- The horizontal bar graph on the right shows the number of papers per author.
- Clicking on a node in the network highlights publications by that author.
- Clicking on an author node in the network or in the bar-graph brings up a listing of publications by that author.
- Click on usage button in top left to learn how to color code nodes, etc.
- The legend details how the information is being encoded

goo.gl/k8YvGD



Co-authorship Geospatial Visualization

This interactive visualization shows the co-authorship network overlaid on a geospatial map of the world.

- Each node represents an author.
- Two authors are connected if they have authored a paper together.
- Circle area sizes encode the number of links per node, also called node degree.
- Horizontal bar-graph aids in better understanding of data.
- Clicking on a node highlights the co-authors in the bar graph.
- The legend details how the information being encoded.

goo.gl/nd1ojc

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