Collective Attention towards Scientists and Research Topics

(WebSci'18, Amsterdam)

Claudia Wagner, **Olga Zagovora**, Tatiana Sennikova, Fariba Karimi

gesis — Leibniz Institute for the Social Sciences
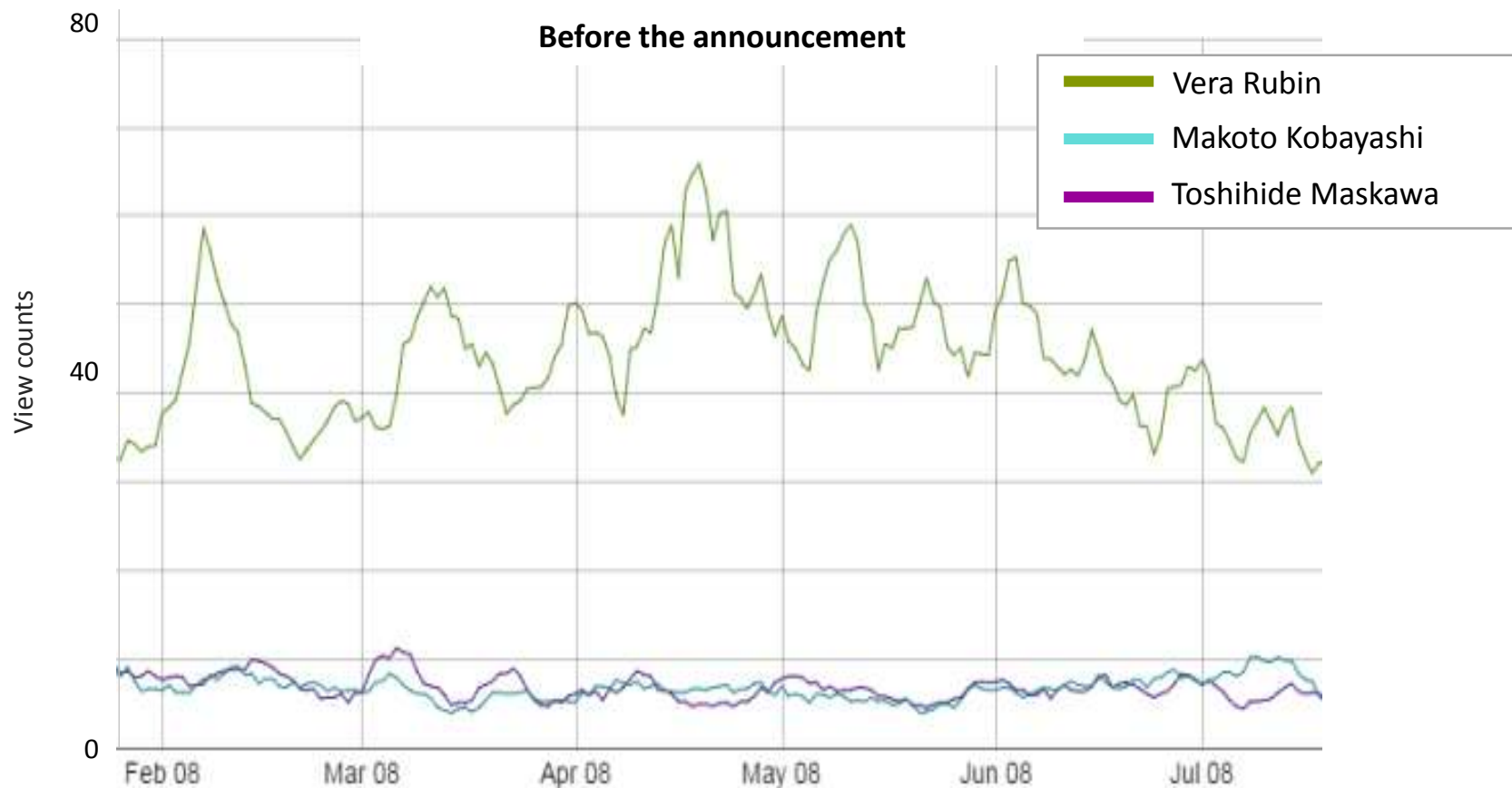
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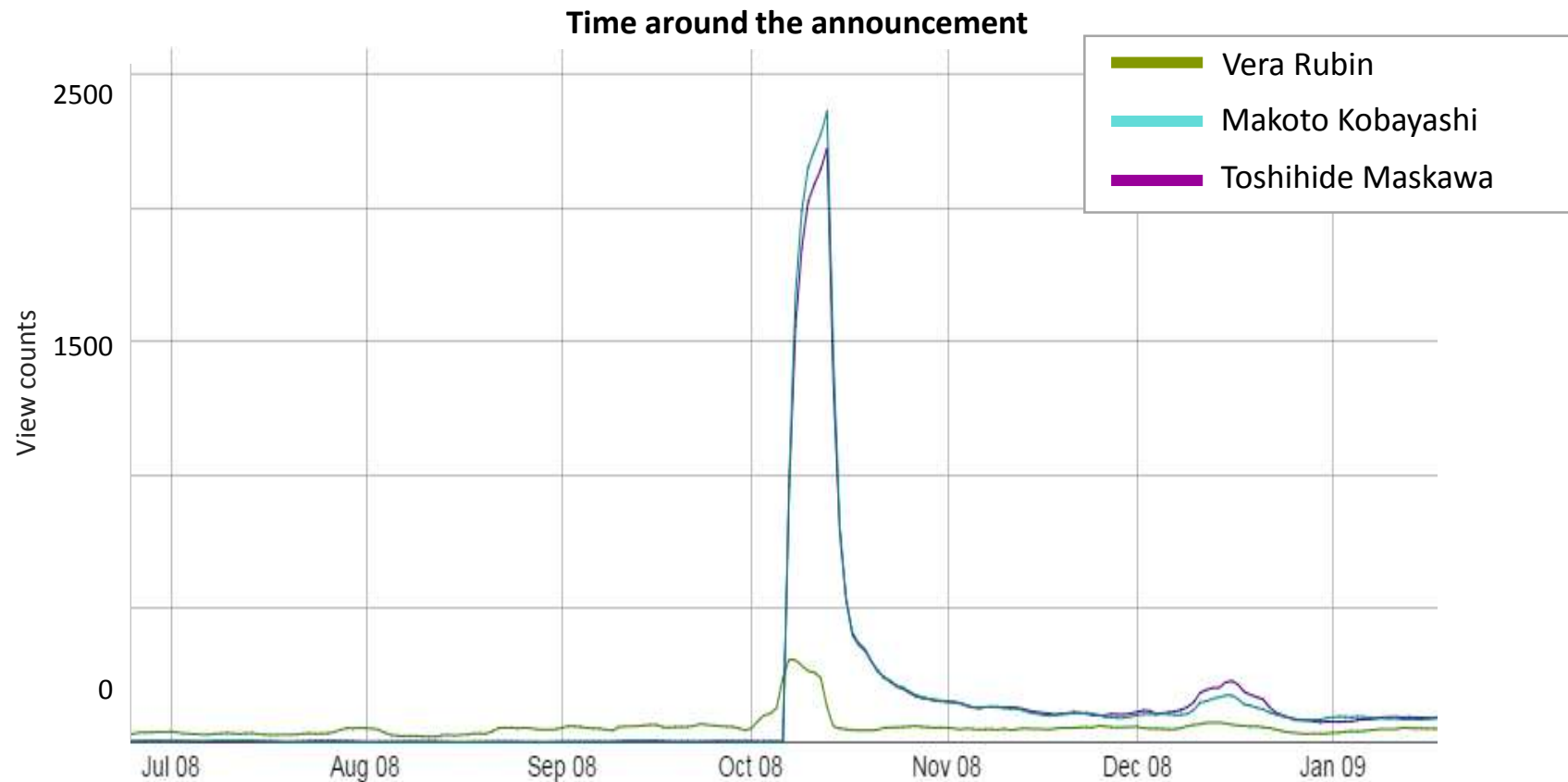From the Archives: Woman who discovered dark matter has yet to win a Nobel Prize. #NobelforVeraRubin
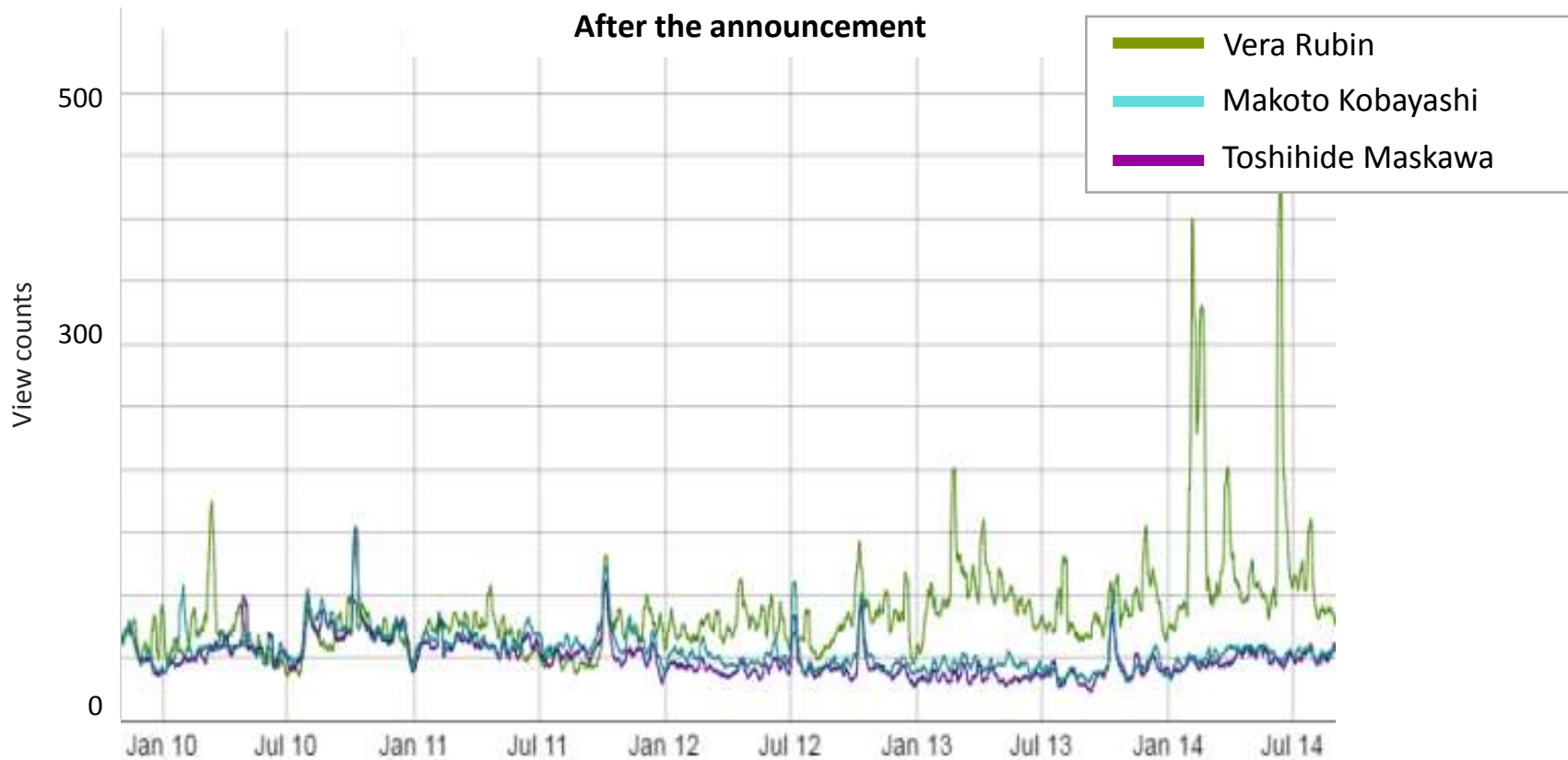
astronomy.com/news/2016/10/v...

Nobel Prize in Physics 2008 Wikipedia Page Views Statistics

Nobel Prize in Physics 2008 Wikipedia Page Views Statistics

Time around the announcement

Legend: Vera Rubin, Makoto Kobayashi, Toshihide Maskawa

Nobel Prize in Physics 2008 Wikipedia Page Views Statistics

Research Question

- Impact of award on collective attention?
- Differences between awarded and non-awarded scientists?

Data

Awarded scientists (2008 – 2015)

- Nobel Prize
- Abel Prize
- Fields Medal
- Turing Award
- IEEE Medal of Honor
- International Prize for Biology
- Thomson Reuters Citation Laureates
    - ❖ 262 researchers

Non-awarded scientists (2008 – 2015)

- influential, highly cited scientists (WoS) who worked at the same time, in the same scientific fields as the award winners
    - ❖ 262 researchers

- 57 Physicists
- 18 Mathematicians
- 18 Computer Scientists
- 50 Chemists
- 58 Medicine and Physiology
- 9 Biologists
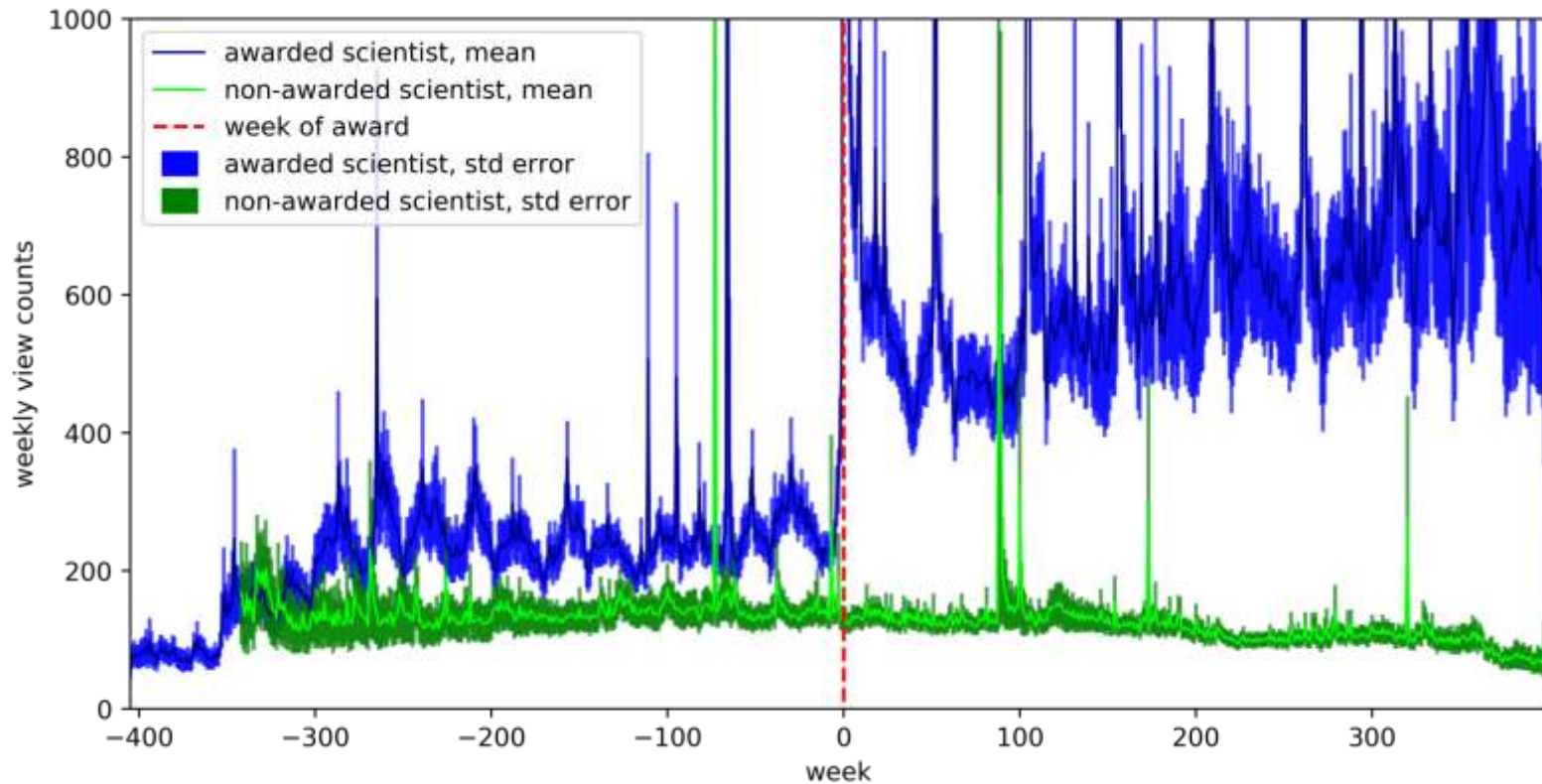- 54 Economists

Method

Two types of articles:

- Scientists

- Research topics related to the scientists
  - mined from Wikipedia knowledge graph
    - 1,911 topics of awarded scientists
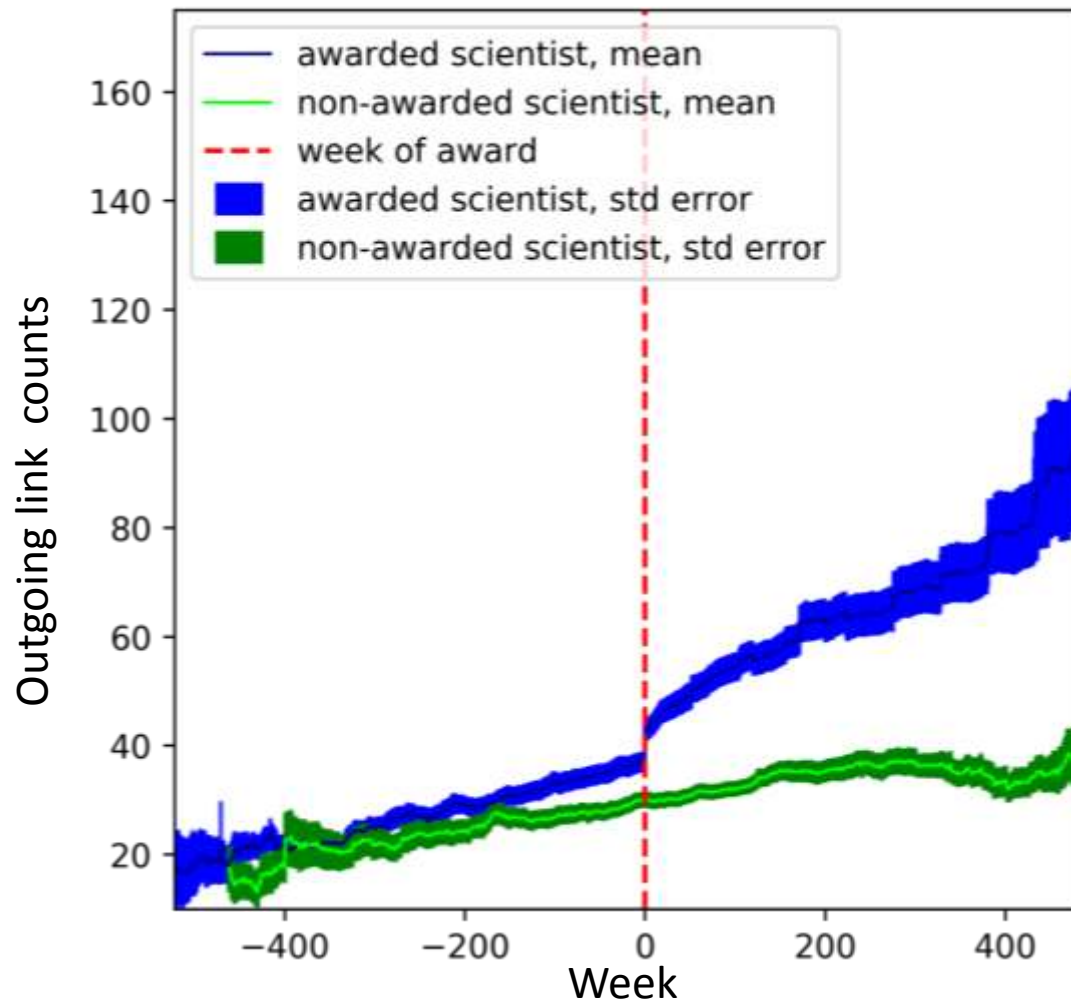   - 1,070 topics of non-awarded scientists

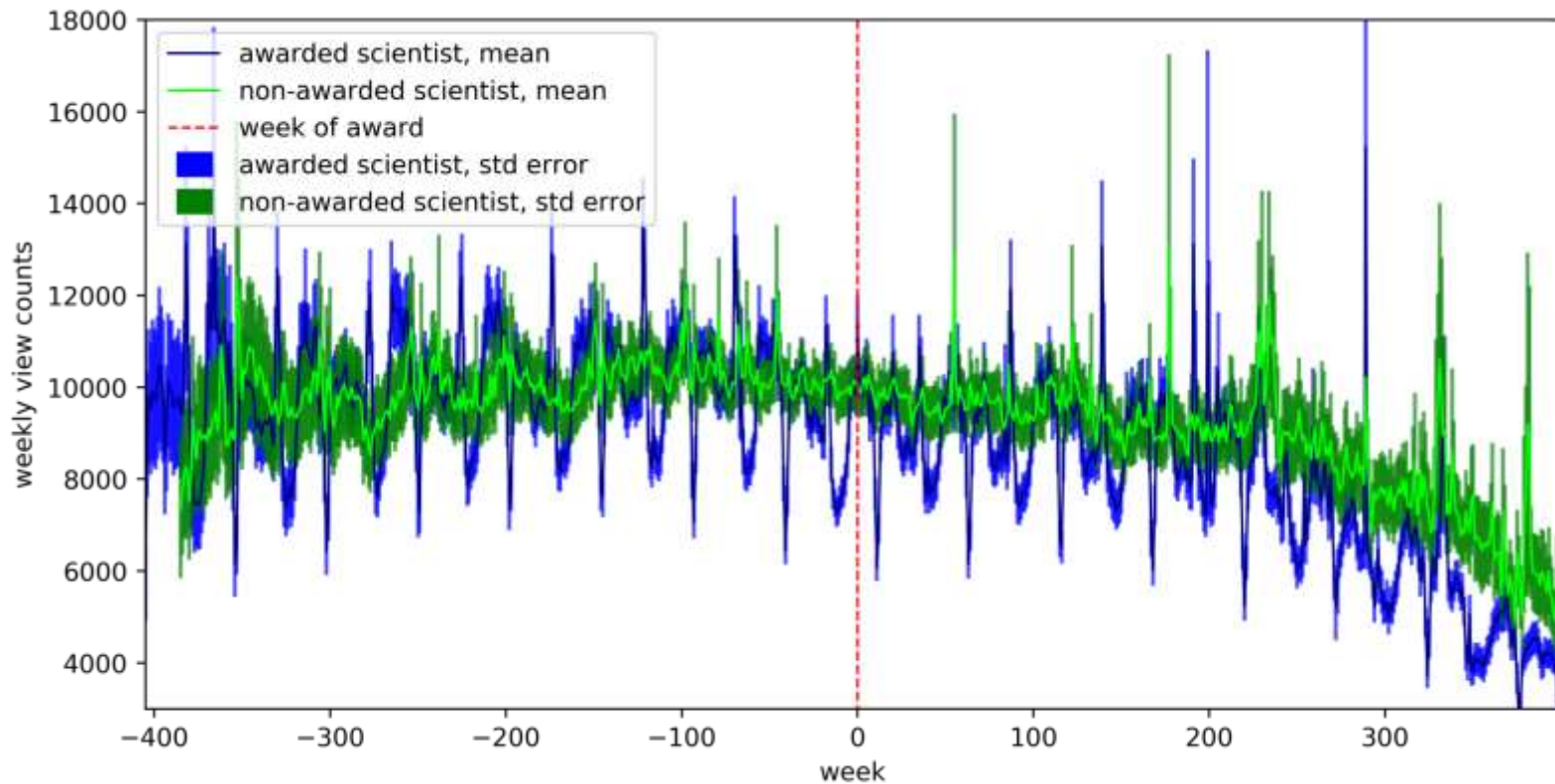Measures: Views, Edits, Outlinks, Words

Difference in public attention to awarded and non-awarded scientists?

How does an award impact article growth?

Differences in public attention to scientific topics?

THOMAS S. KUHN

THE STRUCTURE OF SCIENTIFIC REVOLUTIONS

A BRILLIANT, ORIGINAL ANALYSIS OF THE NATURE, CAUSES, AND CONSEQUENCES OF REVOLUTIONS IN BASIC SCIENTIFIC CONCEPTS

Michael Stonebraker

From Wikipedia, the free encyclopedia

Michael Ralph Stonebraker (born October 11, 1943[3]) is a computer scientist specializing in database research. Through a series of academic prototypes and commercial startups, Stonebraker's research and products are central to many relational database systems. He is also the founder of many database companies, including Ingres Corporation, Illustra, Paradigm4, StreamBase Systems, Tamr, Vertica and VoltDB, and served as chief technical officer of Informix. He is also an editor for the book *Readings in Database Systems*.

Stonebraker's career can be broadly divided into two phases: his time at University of California, Berkeley when he focused on relational database management systems such as Ingres and Postgres, and at Massachusetts Institute of Technology (MIT) where he developed more novel data management techniques such as C-Store, H-Store and SciDB . Major prizes include the Turing Award in 2015.[4] Stonebraker is currently a Professor Emeritus at UC Berkeley and an adjunct professor at MIT.[5][6]
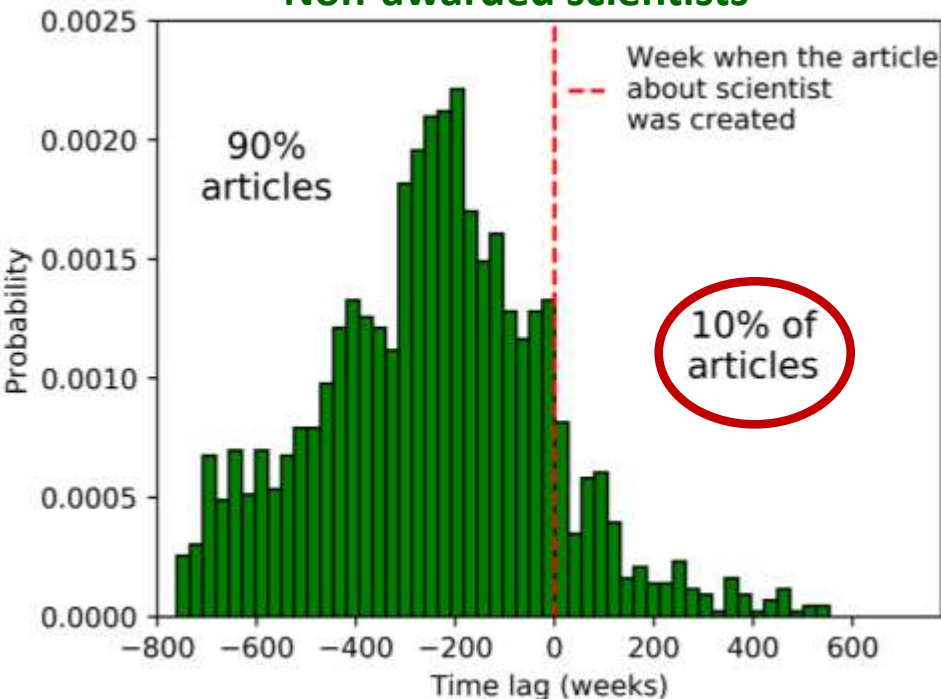
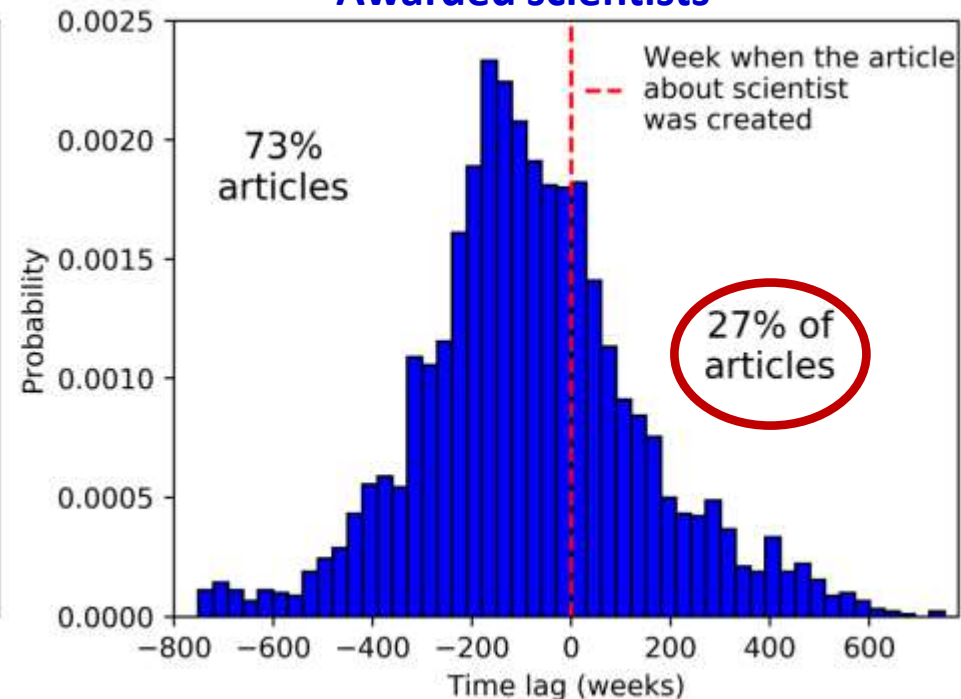| **Michael Stonebraker** |
|---|
| Michael Stonebraker giving the 2015 Turing lecture |
| **Born** | October 11, 1943 (age 74) Newburyport, Massachusetts [1] |
| **Alma mater** | Princeton University, University of Michigan |
| **Known for** | Ingres, Postgres, Vertica, Streambase, Illustra, VoltDB, SciDB |
| **Spouse(s)** | Beth |
| **Awards** | IEEE John von Neumann Medal (2005) ACM Turing Award (2014) |
| **Scientific career** | |
| **Institutions** | University of California, Berkeley, University of Michigan, Massachusetts Institute of Technology |

Contents [hide]

What came first: the scientist or the research topic?

Time lag between article creation about **scientists** and about their **research topics**

Non-awarded scientists

90% articles

10% of articles

Week when the article about scientist was created

Awarded scientists

73% articles

27% of articles

Week when the article about scientist was created

Conclusions & Future Work

- Awards function as external shocks
- Awarded scientists and their research topics are temporally more clustered

- Which topics are created after the scientist?
- Could we predict award winners?
  - Collective attention before the award
  - Network of research topics & scientists

Research team

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