

A comparison of different types of science maps

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Introduction

- We study bibliometric maps, i.e., science maps based on bibliographic data
- We focus on maps of authors
- We compare the effect of different measures of relatedness of authors



Three types of maps

- Author map based on co-citations
- Author map based on coupling by common references (aka bibliographic coupling)
- Author map based on coupling by common terms

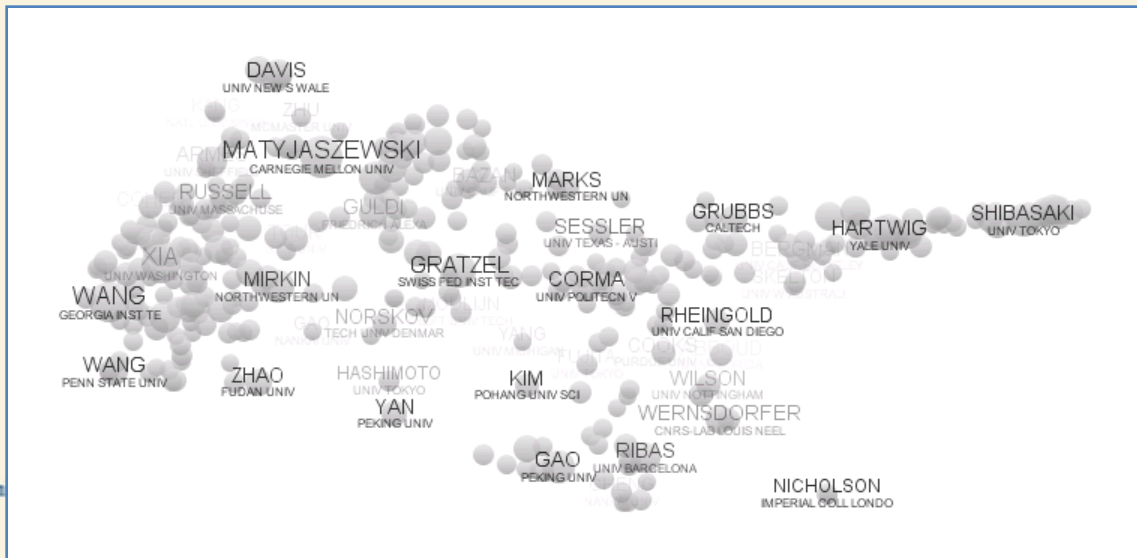
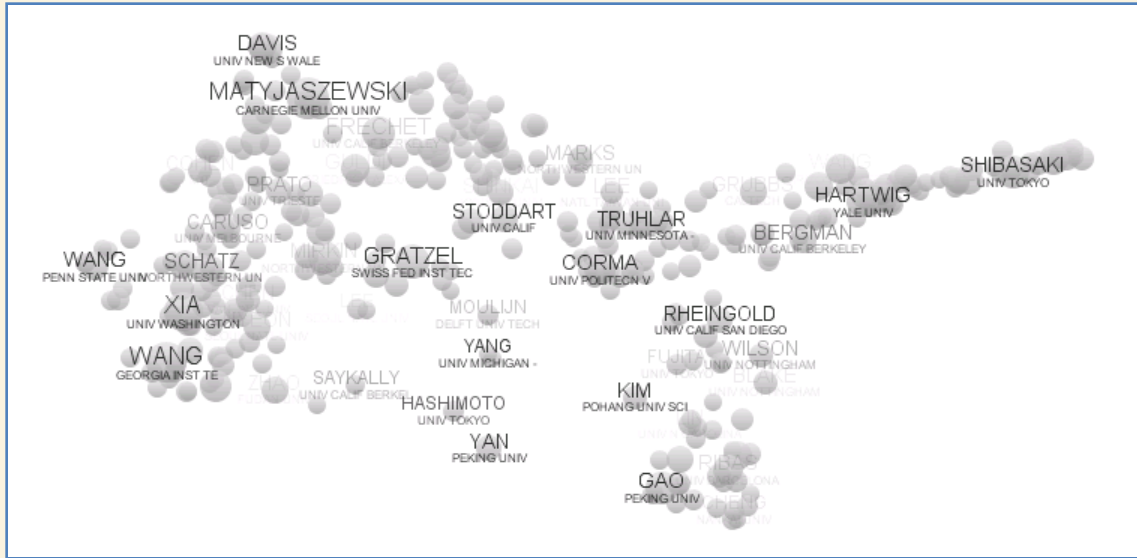


Data

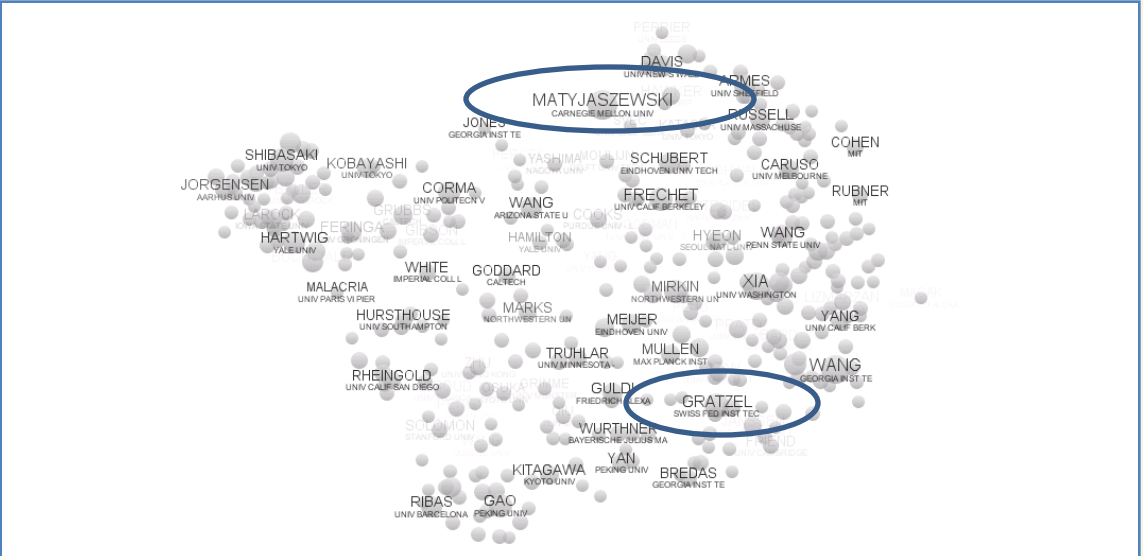
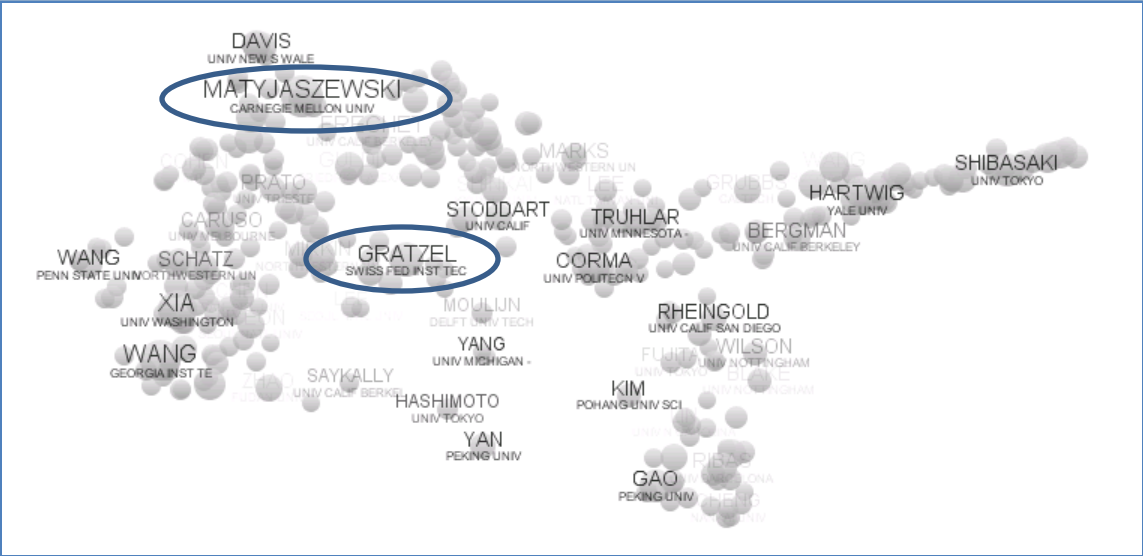
- 10% most highly cited publications in the field of chemistry between 2003 and 2007
- 2000 automatically identified terms
- Semi-automatic author name disambiguation
- All authors of a publication are taken into account
- 349 authors with at least 18 highly cited publications each



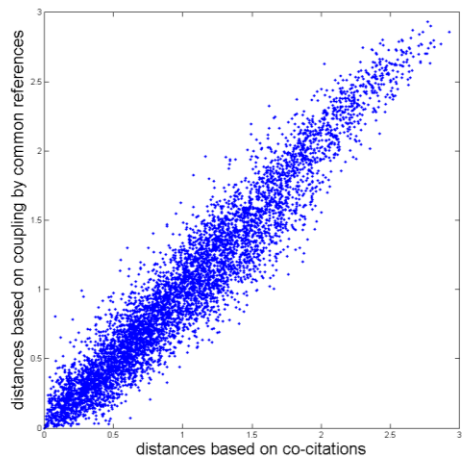
Co-citations vs coupling by common references



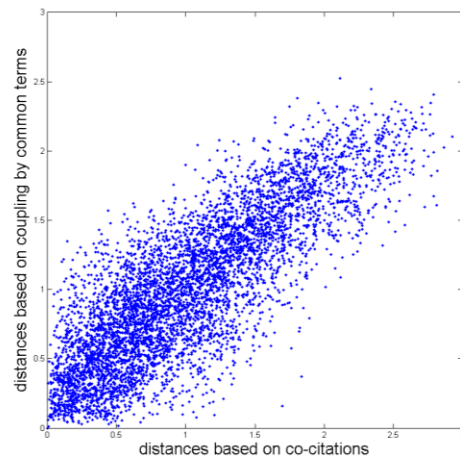
Co-citations vs coupling by common terms



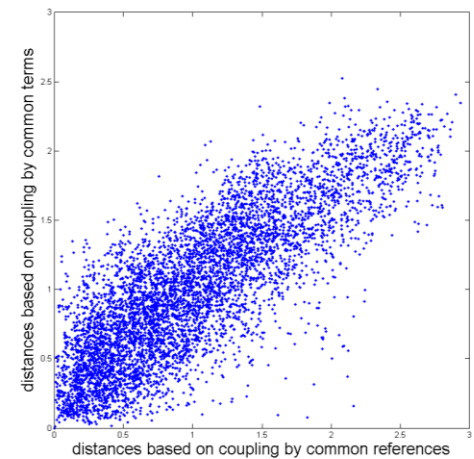
Similarity between the three maps



$$r = 0.96$$



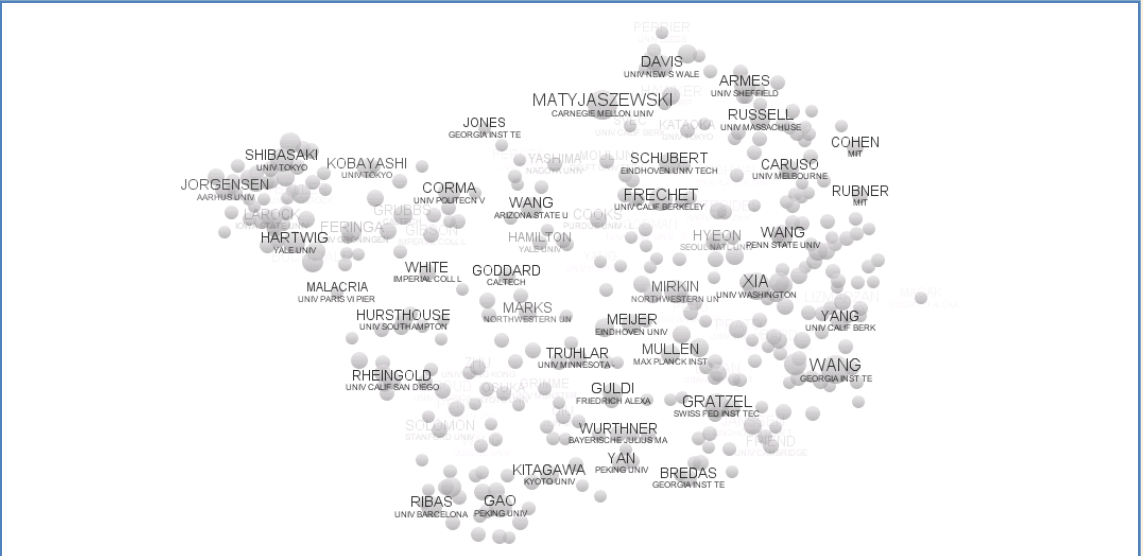
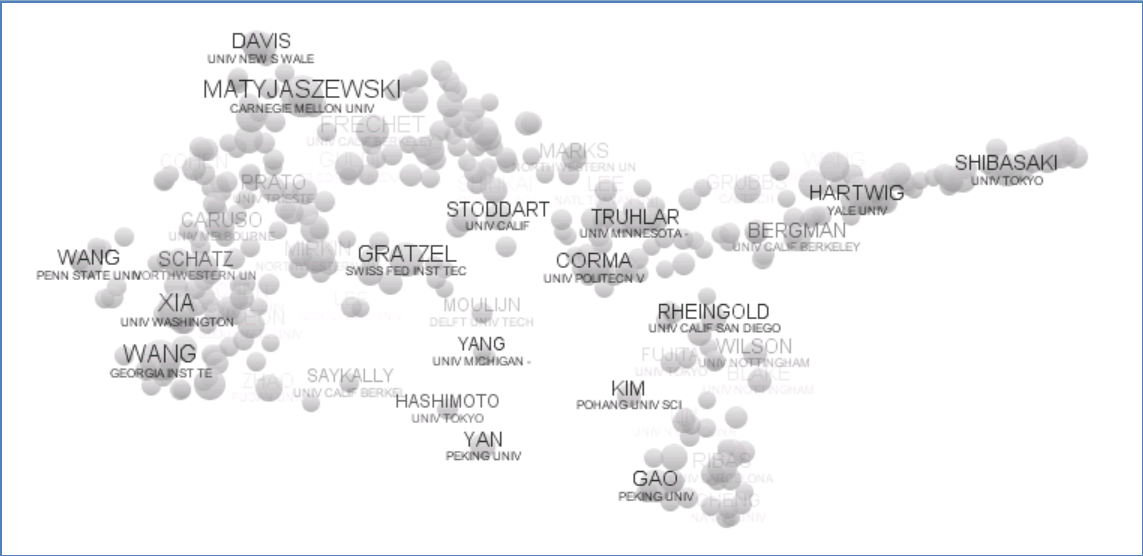
$$r = 0.81$$



$$r = 0.80$$



Co-citations vs coupling by common terms



Conclusions

- Co-citations and coupling by common references yield similar maps
- Coupling by common terms yields a quite different map
- Map based on coupling by common terms is preferred by an expert
- More research is needed into the effect of different bibliometric measures of relatedness

