



Jevin D. West
University of Washington
Seattle, USA

1927



Not enough money.

What journals should we buy?

Count citations.

1955



Impact factor

$$\frac{\text{Cites in 2008 to articles in 2007 or 2006}}{\text{Number of articles in 2007 and 2006}}$$

2008

Impact factor drives...



Hiring decisions



Library subscriptions



Promotion and tenure



Ad placement

Research funding



rae2008
Research Assessment Exercise

University rankings



Scientists obsess.

Editors scheme.

Publishers negotiate.

Journals pander.

Administrators nag.

Everyone suffers.

Impact factor
was supposed to serve
scientists



But scientists
end up serving
impact factor

The number that is
devouring science

The Chronicle of Higher Education
October 14, 2005



How can we better
evaluate the scholarly literature?

Read it.

Who has time for that?

Legitimate need for quantitative
measures

What is the value of a full volume of
Science?

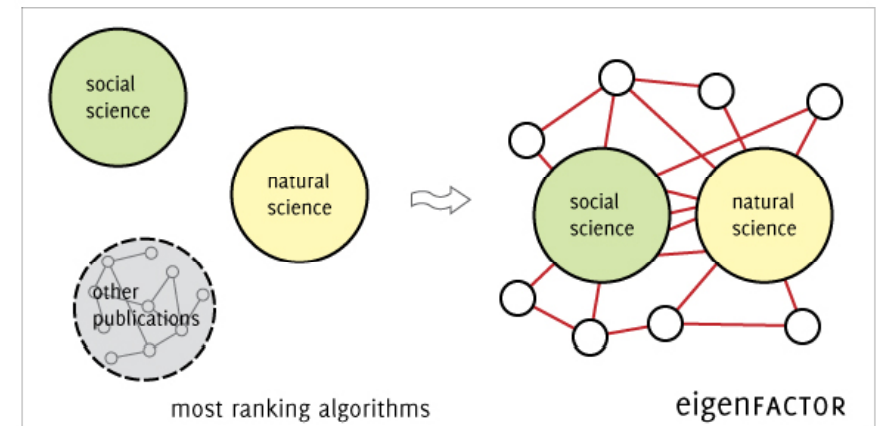
How often do biologists cite
economics papers?

Which publishers' bundles provide
the best value?

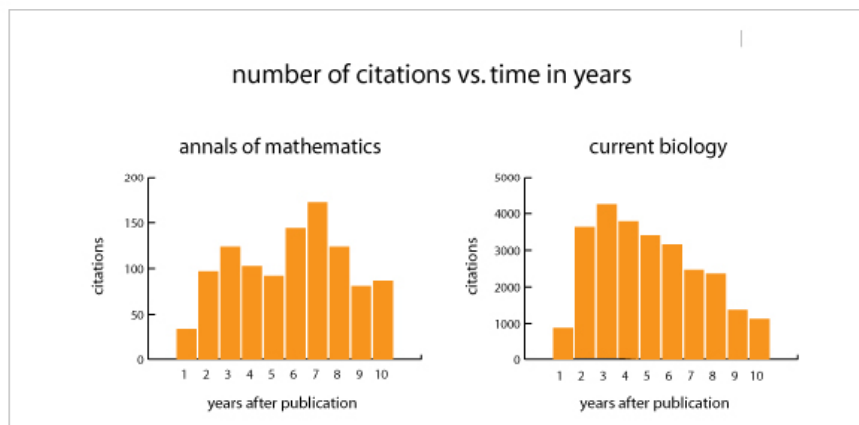
A good metric would be:

Freely available

Integrated

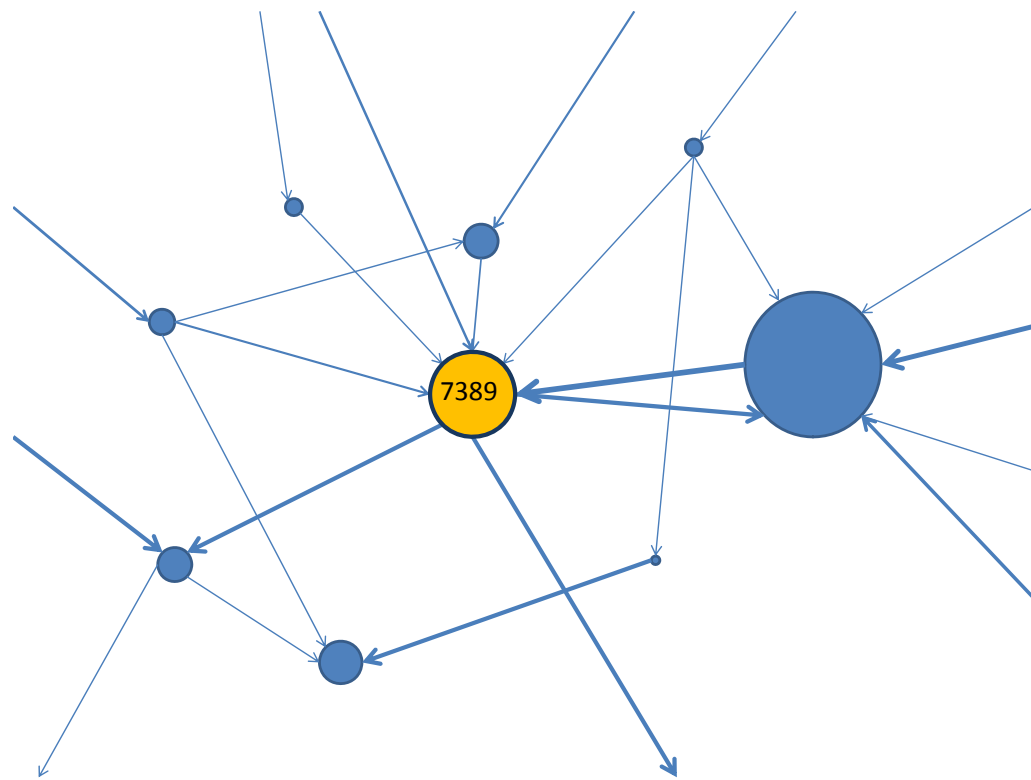
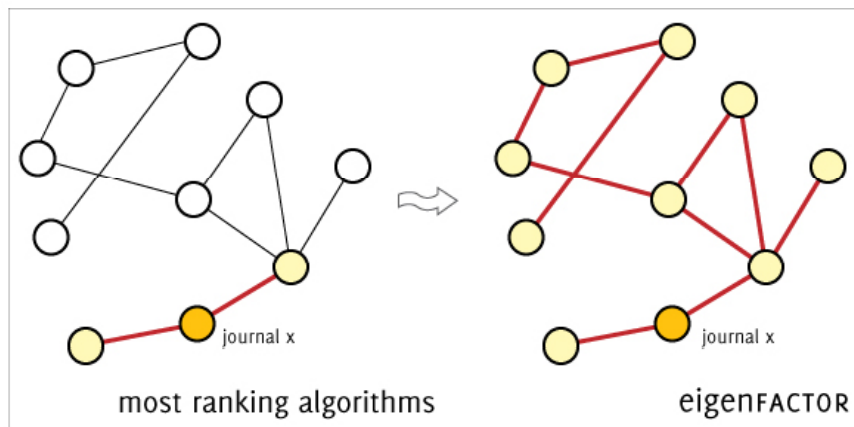


Valid across fields

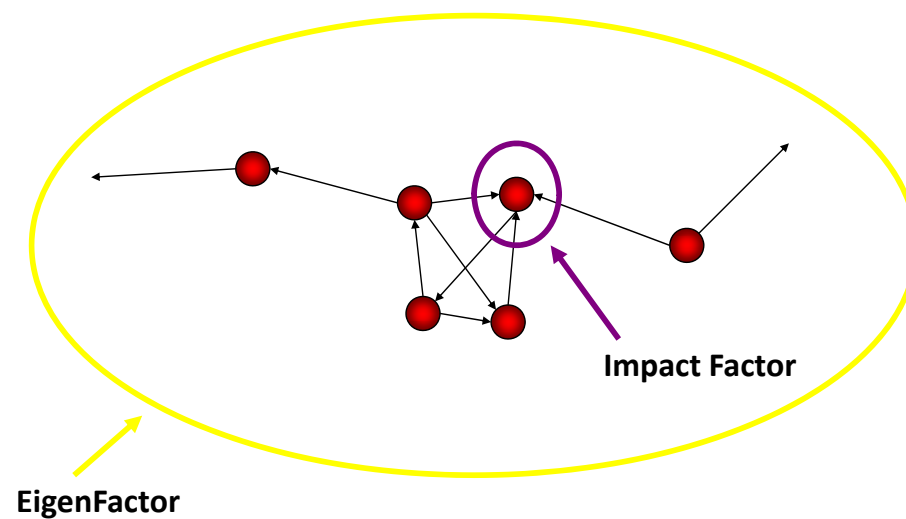


Difficult to cheat

Maximally informative

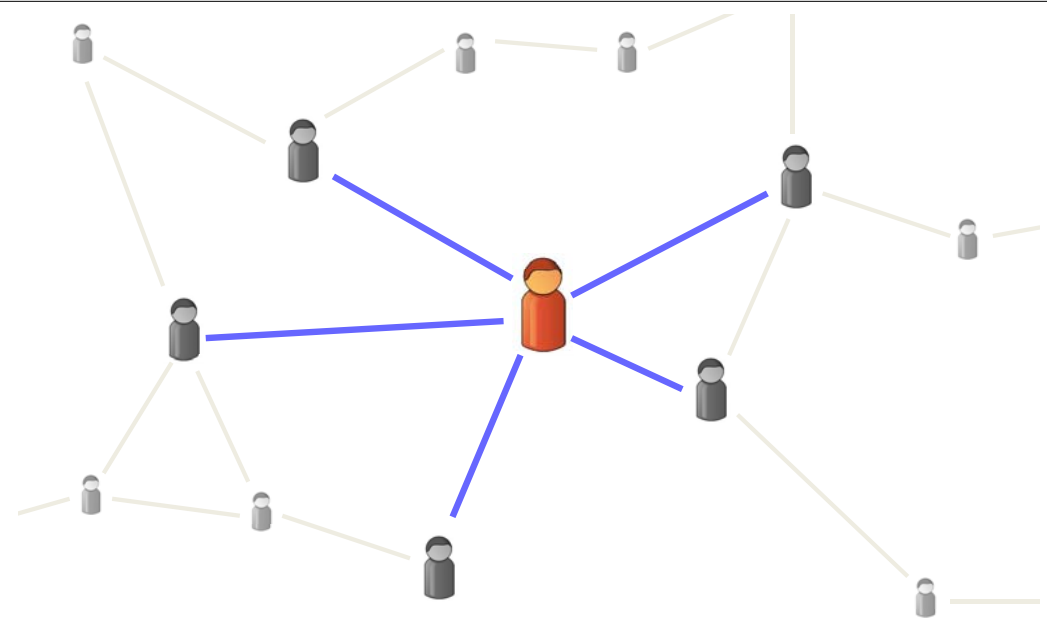


Information Comparison





Who is important?



Important people
have important friends

Eigenvector centrality

P. Bonacich, 1972

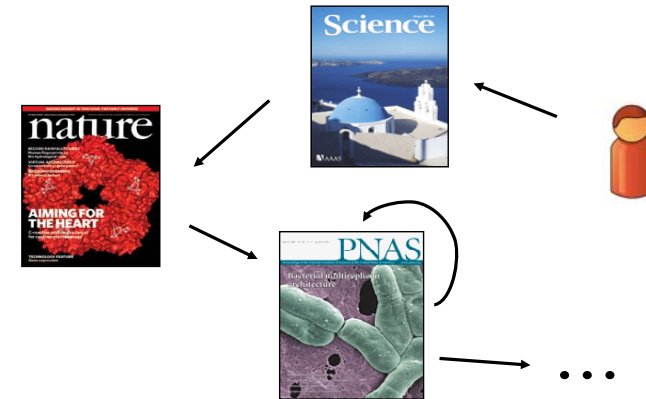


Important websites
are linked to by important
websites



Important journals
are cited by important journals

Eigenfactor: A model of research



Where does our researcher 
spend his time in the long-run?

Eigenfactor is a measure
of *total* value

Article Influence
measures prestige

Article Influence

$$\frac{\text{Eigenfactor}}{\# \text{ Articles}}$$

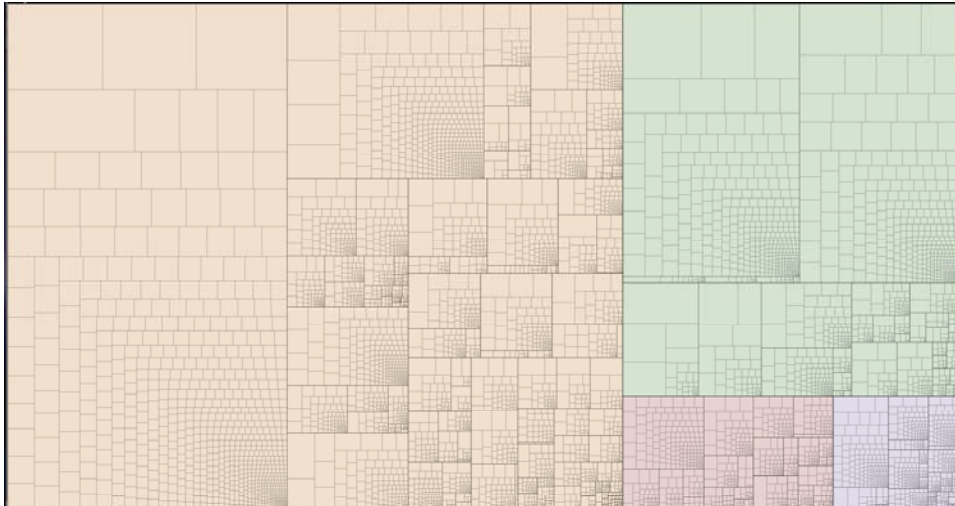
Citations from good journals are
worth more

Citations from non-review
journals are worth more

Citations from “frugal” fields are worth more

Non-scholarly publications

Eigenfactor is additive



Cost effectiveness

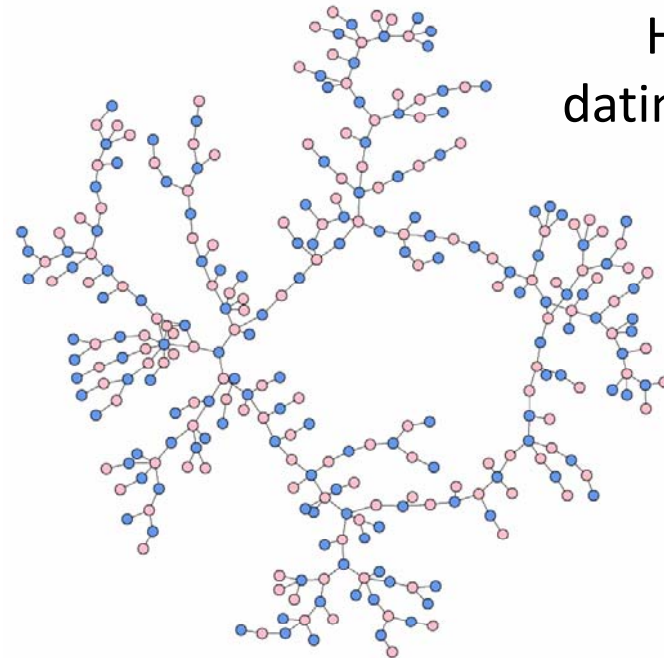
Tools

<http://students.washington.edu/mwiseman/cellnature.html>

Mapping science

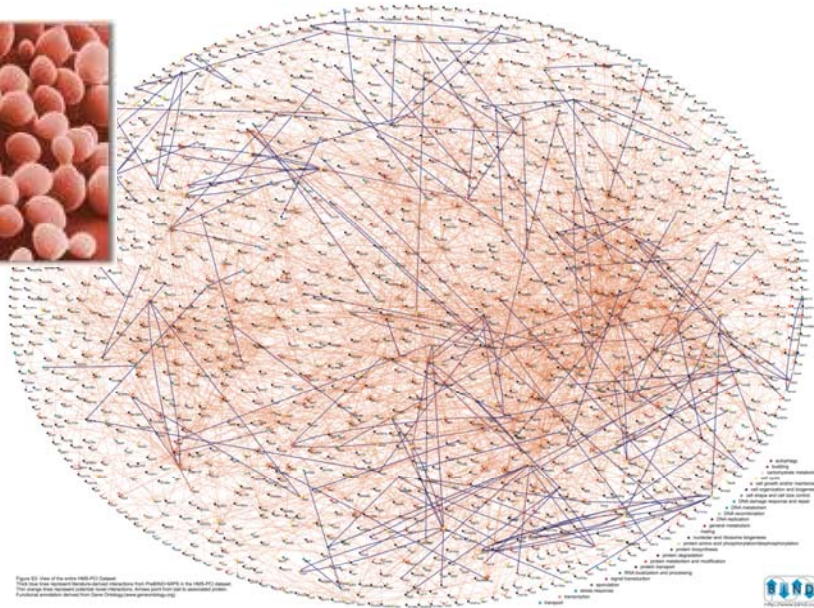
Science is all about the flow of ideas

High school
dating network



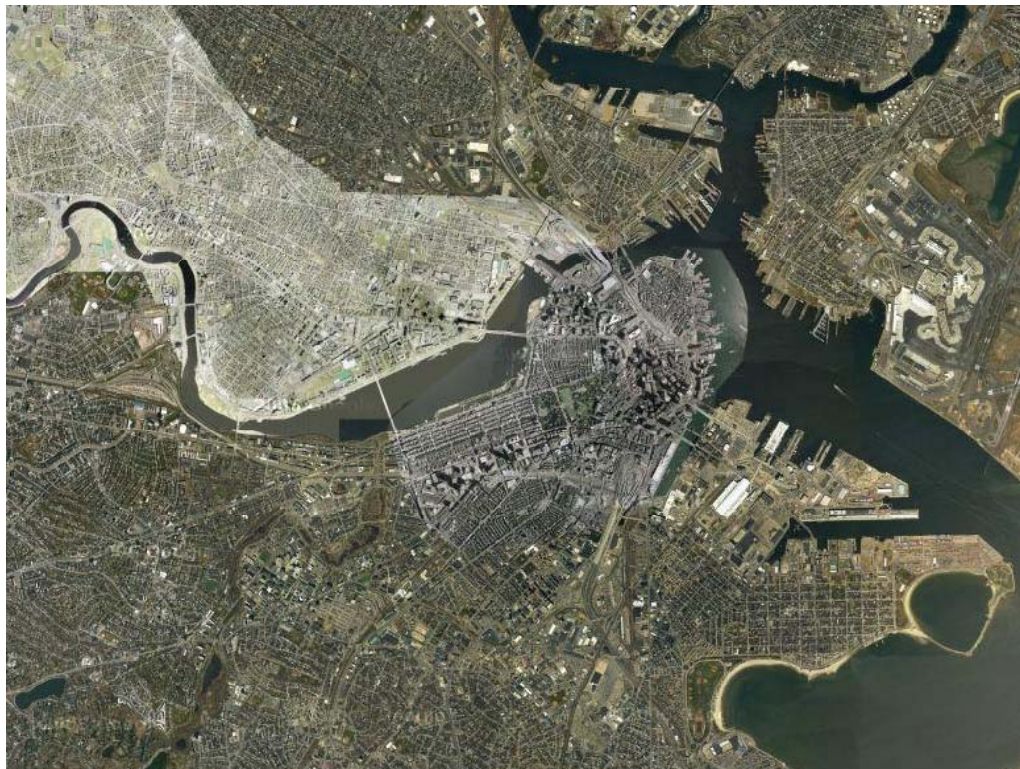
Courtesy of Mark Newman

Yeast protein interaction network
Bader and Hogue (2002) *Nature*

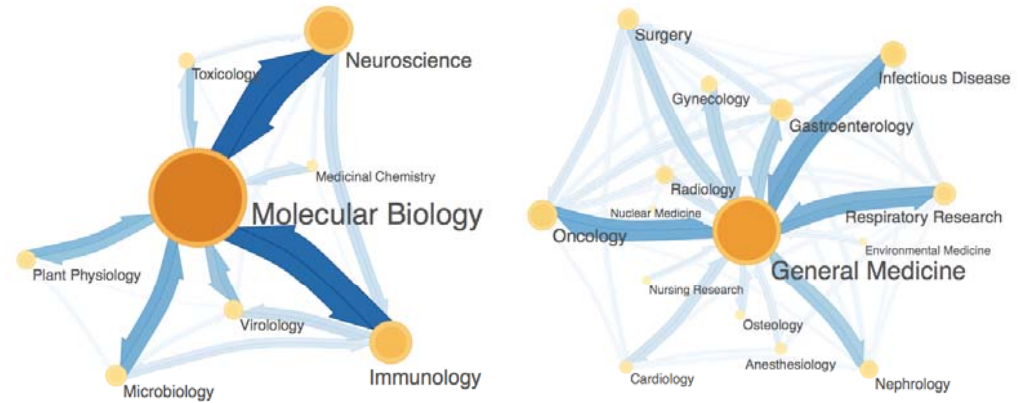
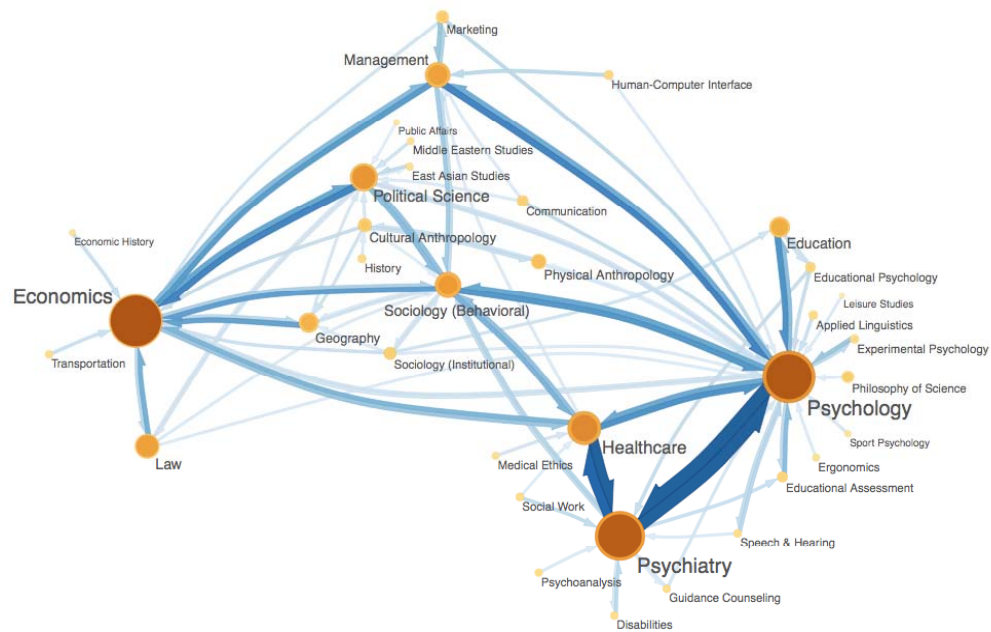
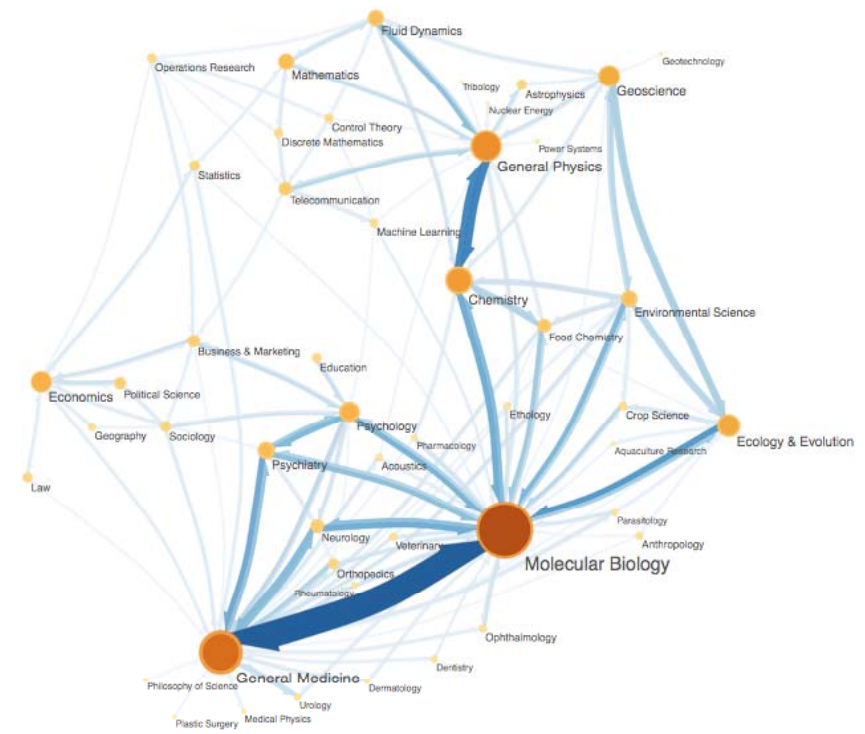


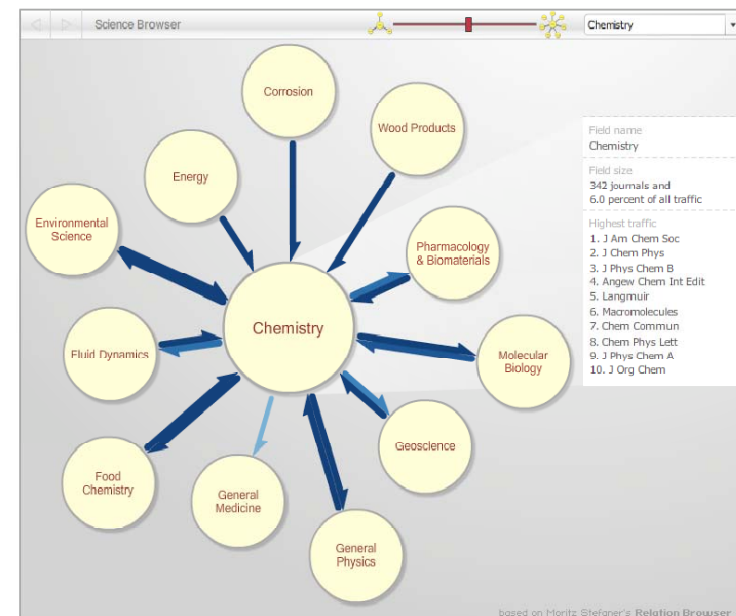
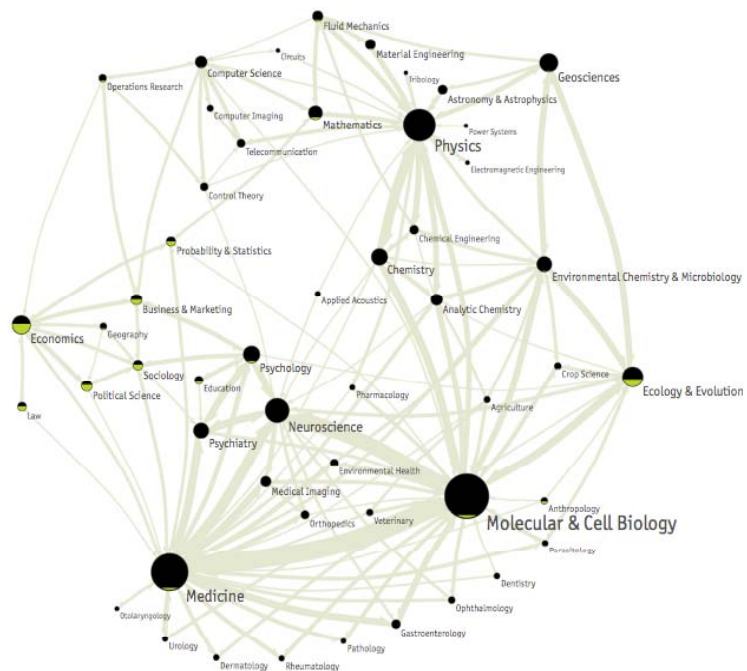
simplify

highlight









More coming soon...



Carl Bergstrom



Ted Bergstrom



Ben Althouse



Moritz Stefaner



Martin Rosvall