CADRE
Collaborative Archive & Data Research Environment

Web of Science Group

ISSI

Mathematical Biology and Systematic Mathematical Research Analysis

Samuel Hansen, University of Michigan Libraries hansensm@umich.edu

LIBRARIES

INDIANA UNIVERSITY
NETWORK SCIENCE INSTITUTE

B1G
ACADEMIC ALLIANCE

Comparative analysis of legacy and emerging journals in mathematical biology

Researchers: Marisa Conte, Samuel Hansen, Scott Martin, Santiago Schnell

Affiliation: University of Michigan and University of Michigan Medical School

Project Goals

- Develop and test methods for comparative bibliometric and content analyses
- Provide insight into publication trends in theoretical and applied domains
- Help editors in this field distinguish between their journals
- Give authors new factors to consider when determining where to publish
- their work

Systematic over-time study of the similarities and differences in research across mathematics and the sciences

Researcher: Samuel Hansen

Affiliation: University of Michigan

Project Goals

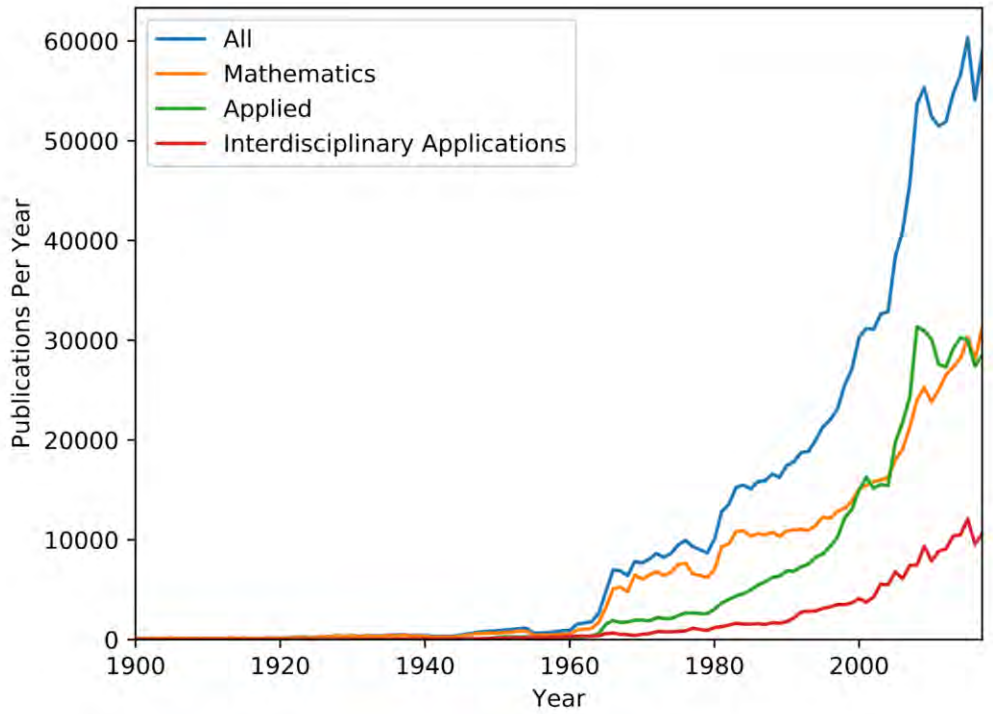
- Develop a holistic understanding of mathematical research using bibliometric and scientometric methods
- Compare mathematical research to research from other STEM fields quantitively
- Help mathematicians understand how mathematics has grown over time

Why CADRE

- Access to two large bibliometrics datasets with complimentary data, with the ability to analyze over large timescales and large subject groupings
- Support for technical and computational aspects of the project, in particular related to ML/DL and topic modelling
- Community of Practice

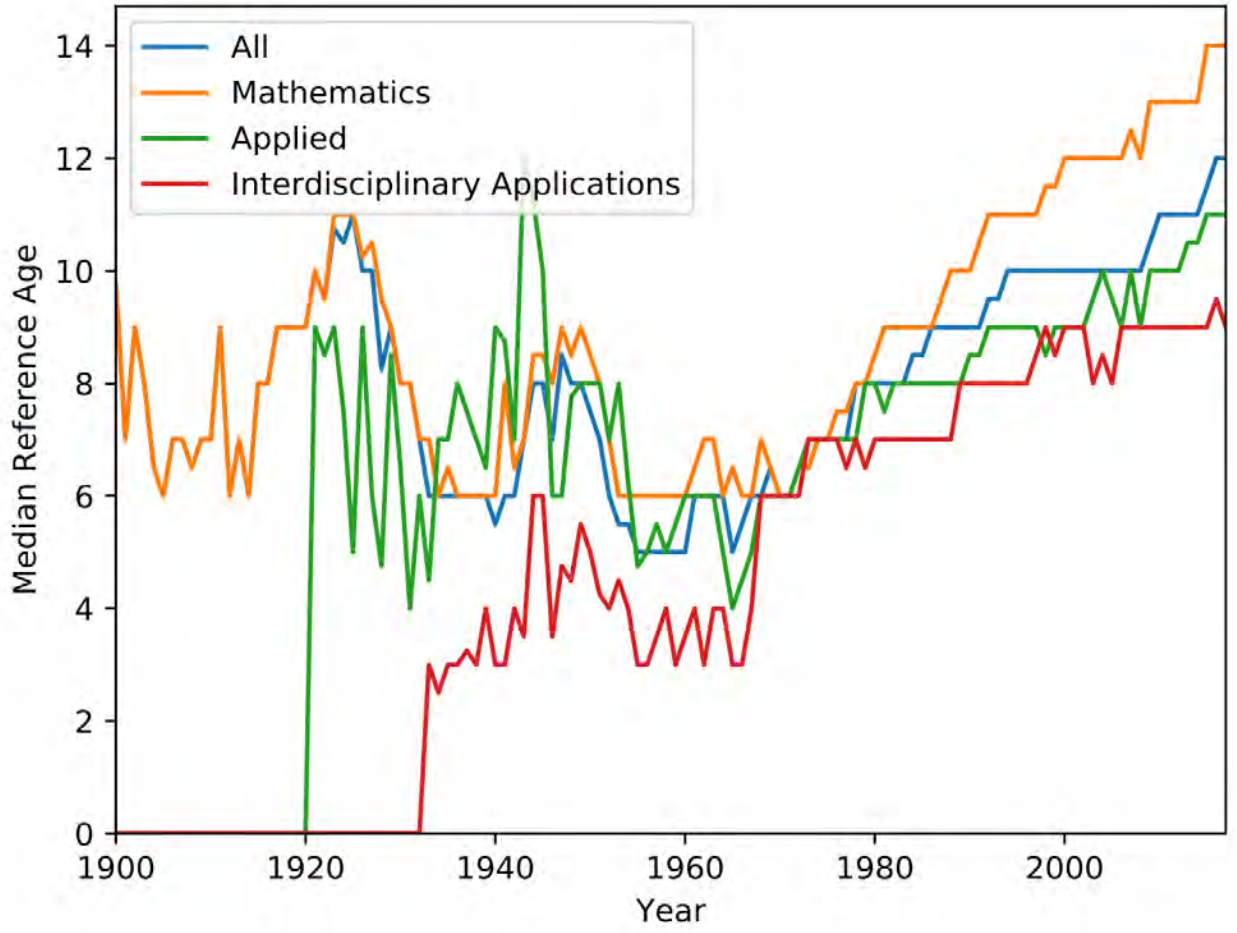
Preliminary Results

Mathematical Publications in Web of Science

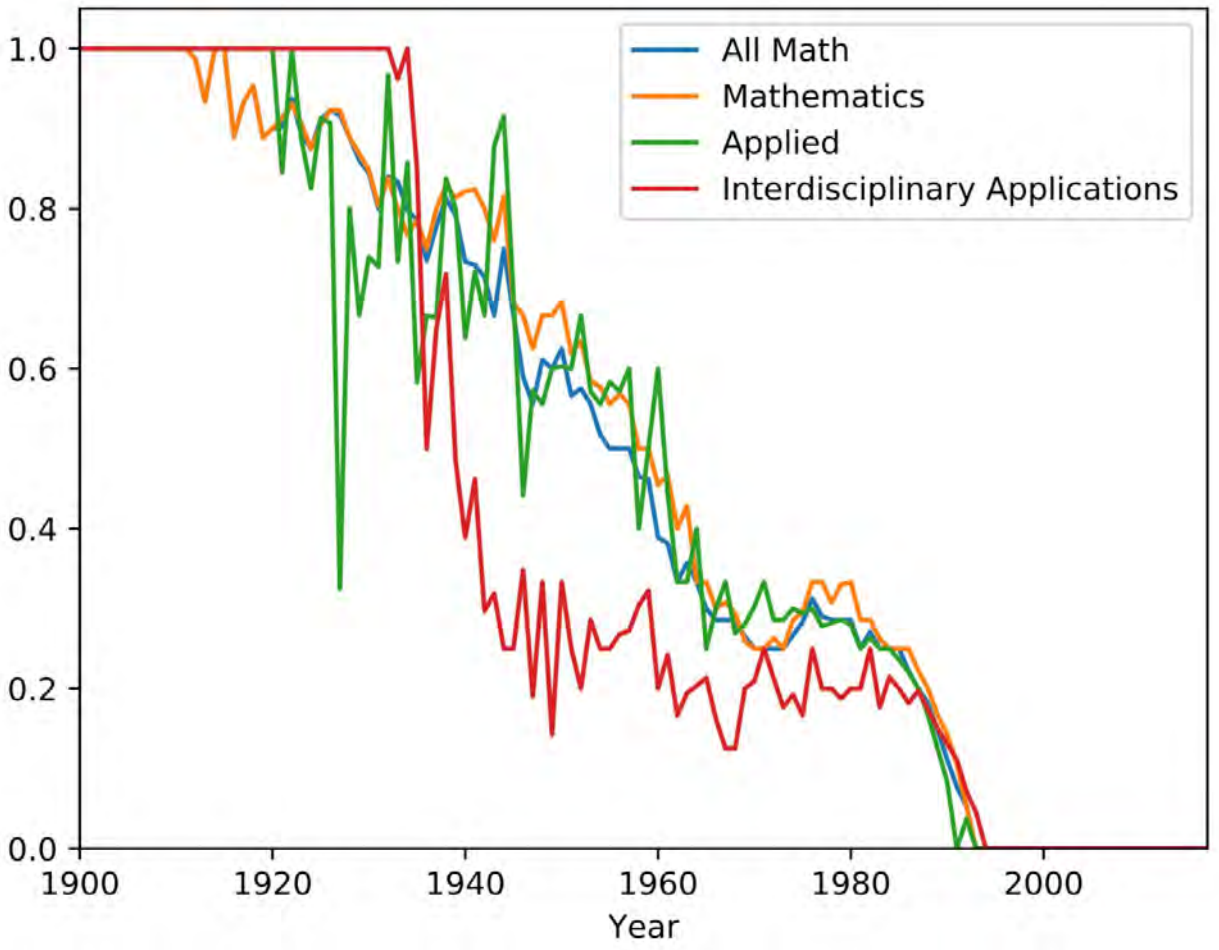


Mathematics	Applied	Interdisciplinary Applications	Total
742541	611160	199652	1343970

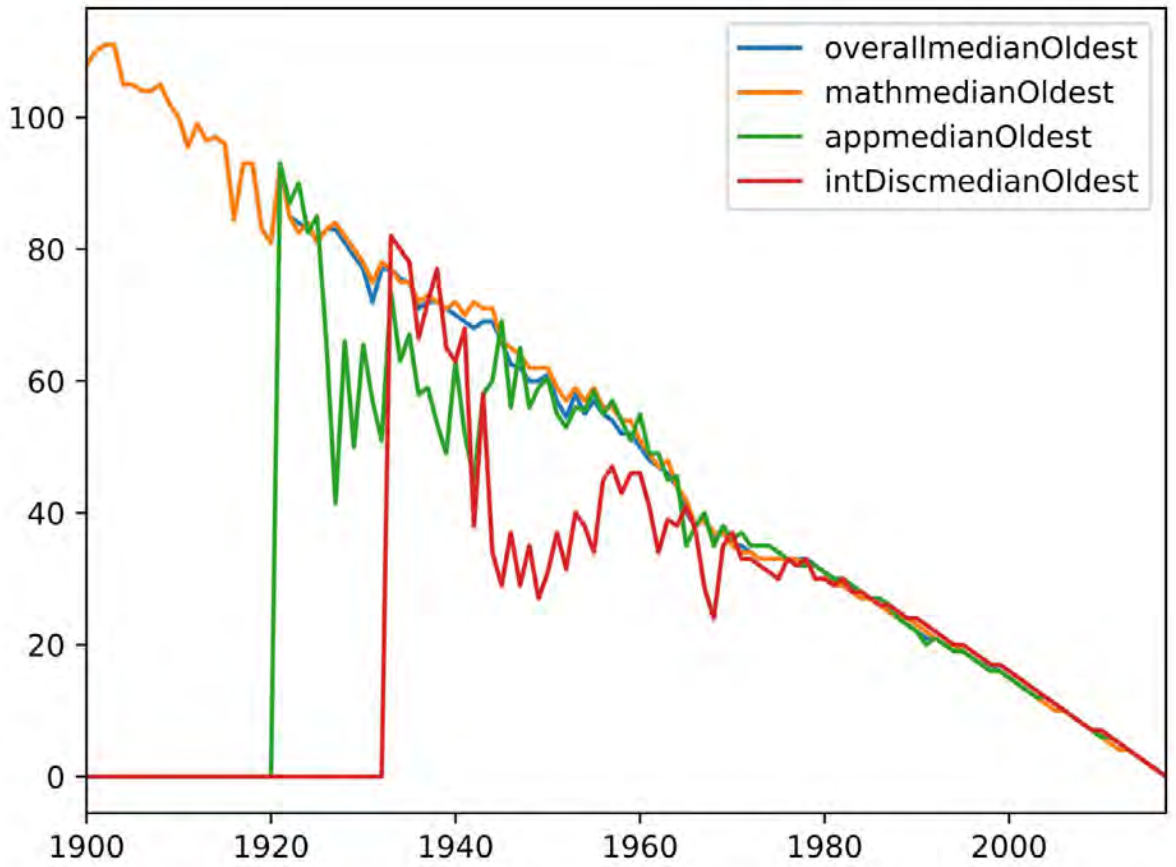
Median Reference Age for Publication



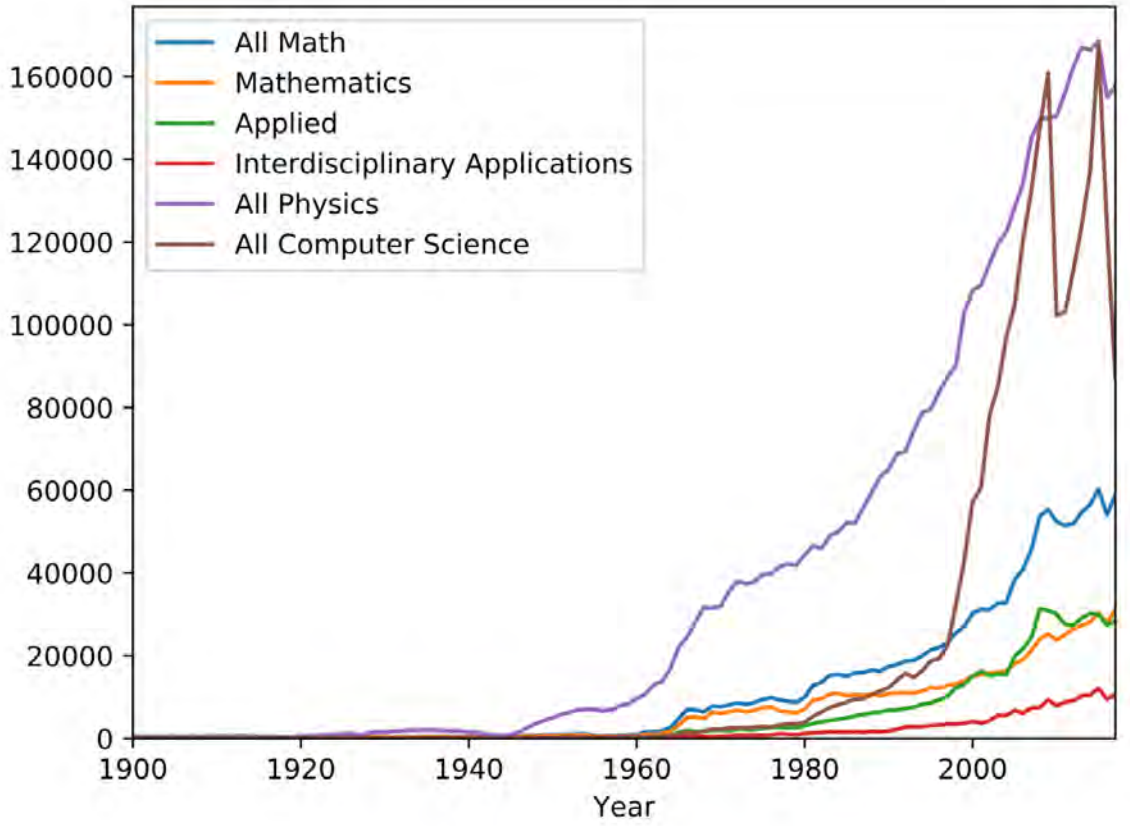
% of Citations over 20 Years Old



Median Oldest Citation Per Publication

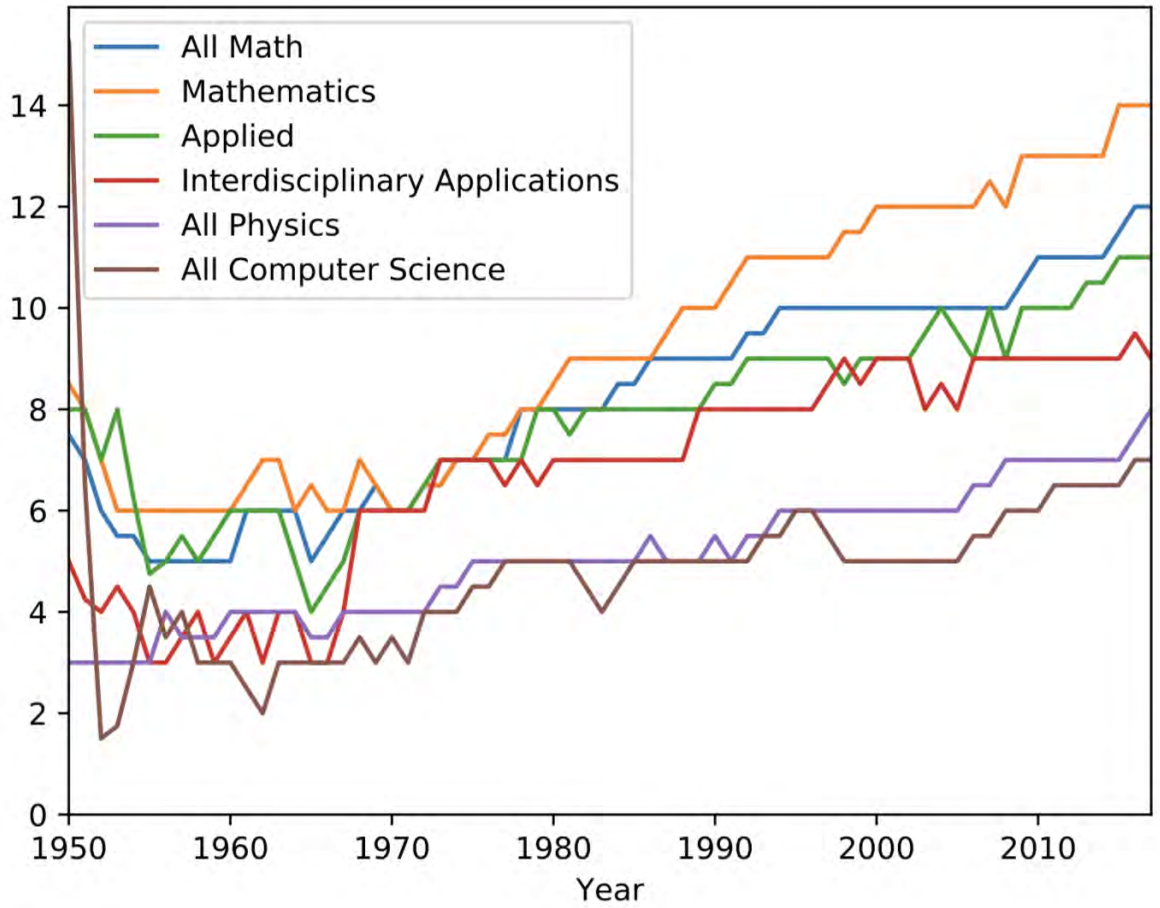


Publications in Web of Science

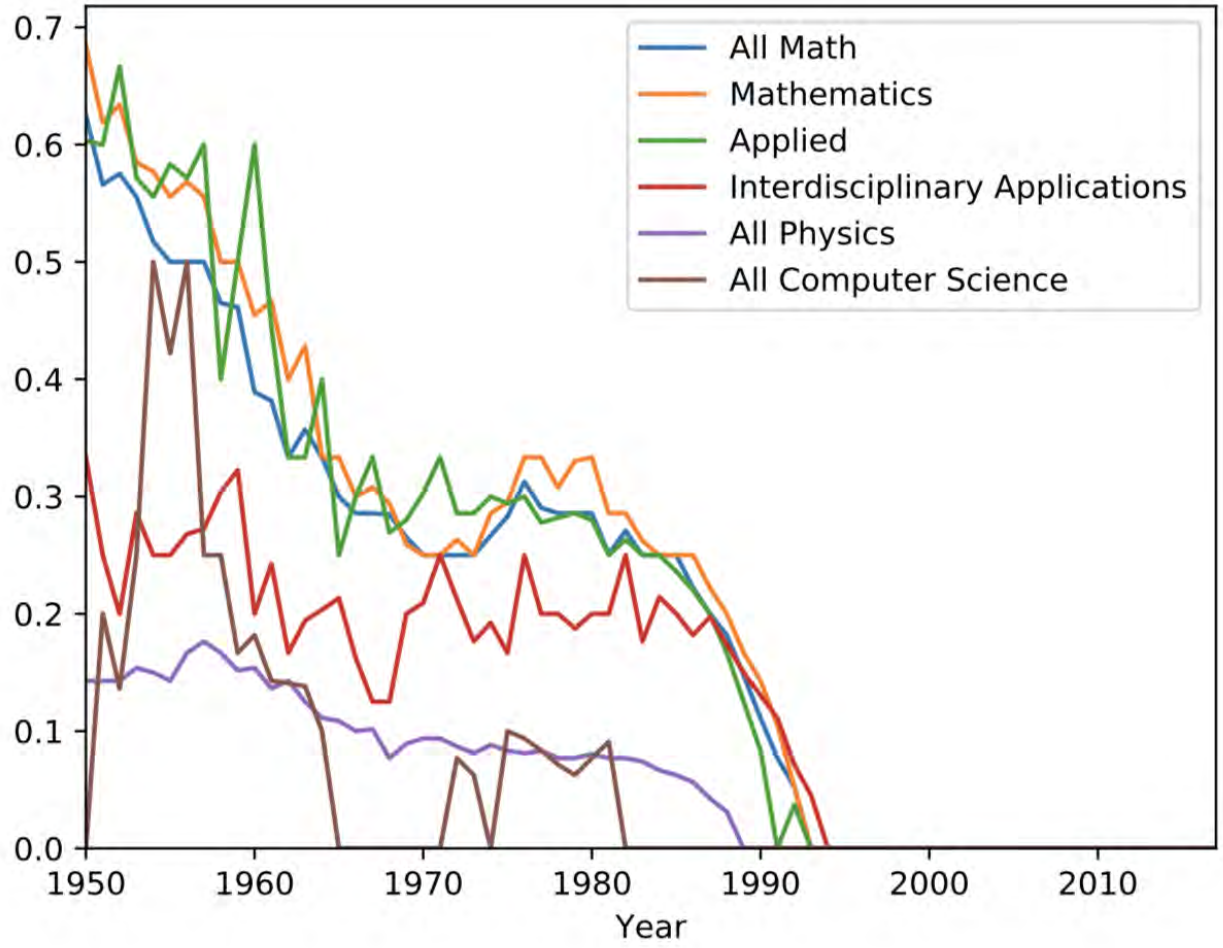


Mathematics	Applied	Interdisciplinary Applications	Mathematics Total	Physics	Computer Science
74,2541	611,160	199,652	1,343,970	4,597,628	2,332,244

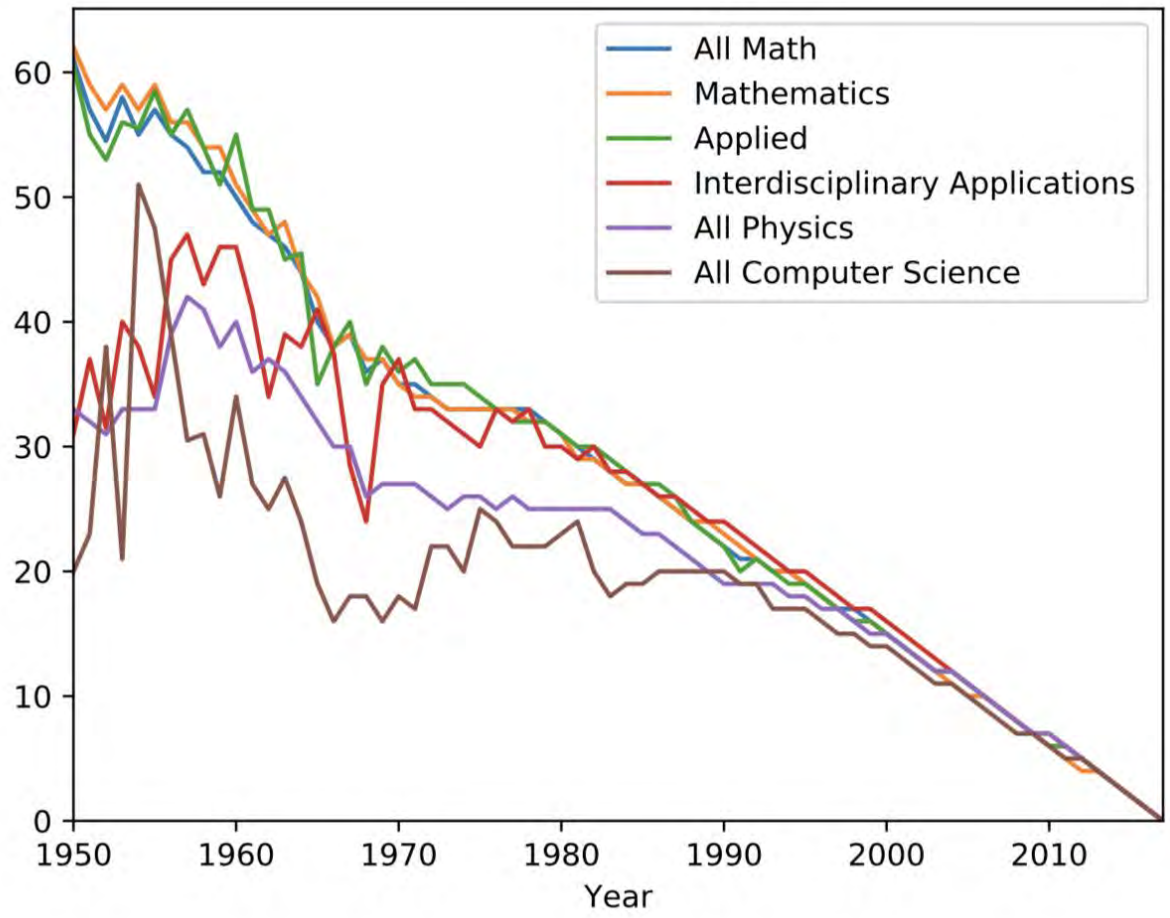
Median Reference Age for Publication



% of Citations over 20 Years Old



Median Oldest Citation Per Publication



Mathematical Sleeping Beauties

Rates of Sleeping Beauties (SBs) among mathematical publications indexed within Web of Science

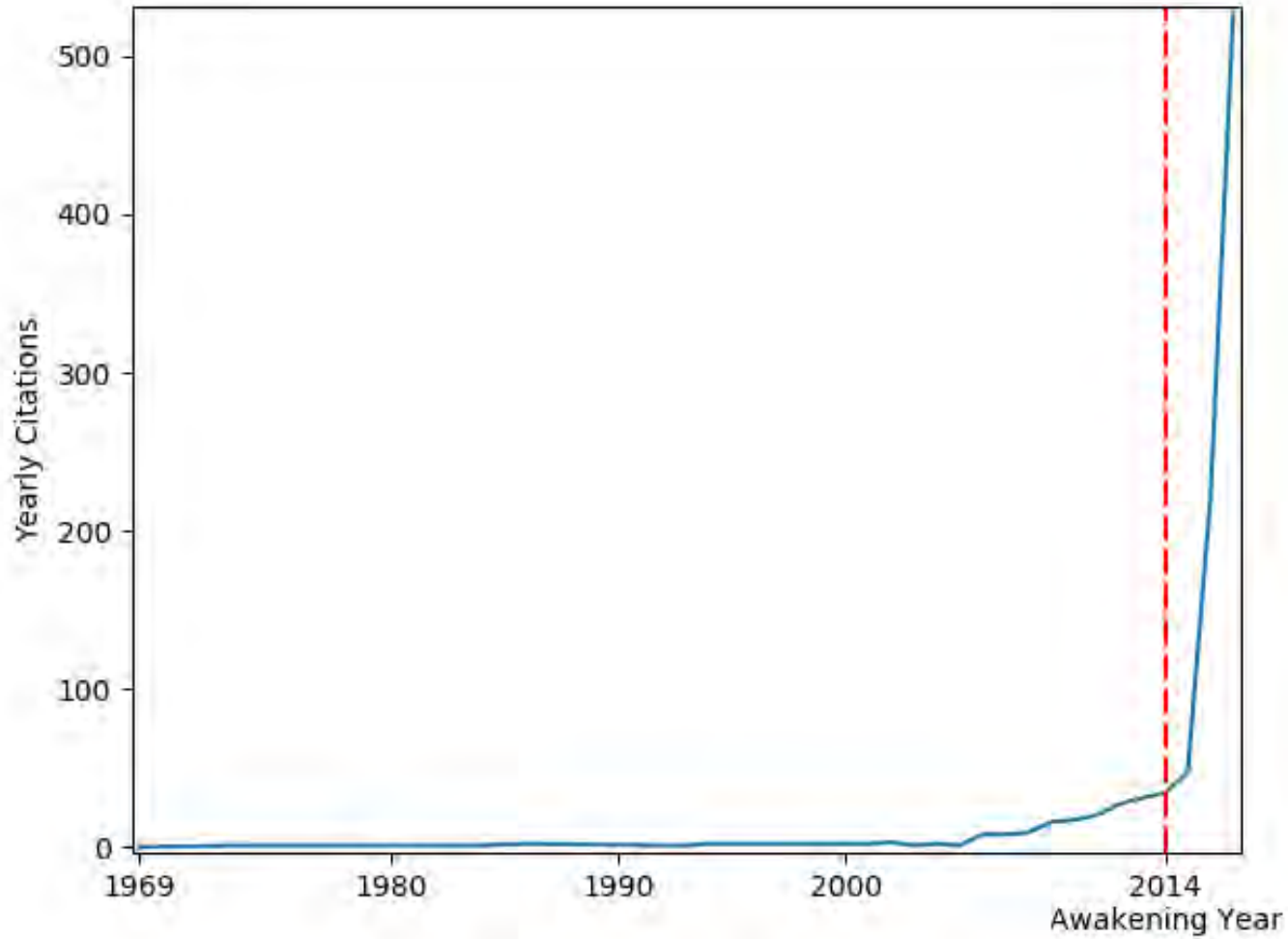
Subject	Total	SBs	Rate
Mathematics	742541	3044	.41%
Applied	611160	743	.12%
Interdisciplinary Applications	199652	324	.16%
Total	1343970	3847	.28%

Highly Cited Mathematical Sleeping Beauties

Rates of Sleeping Beauties (SBs) among mathematical publications indexed within Web of Science where the publication has received over 100 citations

Subject	Total	SBs	Rate
Mathematics	6485	938	14.5%
Applied	6635	342	5.1%
Interdisciplinary Applications	3995	174	4.3%
Total	15745	1354	8.5%

Citation History for Investigating Causal Relations by Econometric Models and Cross-spectral Methods by Clive Granger



Questions?

Content