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Zurich, August 27 2013

Executive Summary



- Relational aspects neglected in scientific impact assessment

⇒ *Academic SNS as a new source for SNA in science*

- Case study of ResearchGate: low activity and density, high homophily and interesting centrality effects

⇒ *Network position partly explainable by other measures of influence*

- Following structure overlaps significantly with co-authorship

The background is a complex digital-themed collage. On the left, several glowing light bulbs in shades of orange, yellow, and pink are visible, with blue light rays emanating from them. In the center, large, translucent blue binary digits (0s and 1s) are scattered across the frame. On the right, a portion of a laptop is visible, showing its keyboard and screen. The overall color palette is dominated by blues, oranges, and greens, creating a futuristic and technological atmosphere.

1

Measuring Impact in Science

Academic Impact Is A Multi-Faceted Construct



Academic Impact: New vs. Old



Usage-based Metrics



Bibliometrics from Peer-reviewed Journals

Usage-based metrics



- Publication on the web enables new metrics:
 - Webometrics
 - Scientometrics 2.0/Altmetrics
- **Goal:** achieving a more current and differentiated picture of impact
- Using social media data for person-based and article-based metrics
(Priem & Hemminger, 2010; Shema, Bar-Ilan & Thelwall, 2013; Thelwall et al., 2013)

Example: ImpactStory

The screenshot shows the ImpactStory website homepage. At the top left is the ImpactStory logo in orange. To its right are navigation links: 'create', 'about', 'follow', 'register', and 'log in'. In the top right corner, there is a blue 'BETA' badge with the text 'Send us your feedback!'. The main content area has a large heading 'Tell the full story of your research impact.' followed by a paragraph: 'ImpactStory aggregates **altmetrics**: diverse impacts from your articles, datasets, blog posts, and more.' Below this is a blue button that says 'Make my impact report'. To the right of the button is the text 'or, show me a sample report'. On the right side of the main area, there is a white box with the heading 'New!' and the text 'Have you registered for an ORCID ID yet? Create an ImpactStory report using' followed by the ORCID logo. The footer section contains the text 'We track impact across the Web:' followed by a grid of logos for various sources: citeulike, crossref, delicious, DRYAD, F1000, faculty1000, facebook, github, Mendeley, ORCID, PLOS, PubMed Central, PubMed, ScienceSeeker, Scopus, slideshare, and Wikipedia. At the bottom left is the logo and name of the 'Institute for Media and Communications Management' at the 'University of St. Gallen'.

ImpactStory.

create about follow register log in

BETA
Send us your feedback!

Tell the full story of your research impact.

ImpactStory aggregates **altmetrics**: diverse impacts from your articles, datasets, blog posts, and more.

Make my impact report

or, show me a sample report

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We track impact across the Web:

citeulike crossref delicious DRYAD F1000 FACULTY1000 facebook github Mendeley ORCID PLOS PubMed Central PubMed ScienceSeeker Scopus slideshare Wikipedia

Institute for Media and Communications Management
University of St. Gallen

What about Social Capital and Relations?



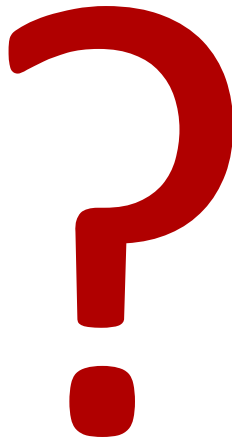
- Relations with other researchers are important resources
 - *Promotion*
 - *Publication*
 - *Invitation*
 - *Collaboration...*
 - Social capital matters
- ⇒ **Bringing in the relational aspect in impact measurement... beyond citations**

A hand is shown on the left side of the frame, holding a thin, light-colored string. To the right of the hand is a large, inflated green balloon. The background is a warm, golden-brown color. A semi-transparent dark green rectangular box is overlaid on the right side of the image, containing the text '2 The ResearchGate Project'.

2

The ResearchGate Project

What is ResearchGate?



- Biggest SNS for scientists with 3 million users
- Based in Berlin and founded in 2008
- More than 30 million publication entries
- Vivid community, especially popular with young researchers in emerging countries



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☰ Contributions

👤 Info

TOPICS (24)

Academic Writing

Cultural Sociology

Cultural Studies

Online Social Networks

Statistical Software

Science Communication

Social Capital

Statistical Analysis

RESEARCH SKILLS

Technical

Add Technical skills

IT

Add IT skills

Statistical

Descriptive Analysis , Linear Regression , Logit , Multilevel Analysis , Exploratory Factor Analysis , Confirmatory Factor Analysis , Structural Equation Modeling ✎

Other

english, French , Spanish , German ✎

ADD YOUR RESEARCH EXPERIENCE

ABOUT

I am pursuing a Ph.D. at the Institute for Media and Communication Management, University of St. Gallen (Switzerland). There, I am working in the field of new communication technologies and social media, especially in science and public administration settings. My background is in sociology, economics and media science, but I like interdisciplinarity and am open to different and challenging perspectives and ideas.... That's what makes great research in my opinion!

FOLLOWERS (15)

See all



FOLLOWING (48)

See all



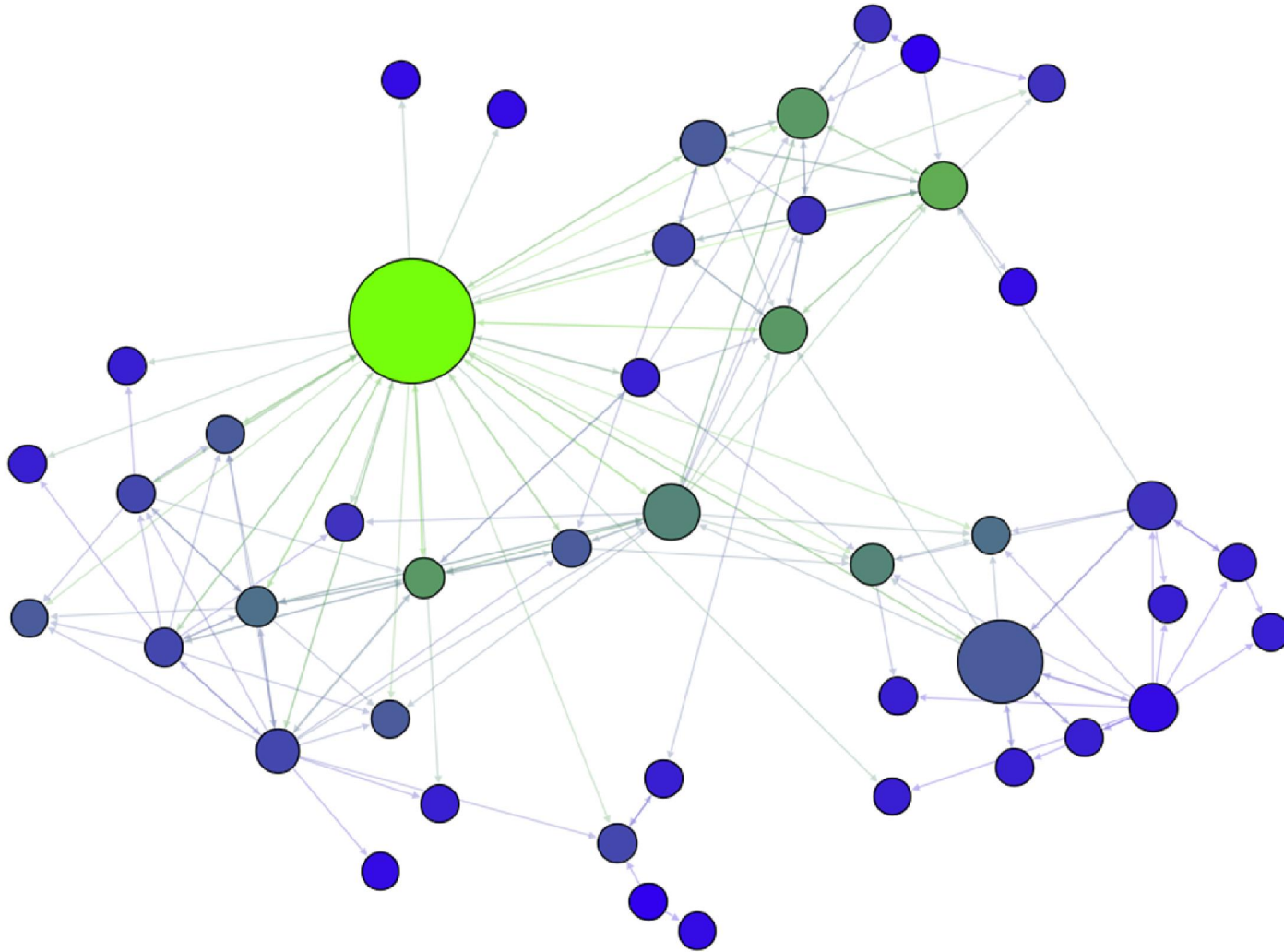
ADVISORS

The Project



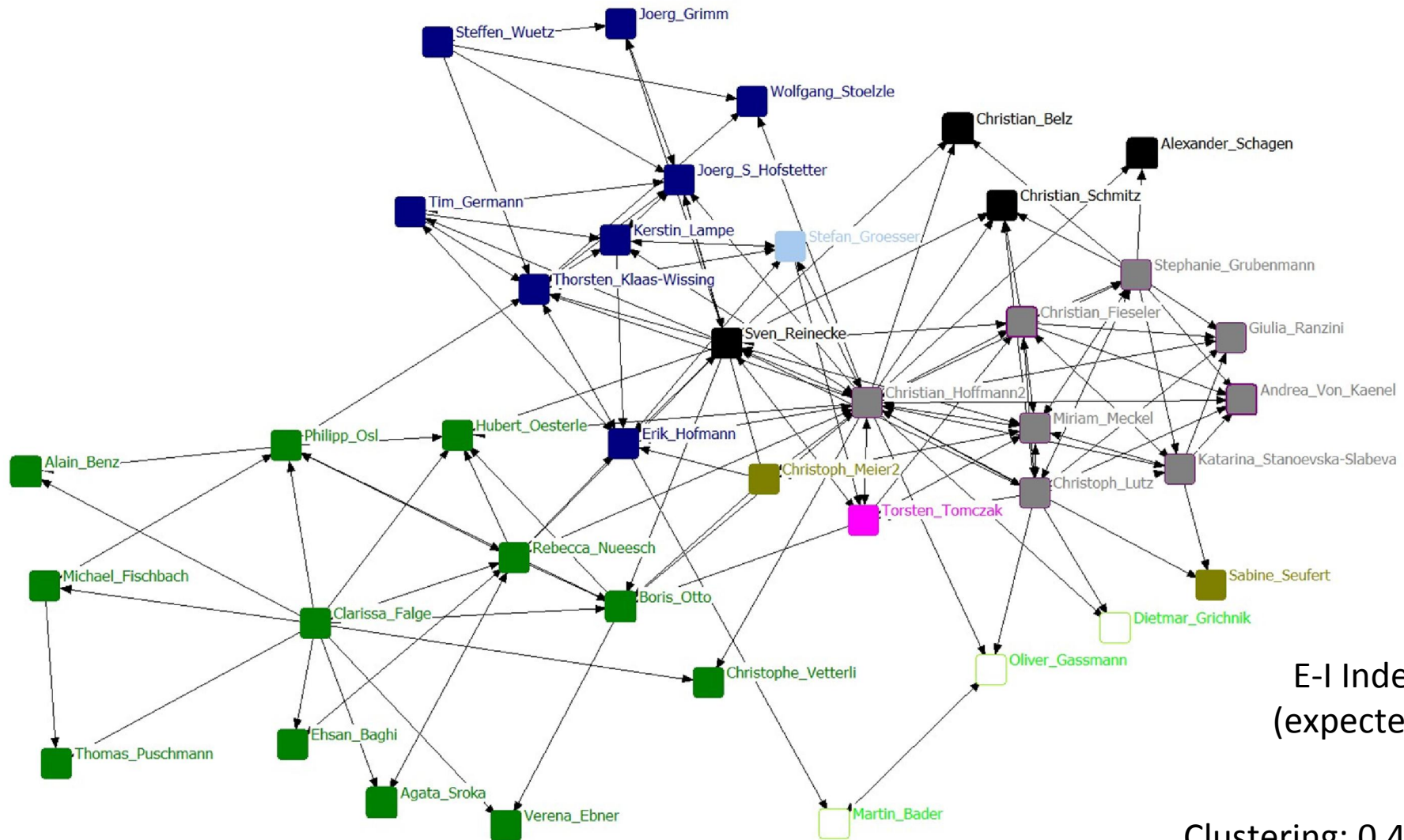
- Evaluating new forms of impact in management research
- Intensity of interaction, followers, followees, activity, publication resonance, RG score etc.
- 55 participants from 11 institutes: 80 percent male
- 50 percent PhD, 30 post-doc/assistant profs and 20 percent full profs

The Network



- 55 nodes, 10 isolates
- Av. Degree=3
- Density=0.06
- Diameter=6
- Av. Path Length=2.43
- E-I Index=-0.08
(expected: 0.69)
- Clustering=0.48

Network and Institute Membership



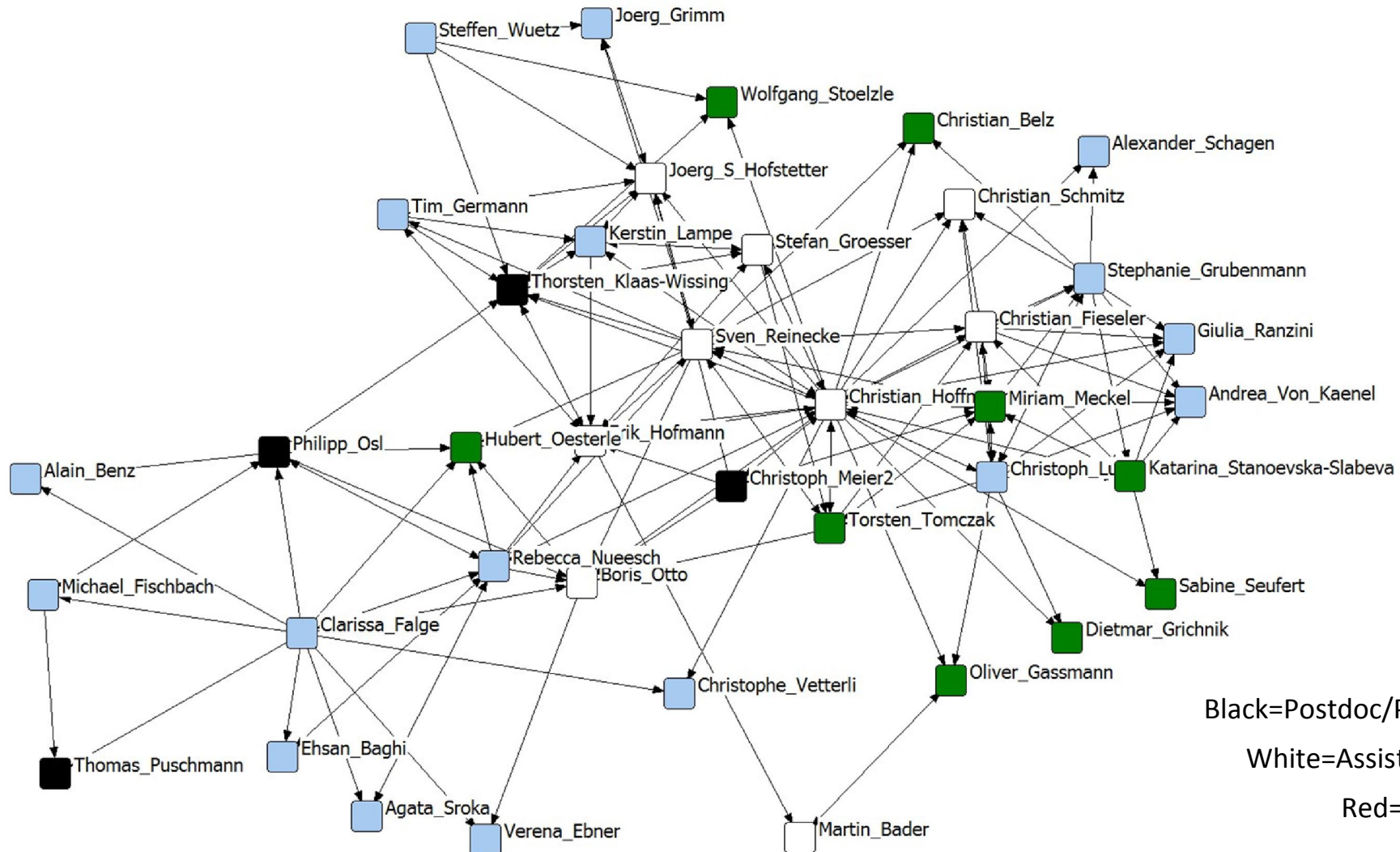
E-I Index: -0.08
(expected: 0.69)

Clustering: 0.48 (0.27)

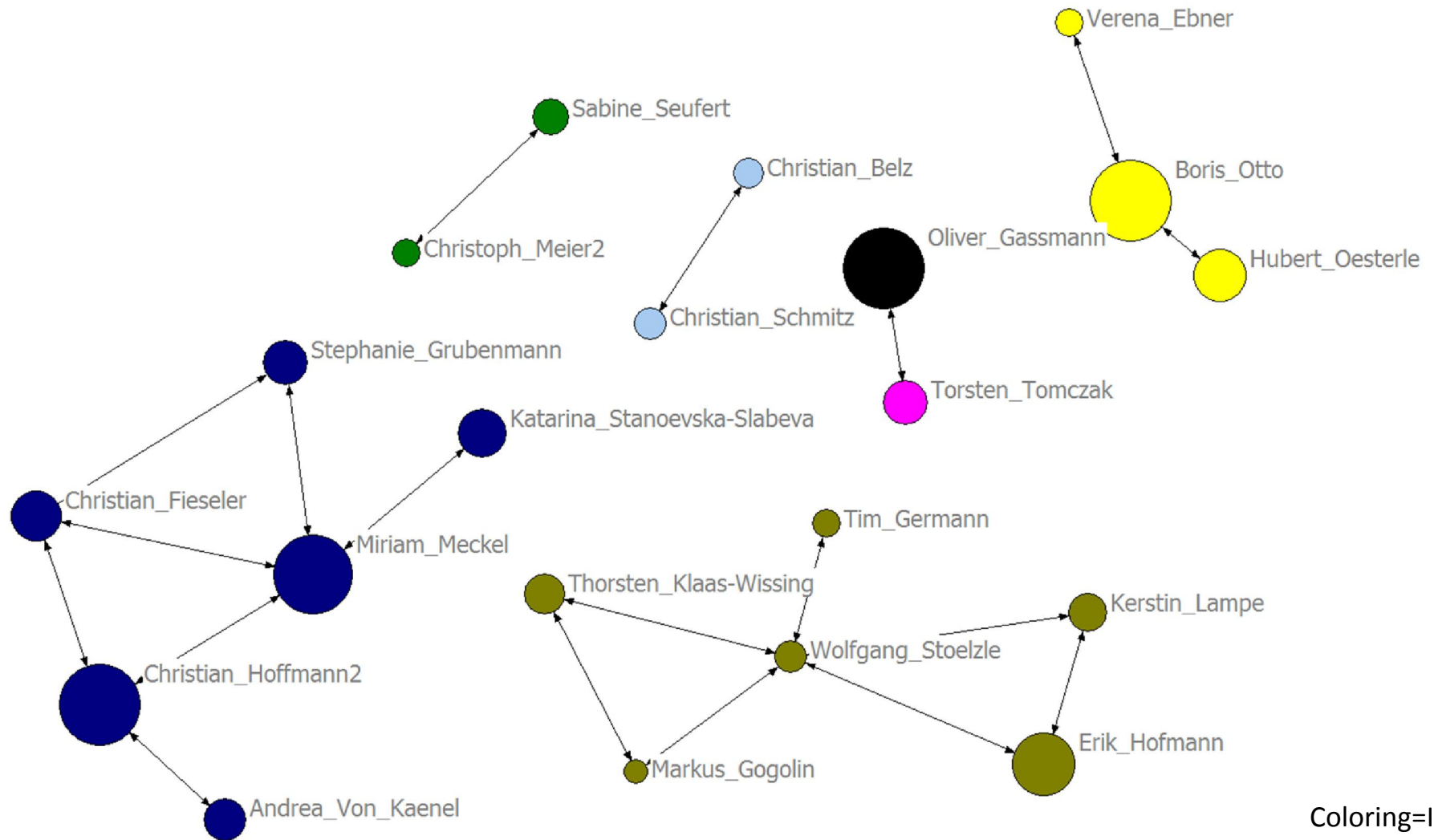
Predicting Network Centrality

	Indegree	Closeness	Betweenness	Eigenvector
Seniority (Reference: Master student=0)				
<i>PhD Student (1)</i>	.11** .28***	.66***	n. s.	.22**
<i>Post-Doc without Professorship (2)</i>	n. s. n. s.	.39**	n. s.	n. s.
<i>Junior/Assistant Professor (3)</i>	.46** .71***	.89***	n. s.	.70***
<i>Full Professor (4)</i>	n. s. n. s.	.83***	n. s.	n. s.
Publication Success (WOS h-Index; off platform)	.37* n. s.	n. s.	n. s.	n. s.
Publication Resonance (on platform)	n. s. .43*	n. s.	n. s.	.36*
Online Activity	.50*** .40**	.21**	n. s.	.41***
ResearchGate Score	n. s.	n. s.	n. s.	n. s.
R²	70% 50%	37%	41%	54%

Network and Academic Position

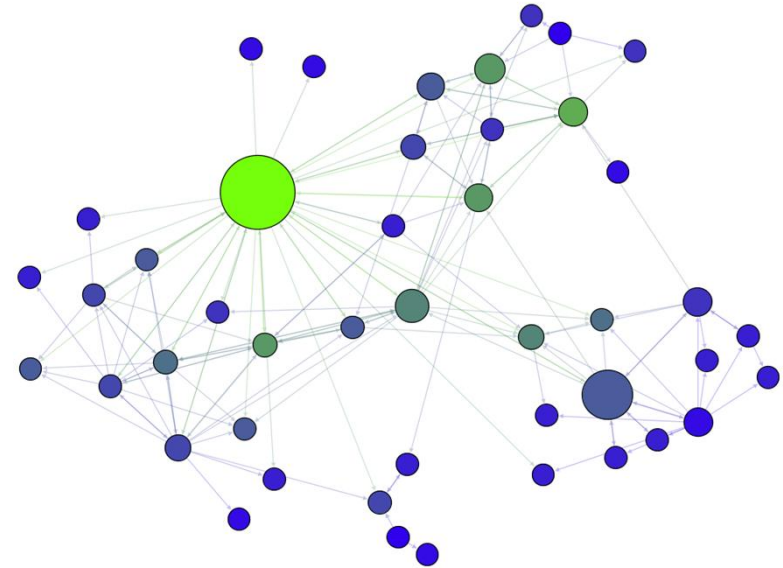
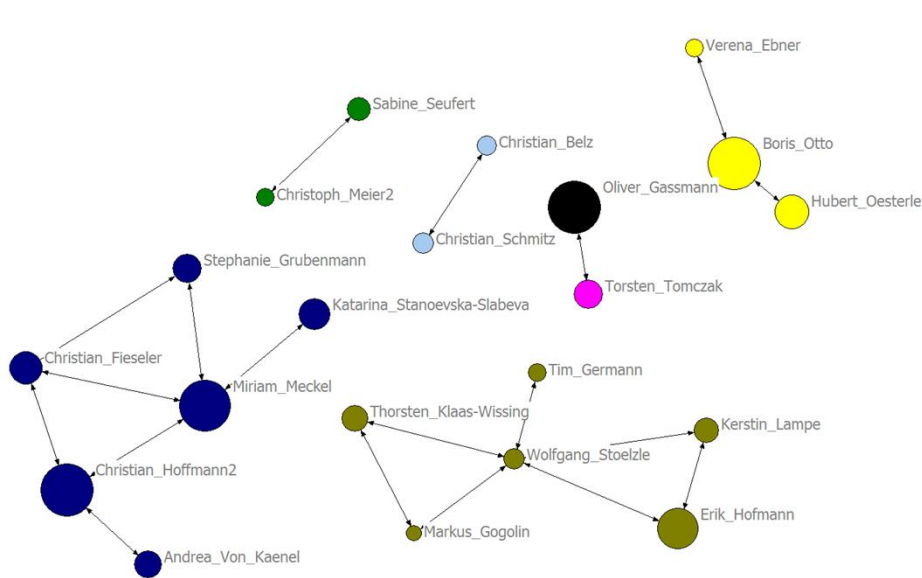


The Co-Authorship Network



Coloring=Institute
Size=Indegree

QAP-correlating Follower and Co-Authorship Network



Do the networks overlap?

Do researchers who write articles together also follow each other?

Yes... but the correlation is not very strong: 0.09 (p-value: 0.025)

Summary



- Indegree and closeness allrounders, betweenness most distinct
- Activity most important predictor of centrality (reciprocity)
- Academic position important but differentiated picture (inverted u-shape?)
- Publication success (h-index) important for overall indegree but not for faculty-specific indegree
- High homophily and clustering and low activity

The Road Ahead



- Sample extension to other research areas and universities
- More sophisticated data by including different social media
- Combining centrality with other criteria
- Looking at other publications (proceedings, book chapters...)
- **ERGM**ing the s*** out of the data



Thank You For Your Attention

Interested in the Project and Collaboration?



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Academia.edu: <http://independent.academia.edu/ChristophLutz>

Mendeley: <http://www.mendeley.com/profiles/christoph-lutz1/>

twitter



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