(STEM) Career Experiences and Outcomes

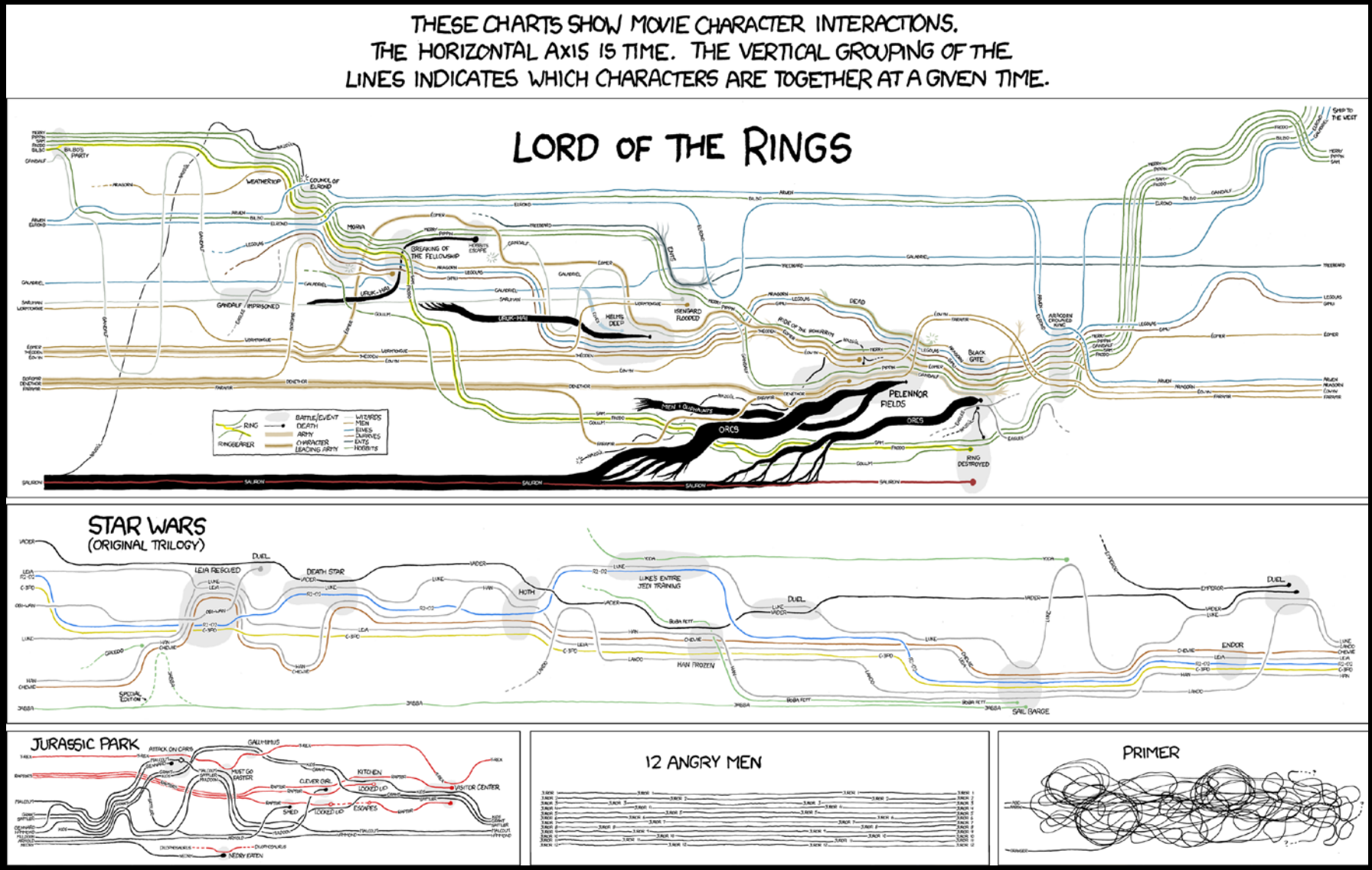
Katy Börner
Victor H. Yngve Distinguished Professor of Information Science
Director, Cyberinfrastructure for Network Science Center
School of Informatics and Computing and
Indiana University Network Science Institute
Indiana University, USA

Data and Modeling Workshop on Graduate Education Investments and STEM Career Experiences and Outcomes

National Science Foundation
4201 Wilson Boulevard • Arlington, VA

October 27, 2016

Visualizing Career Trajectories



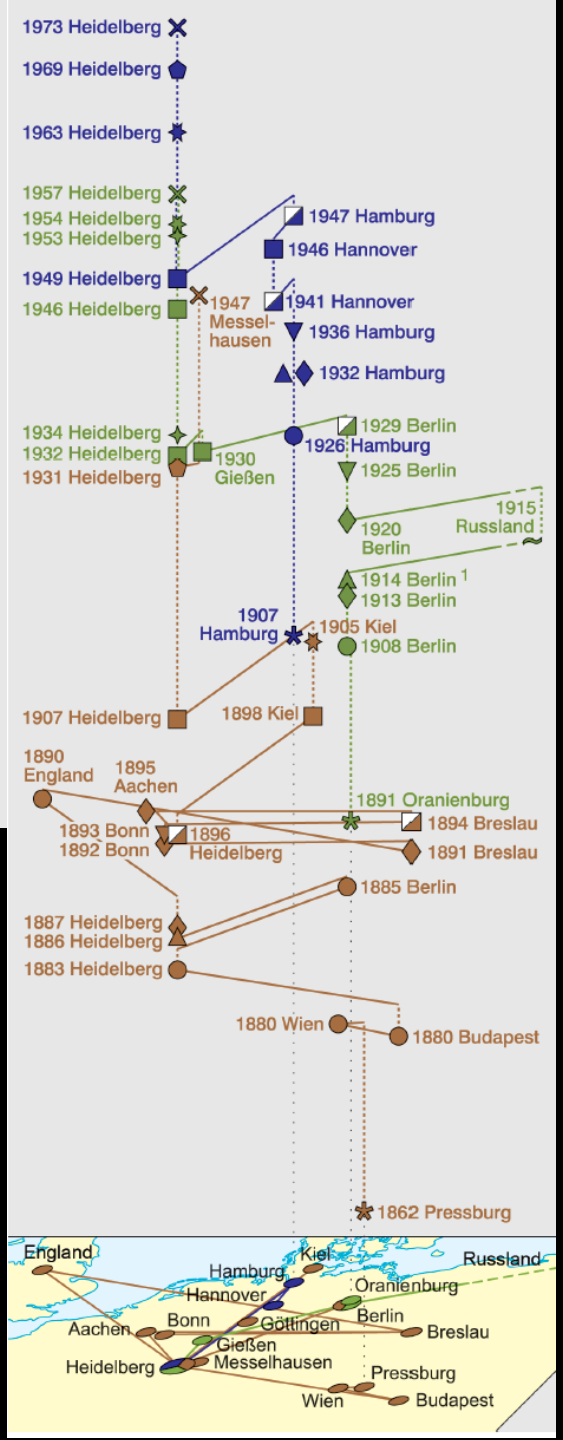
Randall Munroe's *Movie Narrative Charts*, xkcd.com

Nobelpreisträger für Physik

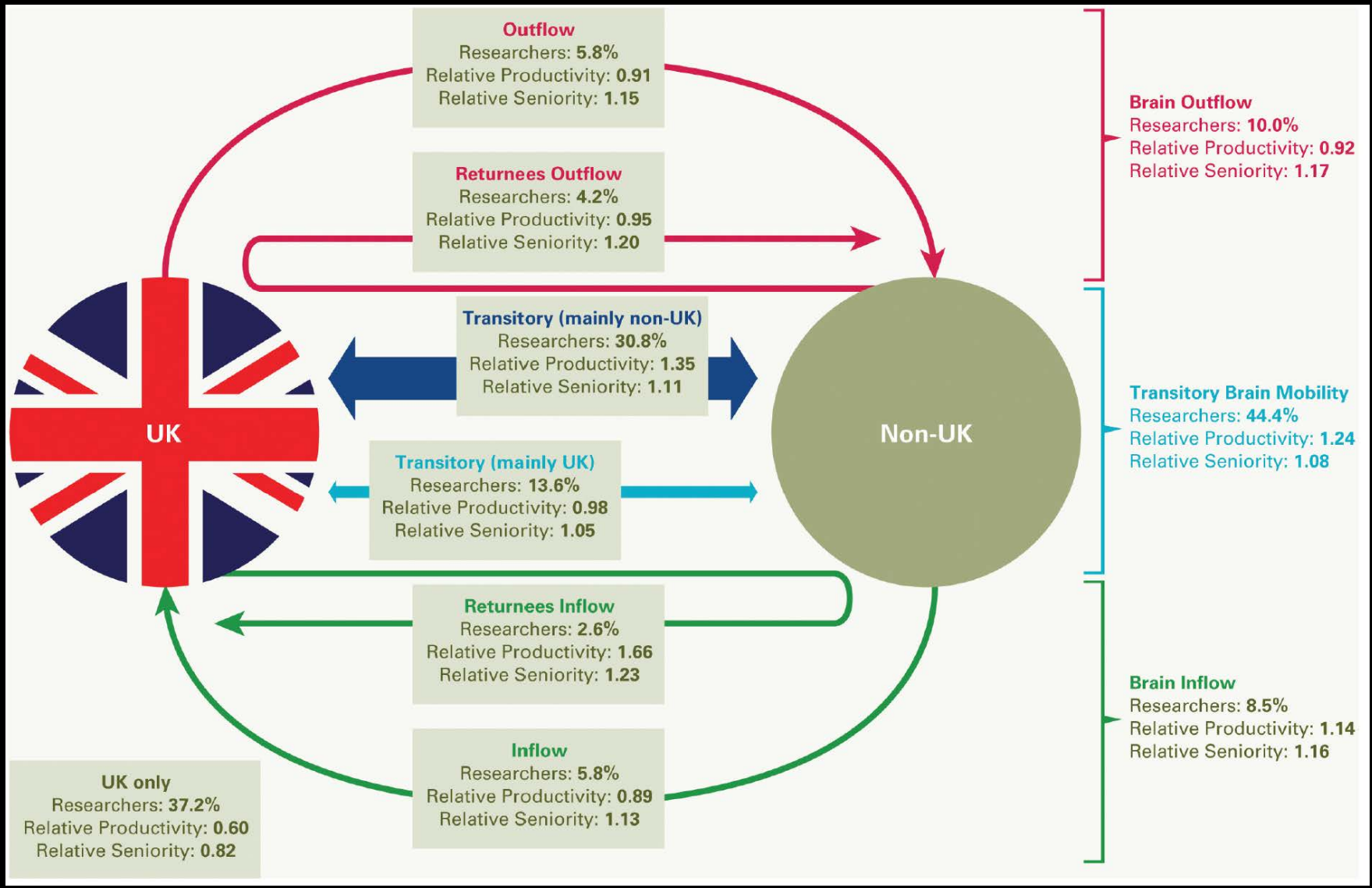
Philipp Lenard
1905 Nobelpreis für Physik
„für seine Arbeiten über die Kathodenstrahlen"

Walther Bothe
1954 Nobelpreis für Physik
(mit M. Born (Edinburgh))
„für seine Koinzidenzmethode und seine mit deren Hilfe gemachten bahnbrechenden Forschungsarbeiten auf dem Gebiet der Kernphysik"
[1] 1914 Promotion bei M. Planck (Nobelpreis für Physik 1918)

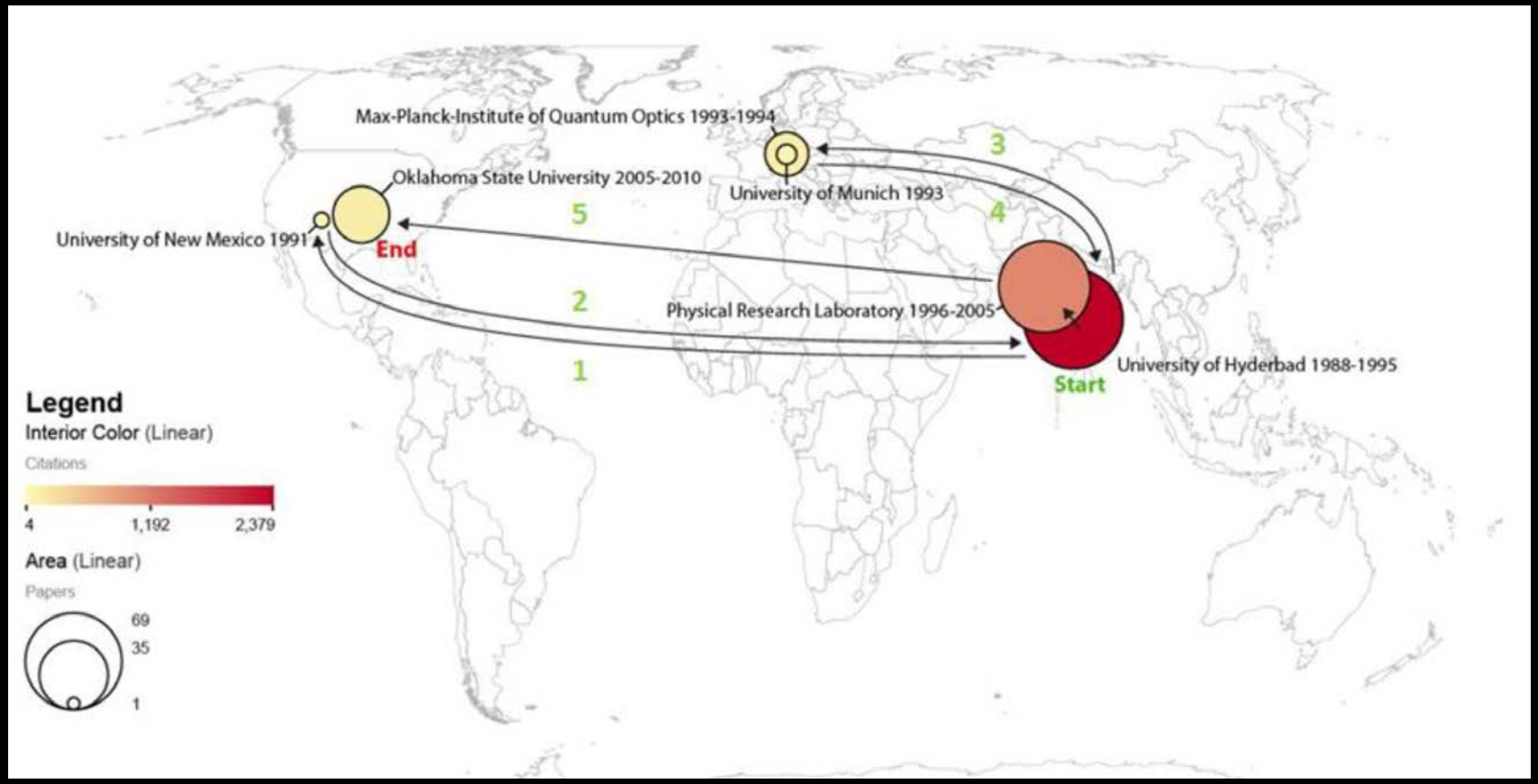
Hans Jensen
1963 Nobelpreis für Physik
(mit M. Goeppert-Mayer (La Jolla, USA) und E.P. Wigner (Princeton, USA))
„für die Entwicklung der Schalentheorie des Atomkernes"



Mager, Christoph. 2012. "Heidelberg Nobel Prize Winners." In *Wissenschaftsatlas of Heidelberg University: Spatio-Temporal Relations of Academic Knowledge Production*, edited by Peter Meusburger and Thomas Schuch, 250–253. Knittlingen, Germany: Bibliotheca Palatina.



Department of Business, Innovation and Skills. *International Comparative Performance of the UK Research Base – 2011*. http://www.bis.gov.uk/assets/biscore/science/docs/i/11-p123-international-comparative-performance-uk-research-base-2011.



Career trajectory for Dr. Girish Agarwal, 1988-2010 – Using WoS dataset of 10,000 physicists with the most affiliations.

Börner, Katy, and David E. Polley. 2014. "Replicable Science of Science Studies". In *Measuring Scholarly Impact: Methods and Practice*, edited by Ding, Ying, Ronald Rousseau, and Dietmar Wolfram, 321-341. Springer.

Web of Science as a Research Dataset

Date:

November 14-15, 2016

Meeting Place:

Social Science Research Commons (SSRC),
Woodburn Hall, Room 200
1100 East Seventh Street
Bloomington, IN 47405

Web Indiana University Campus Map »

Workshop Goals

This practical workshop brings together data scientists and data stewards from research centers that are using the Web of Science™ at scale. We will explore WoS from the perspective of a research dataset and work together on practical ways to better support our research in the future. While the main focus will be on the Web of Science, the results should be extensible to all similar metadata aggregations. This unique focus—bringing data stewards and data scientists from these centers together to work on shared needs in tandem with the Web of Science team—will enable us to redefine and fully repurpose WoS to fit our research goals. We intend to launch an ongoing community in which we will learn techniques and develop tools to improve the data that underlies our research.

Advance Preparations

- Data stewards will provide a short profile of how WoS as a dataset is being implemented in the context of their research center/university and the technical, content, and other challenges they are facing.
- Researcher data scientists will prepare a short profile of current research projects leveraging the WoS dataset, focusing on key challenges such as linking, disambiguating, mining, etc. that, if solved, would offer greater research opportunities.

Organizers:

Katy Börner

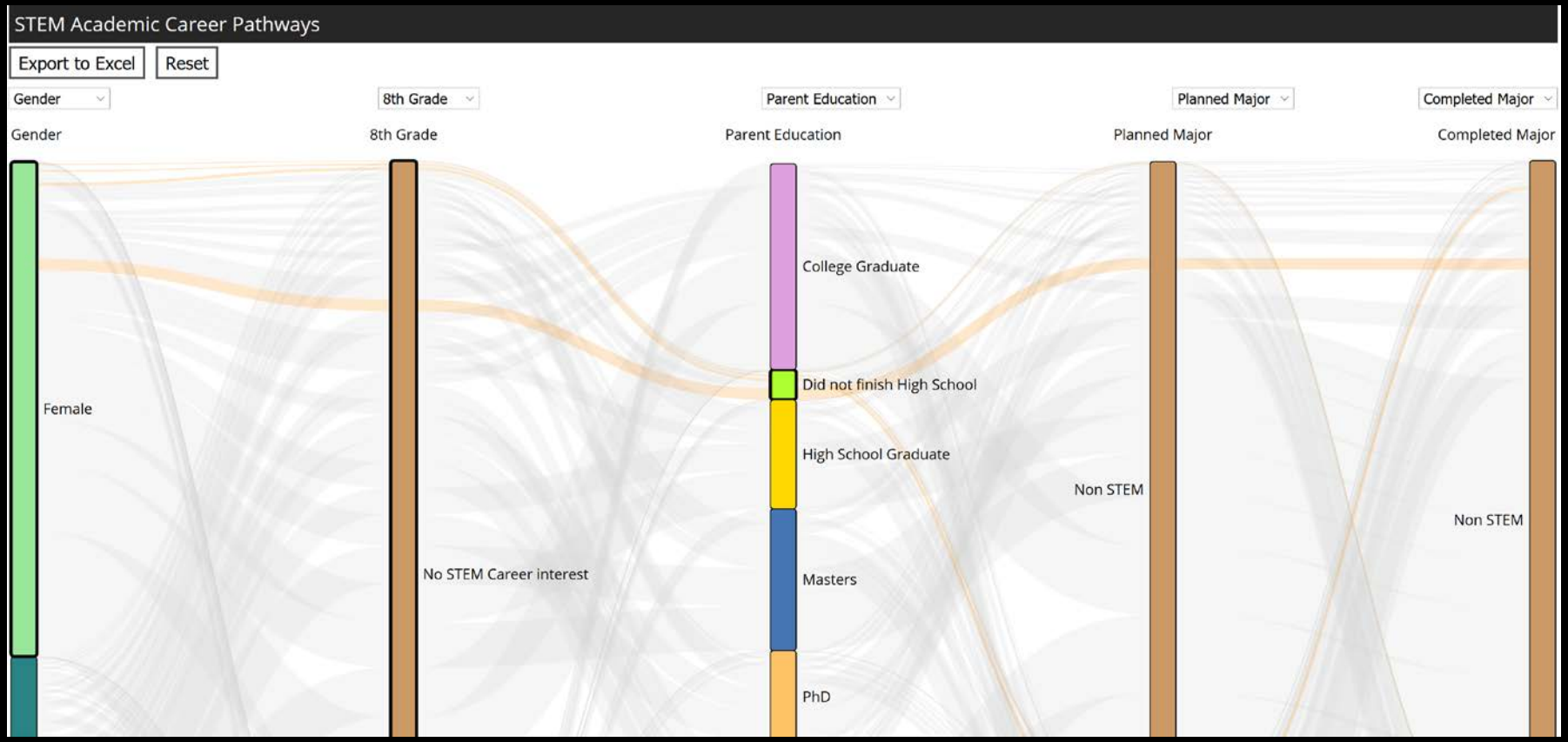
Victor H. Yngve Distinguished Professor of Information Science, Department of Information and Library Science, School of Informatics and Computing, Indiana University, Bloomington; Director, Cyberinfrastructure for Network Science Center & Curator of Mapping Science exhibit, Bloomington, IN
katy@indiana.edu

Eamon Duede

Executive Director, Knowledge Lab. Administrator, Metaknowledge Research Network, University of Chicago
eduede@uchicago.edu

James Pringle

Head of Industry Development & Innovation at Thomson Reuters IP & Science



Measuring and Visualizing STEM Pathways. NCSE-1538763 Award (Adam V. Maltese, Katy Börner) Aug. 15, 2015 - Jan. 2017.

Interactive web site: http://demo.cns.iu.edu/client/stem/

Modelling and Visualizing Science and Technology Developments

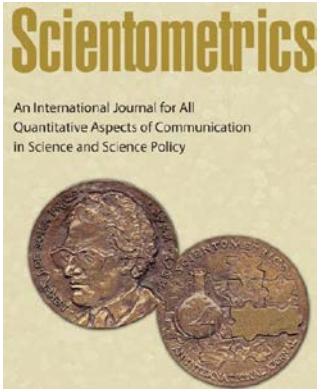
Government, academic, and industry leaders discussed challenges and opportunities associated with using big data, visual analytics, and computational models in STI decision-making.

Conference slides, recordings, and report are available via http://modsti.cns.iu.edu/report

Special Issue of *Scientometrics*:

Simulating the Processes of Science, Technology, and Innovation

Bruce Edmonds, Andrea Scharnhorst, Katy Börner & Staša Milojević (Editors)



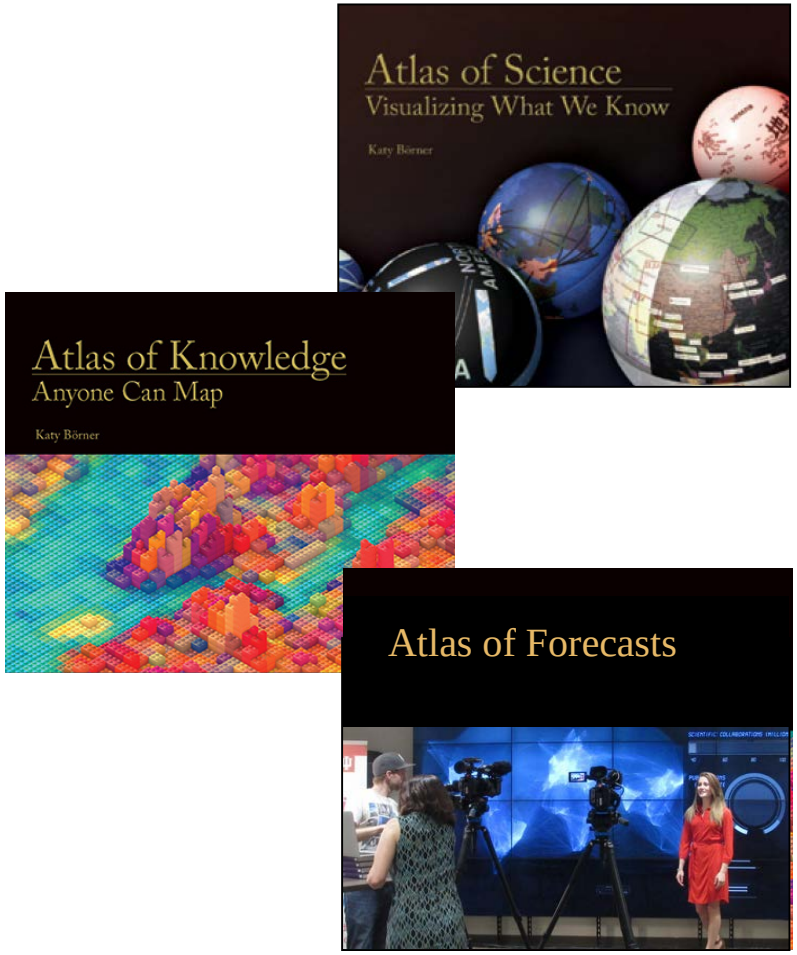
- ***Rogier De Langhe:*** Towards the Discovery of Scientific Revolutions in Scientometric Data
- ***Sabine Brunswicker, Sorin Matei, Michael Zentner, Lynn Zentner and Gerhard Klimeck:*** Creating Impact in the Digital Space: Digital Practice Dependency in Scientific Developer Communities
- ***Johan Bollen et al.:*** An Efficient System to Fund Science: From Proposal Review to Peer-to-Peer Distributions
- ***Petra Ahrweiler:*** Agent-based Simulation for Science, Technology and Innovation Policy
- ***David Chavalarias:*** What's Wrong With Science? Modeling Collective Discovery Processes With the Nobel Game
- ***Jeff Alstott, Giorgio Triulzi, Bowen Yan and Jianxi Luo:*** Mapping Technology Space by Normalizing Patent Technology Networks

Atlas Trilogy

Börner, Katy (2010) **Atlas of Science: Visualizing What We Know**. The MIT Press.
http://scimaps.org/atlas

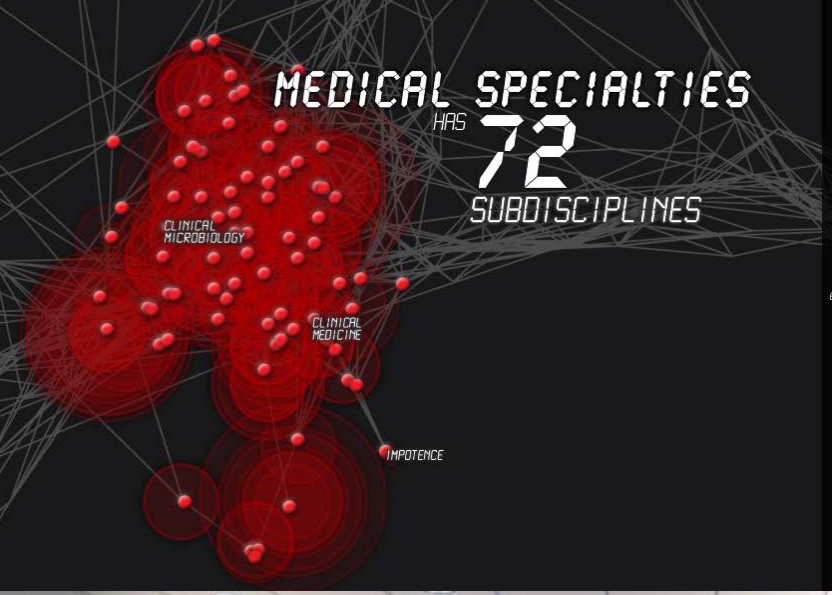
Börner, Katy (2015) **Atlas of Knowledge: Anyone Can Map**. The MIT Press.
http://scimaps.org/atlas2

Börner, Katy (2018) **Atlas of Forecasts: Predicting and Broadcasting Science, Technology, and Innovation**. The MIT Press.



Upcoming Sackler Colloquium on "**Modelling and Visualizing Science and Technology Developments**" will take place in October 2017 at the Beckman Center, Irvine, CA.

Science Forecast S1:E1, 2015



All papers, maps, tools, talks, press are linked from http://cns.iu.edu
These slides are at http://cns.iu.edu/docs/presentations

CNS Facebook: http://www.facebook.com/cnscenter
Mapping Science Exhibit Facebook: http://www.facebook.com/mappingscience