

## Questions

We wanted to gather some knowledge about our university.  
Our questions:

1. How are WUST employees using their colleagues work?
2. Do different departments use each other's work?
3. Whose work influenced most people? Who used the most of colleagues work?

We used network science to answer them.

## Data sources - Scopus and Employee Search Engine

Scopus was used to gather data about citations for each WUST employee indexed in the database.  
Data about departments was gathered by an employee search engine - [pwr.edu.pl/pracownicy/strefa-pracownika/wyszukiwarka-pracownikow](http://pwr.edu.pl/pracownicy/strefa-pracownika/wyszukiwarka-pracownikow)

Part of the data regarding departments was added thanks to the group, which analyzed the co-authorship network of WUST.

Data needed to be preprocessed before analysis. We did the following:

- Removal of authors without citations
- Removal of recurring names of employees
- Integration of citation data with data about departments

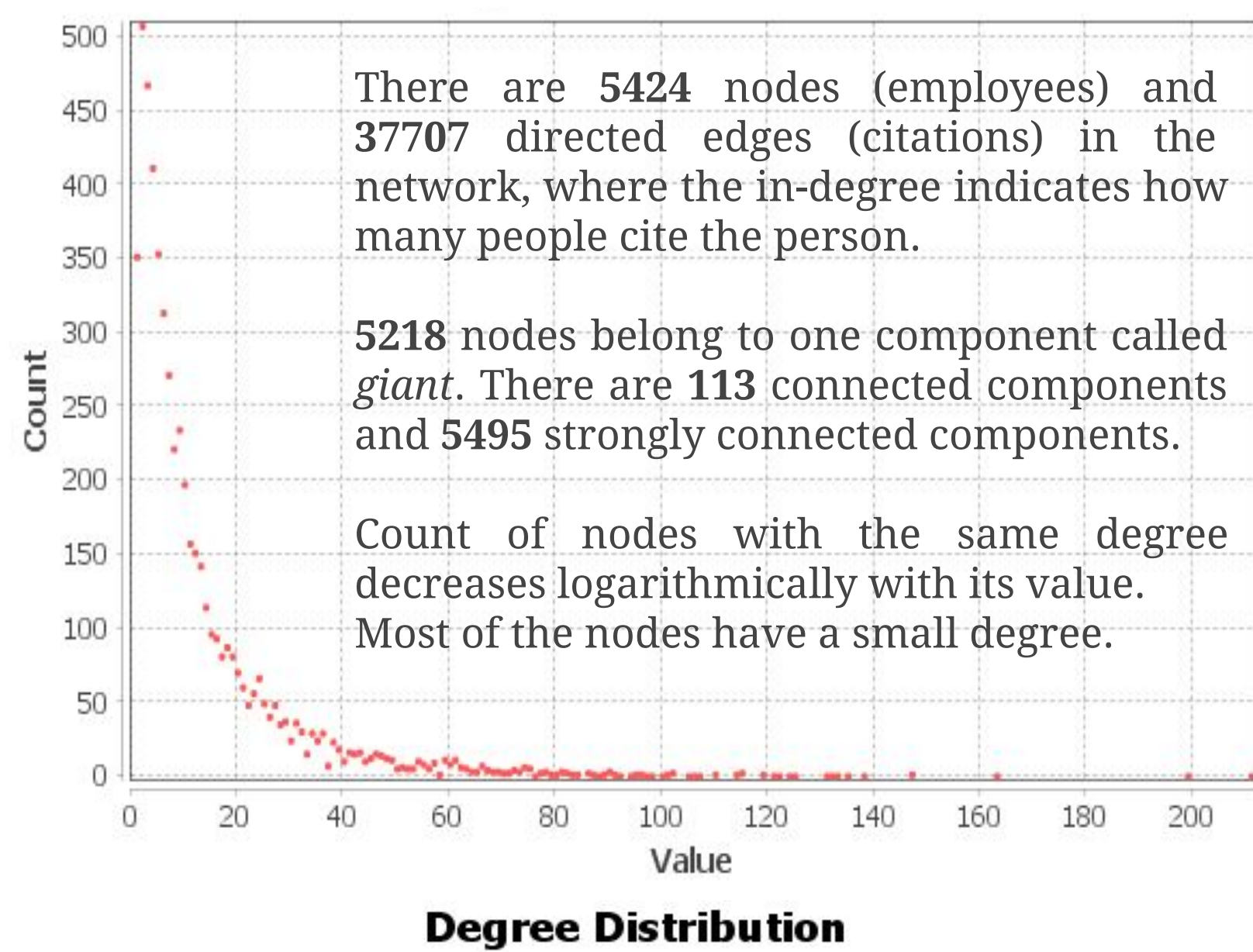
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## Network characteristics



## Hubs in the network

Some employees are much more cited than others. They accumulate around themselves other employees, which means their work is widely used in WUST. Node degree is indicated by both size and intensity of red color.

Top in-degree - most cited employees:

1. prof. Jan Misiewicz (W11)
2. prof. Robert Kudrawiec (W11)
3. prof. Paweł Kafarski (W3)
4. prof. Marek Tłaczała (W12)
5. prof. Roman Gancarz (W3)



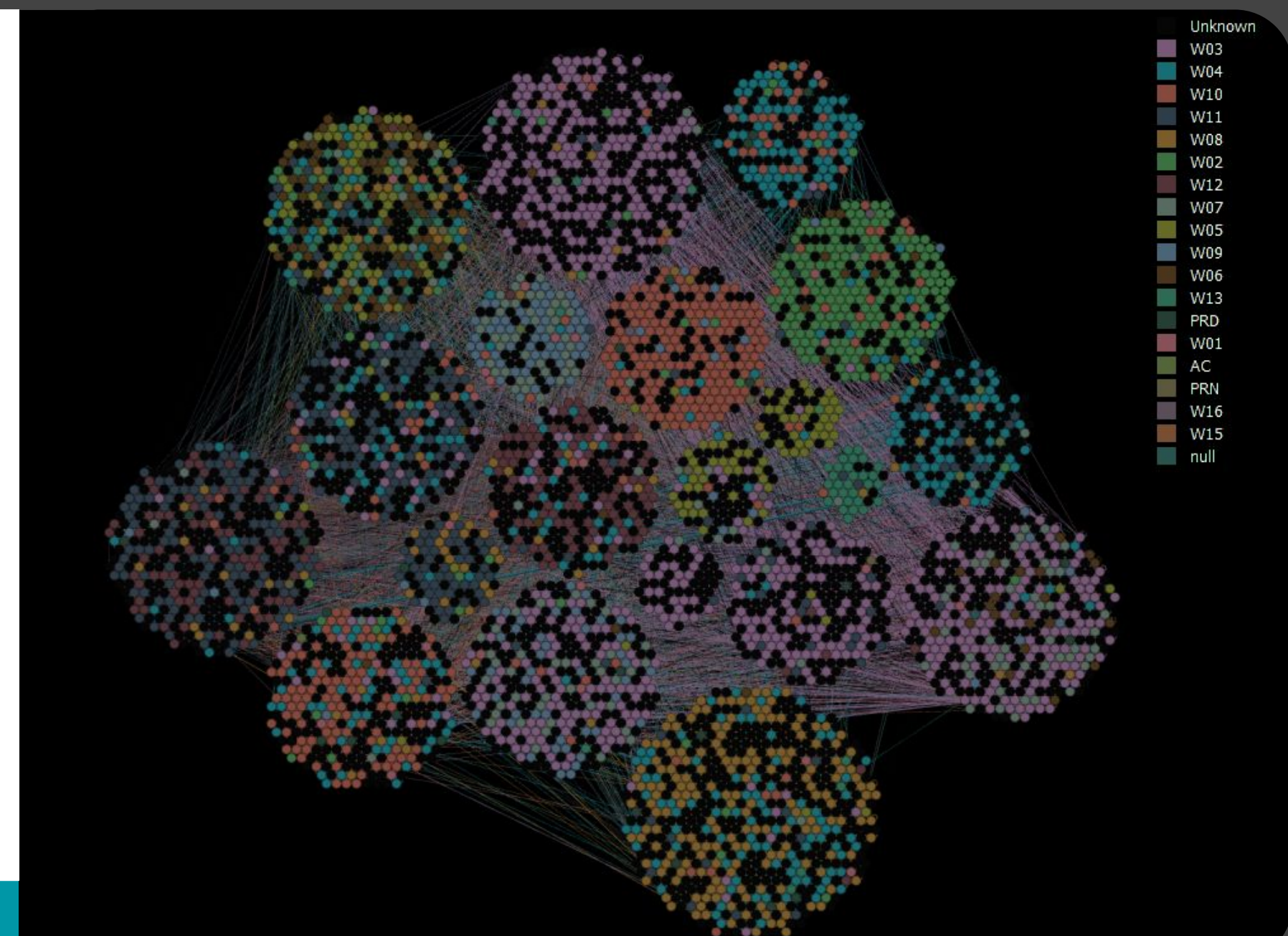
## Departments vs Louvain modularity

We used Louvian method to obtain modularity class - each circle represents nodes with the same class. Color of nodes depends on the employee department - where black ones are unknown.

As you can see most circles are dominated by one color - that means, most of the citation occurs within the department.

It can also be seen that **department W03** is divided into several classes, which probably results from a wide range of scientific fields, e.g. biochemistry vs. materials engineering.

A group at bottom demonstrate mutual citations between two departments - **W04** and **W08** both of which deals with computer science - which could be the reason.

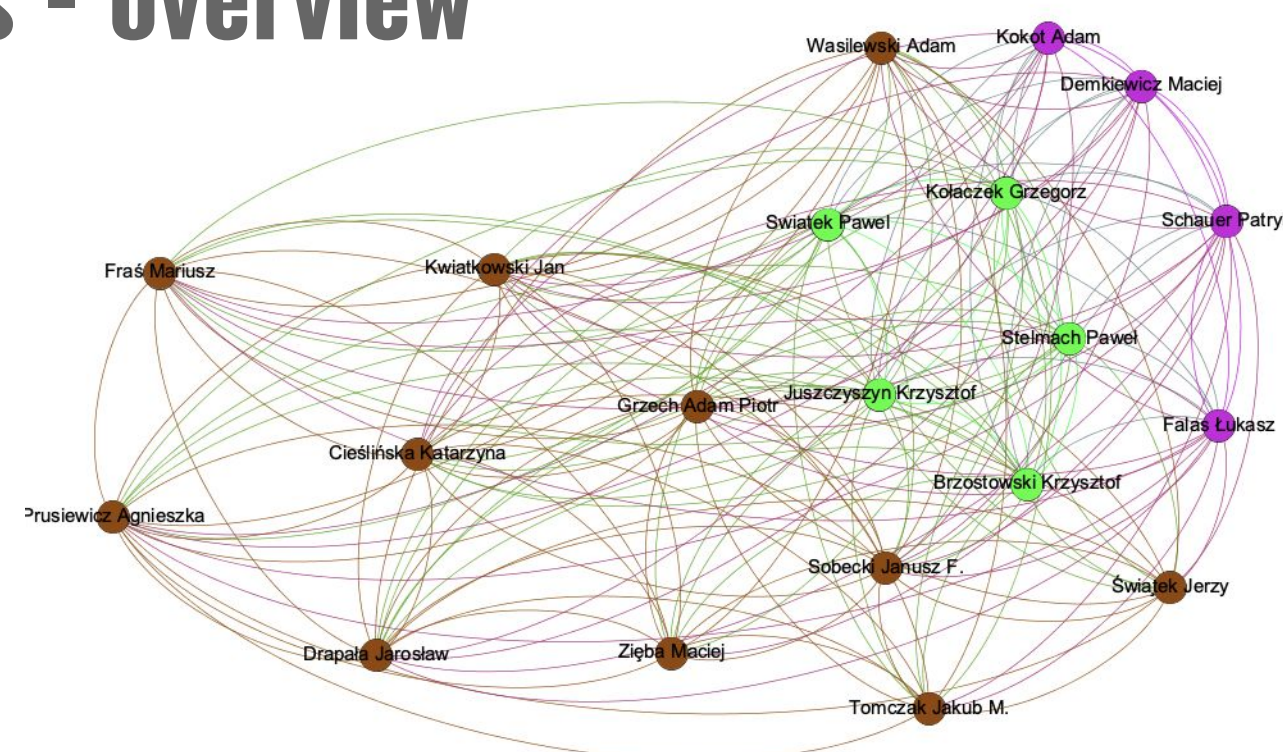


## Overlapping groups - overview

CFinder algorithm was used to detect overlapping communities in the network.

People from the same department create groups exploring similar topics.

But **some** of them belong to several groups.



## Where can You see results for yourself?

Go to: [frugile.github.io/onos-pwr](http://frugile.github.io/onos-pwr)

There You can play around with interactive graphs and visualizations. They are generated using Gephi SigmaJS.

If you are an employee, find yourself!  
If you are a student, find your favourite lecturer!

Get some more insight about citations inside WUST.