J Data Sci. Info. Citation Studies., 2025; 4(2):269-273.
https://www.jcitation.org

Collaborative Research Pattern of Physics Nobel Laureate Adam Guy Riess: A Scientometric Study

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ABSTRACT

The Nobel Prize in Physics has been awarded 114 times to 216 Nobel Laureates between 1901 and 2020. John Bardeen is the only Nobel Laureate who had been awarded the Nobel Prize in Physics twice, in 1956 and 1972. This meant that a total of 215 individuals had received the Nobel Prize in Physics. In the present paper an attempt has been made to know the publication productivity, authorship pattern and channels of communication based on a scientometric study of research publications of Physics Nobel Laureate Adam Guy Riess (2011).

Keywords: Scientometrics, Scientometric Portrait, Nobel Laureates, *h*-Index, Publication Productivity, Authorship Credit.

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Received: 28-04-2025;
Revised: 05-06-2025;
Accepted: 18-08-2025.

INTRODUCTION

The term 'Scientometrics' came into prominence with the founding of the journal '*Scientometrics*' by T. Braun. According to Beck, Scientometrics is defined as the quantitative evaluation and inter-comparison of scientific activity, productivity and progress.

In the era of globalization scientists are engaged in collaborative research than solo research. In almost all fields of knowledge, science, applied science, social science or humanities collaborative research is gaining importance. In the present paper an attempt has been made to know the research trends in physics with special reference to the scientometric study of research publications of Physics Nobel Laureate Adam Guy Riess (2011).

Brief Profile of Nobel Laureate Adam Guy Riess

Adam Riess grew up in Warren, New Jersey, after receiving his PhD from Harvard University in 1996, he was employed at the University of California, Berkeley, where he became a member of the High-Z Supernova Search Team, within which he conducted his Nobel Prize-awarded work. Adam Riess moved to the Space Telescope Science Institute in Baltimore, Maryland in 1999. He has held a professorship at Johns Hopkins University since 2005.

Objectives of the study

The Main objectives of the study are:

- To Study the Publication Productivity of Adam Guy Riess.
- To Study the Authorship Pattern of Adam Guy Riess.
- Dissemination of the Channels of Communication used by Adam Guy Riess.
- Authorship Credits of Researchers Collaborated with Adam Guy Riess.

Data and Methodology

The data source for this study is *ISI Web of Science, Science Citation Index*, published by Thomson Scientific. By using suitable strategy related to literature produced by Noble Laureate Adam Guy Riess (2011), the bibliographic details for each record including author, title, citation, *h*-index and country of input were collected and analyzed.

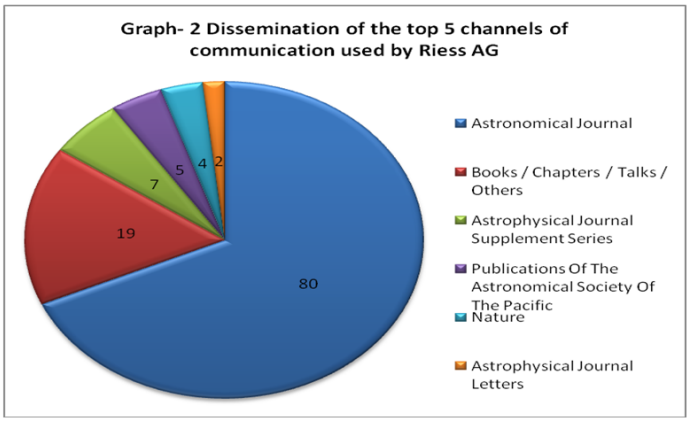
Adam Guy Riess had published 9 single-authored and 117 multi-authored (publications) papers during 1994-2012. The multi-authored papers include: two-authored (12), three authored (12), four authored (5), five authored (3), six authored (5), seven authored (3), eight authored (4), nine authored (2), ten authored (3) and more than ten authored (68). Table 1 shows that the first paper of the author was published in 1994 when he was 25. His highest productivity was in 2010 with the output of 15 publications (age, 41 years) followed by 12 papers in 2008 (age, 39 years), 10 papers in 2009 (age, 40 years) and 9 papers in 2000 (age, 31 years). The 50-percentile productivity life was 10 at the

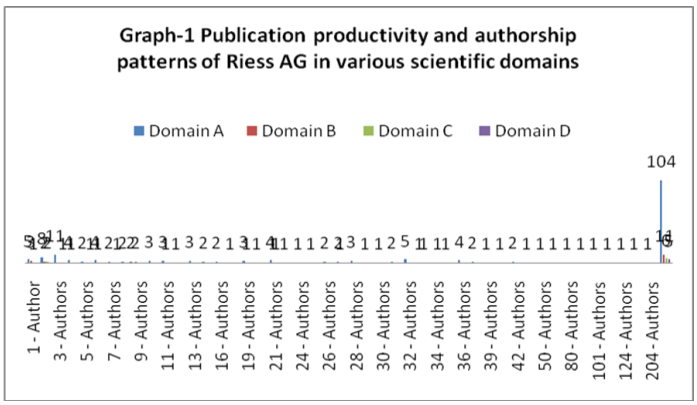
DOI: 10.5530/jcitation.20250003

Table 1: Publication productivity of Adam Guy Riess in chronological order.

APL	Year	Single and multi-authored papers											MT	TP	AA
		1	2	3	4	5	6	7	8	9	10	>10			
1	1994		1										1	1	25
2	1995			2									2	2	26
3	1996			2									2	2	27
4	1997				1							1	2	2	28
5	1998		1		1	1			1			4	8	8	29
6	1999	1		1	1		1					4	7	8	30
7	2000	2	1			1	1	1				3	7	9	31
8	2001		1	1		1	1		1		1	2	8	8	32
9	2002		1										1	1	33
10	2003	1	2									3	5	6	34
11	2004	1	2					1				5	8	9	35
12	2005	1		1			1			1		3	6	7	36
13	2006		2						1			3	6	6	37
14	2007			1				1				4	6	6	38
15	2008			1								11	12	12	39
16	2009	1	1		1		1					6	9	10	40
17	2010	2		2	1				1			9	13	15	41
18	2011									1	1	4	6	6	42
19	2012			1							1	6	8	8	43
	Total	9	12	12	5	3	5	3	4	2	3	68	117	126	44

APL: Age of productive life, MT: Total of multi-authored publications, TP: Total publications and AA: Biological age of the author.





age of 34 years. The total productivity life of the author spans 19 years from the age of 25.

Table 2 shows Adam Guy Riess had total 126 publications out of these 104 publications were in domain A, followed by 11 publications in domain B, 6 publications in domain C, and 5 publications in domain D.

Distribution Distribution of Adam Guy Riess's 126 publications were in 12 journals and 19 in books/chapters and conference proceedings. Journal-wise scattering of publications of Adam Guy Riess is provided in Table 3. Top ranking journals with a number of publications are: Astronomical Journal (80), Astrophysical Journal Supplement Series (7), Publications of the Astronomical Society of the Pacific (5), and Nature (4).

Table 4 indicates that Adam Guy Riess has received 19839 citations for his 126 articles and his *h*-index 50.

Table 2: Publication productivity and authorship patterns of Adam Guy Riess in various scientific domains.

No. of authors	Domains				Total no. of papers	%	Total no. of authorship	%
	A	B	C	D				
1-Author	5	3	1		9	7.14	9	0.32
2-Authors	8	2	2		12	9.52	24	0.87
3-Authors	11			1	12	9.52	36	1.31
4-Authors	4	1			5	3.96	20	0.73
5-Authors	2			1	3	2.38	15	0.54
6-Authors	4	1			5	3.96	30	1.09
7-Authors	2			1	3	2.38	21	0.76
8-Authors	2			2	4	3.17	32	1.16
9-Authors	2				2	1.58	18	0.65
10-Authors	3				3	2.38	30	1.09
11-Authors	3	1			4	3.17	44	1.6
12-Authors	1				1	0.79	12	0.43
13-Authors	3				3	2.38	39	1.42
14-Authors	2				2	1.58	28	1.02
15-Authors								
16-Authors	2				2	1.58	32	1.16
17-Authors								
18-Authors	1				1	0.79	18	0.65
19-Authors	3	1			4	3.17	76	2.77
20-Authors	1				1	0.79	20	0.73
21-Authors	4	1	1		6	4.76	126	4.6
22-Authors	1				1	0.79	22	0.8
23-Authors								
24-Authors	1				1	0.79	24	0.87
25-Authors	1				1	0.79	25	0.91
26-Authors	2				2	1.58	52	1.89
27-Authors	2	1			3	2.38	81	2.95
28-Authors	3				3	2.38	84	3.06
29-Authors	1				1	0.79	29	1.05
30-Authors	1				1	0.79	30	1.09
31-Authors	2				2	1.58	62	2.26
32-Authors	5				5	3.96	160	5.84
33-Authors	1		1		2	1.58	66	2.4
34-Authors			1		1	0.79	34	1.24
35-Authors	1				1	0.79	35	1.27
36-Authors	4				4	3.17	144	5.25
37-Authors	2				2	1.58	74	2.7
38-Authors								
39-Authors	1				1	0.79	39	1.42
40-Authors	1				1	0.79	40	1.46
41-Authors								

42-Authors	2				2	1.58	84	3.06
46-Authors	1				1	0.79	46	1.67
50-Authors	1				1	0.79	50	1.82
53-Authors	1				1	0.79	53	1.93
80-Authors	1				1	0.79	80	2.92
96-Authors	1				1	0.79	96	3.5
101-Authors	1				1	0.79	101	3.68
107-Authors	1				1	0.79	107	3.9
124-Authors	1				1	0.79	124	4.52
163-Authors	1				1	0.79	163	5.95
204-Authors	1				1	0.79	204	7.44
Total	104	11	6	5	126	100	2739	100

A: Astronomy and Astrophysics, **B:** Optics, Physics; **C:** Science and Technology, **D:** Cardiovascular System and Cardiology, Respiratory System, Surgery.

Table 3: Dissemination of the channels of communication used by Adam Guy Riess.

Sl. No.	Channel of communication	No. of Papers	Cumulative	Period of Journal	TY
1	Astronomical Journal.	80	80	1995-2012	18
2	Astrophysical Journal Supplement Series.	7	87	1999-2011	13
3	Publications of the Astronomical Society of the Pacific.	5	92	1994-2001	8
4	Nature	4	96	1999-2012	14
5	Astrophysical Journal Letters.	2	98	2008-2011	4
6	Heart Surgery Forum.	2	100	2004	1
7	Scientific American.	2	102	2004	1
8	Annals of Thoracic Surgery.	1	103	1998	1
9	European Journal of Cardio-Thoracic Surgery.	1	104	1999	1
10	Minimally Invasive Therapy and Allied Technologies.	1	105	2000	1
11	Monthly Notices of the Royal Astronomical Society.	1	106	2010	1
12	Physics Reports-Review Section of Physics Letters.	1	107	1998	1
13	Books/Chapters/Talks/Others.	19	126	2000-2010	11

Table 4: Authorship pattern and collaborative measures.

Nobel Laureate	Authorship pattern and collaborative measures						
	1	2	3	4 and >	Citations	h-Index	TP
Adam Guy Riess	9	12	12	93	19839	50	126

1: Single author; **2:** Two authors; **3:** Three authors; **4:** 4 and above authors; **TP:** Total Publications.

CONCLUSION

Scientometric study plays an important role in the dissemination of particular scientists whose interest lays in the number of important papers he or she published. The above study on Adam Guy Riess undoubtedly proves the usefulness of his work to the field of science and technology gives an indication about the inspiration to young scientists throughout the world.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

REFERENCES

Bagalkoti, V. T., and Hosamani, S. C. (2015). Scientometric Analysis and Mapping of Scientific Articles on Agriculture Research in India during 1999-2013. *International Journal of Advance Research*, *3*(5), 19-25.

Sab, M. C., Kumar, P. D., & Biradar, B. S. (2017). Mapping of Indian Biomedicine Research: A Scientometric Analysis of Research Output During 2012-2016. *International Journal of Current Advanced Research*, *6*(7), 4688-4691.

Şenel, E. (2020). Evolution of military medicine literature: a scientometric study of global publications on military medicine between 1978 and 2017. BMJ Mil Health, 166(E), e25-e33. DOI: 10.1136/jramc-2019-001188.

Nisha, F., Hussain, A., & Senthil, V. (2015). Scientometric Analysis of Data Mining Literature. In 11th International Conference on Webometrics, Informetrics, and Scientometrics (WIS), New Delhi, pp. 215-225.

Garg, K. C.and Padhi, P. (2002). Scientometrics of laser research in India during 1970-1994.*Scientometrics*, *55*(2), 215-241.

Gupta, B. M., and Bala, A. (2011). Mapping of asthma research in India: A scientometric analysis of publications output during 1999-2008. Lung India, 28(4), 239-246.

Keshava, Sedam, M. V., & N.S. Gundur. (2012). Contribution of Willard S Boyle to the Global Science and Technology: A Scientometric Portrait. *Indian Journal of Library and Information Science (IJLIS*), 6 (1), 39-44.

Keshava and Sedam, M. V. (2012). Collaborative Research Pattern of Andre Geim: A Scientometric Portrait. *Indian Journal of Library and Information Science (IJLIS*), 6 (3), 315-318.

Sedam, M. V., and Keshava. (2013). Research Trends in Physics: A Scientometric Study of Publication Productivity, Authorship Patterns and Channels of Communications of Physics Nobel Laureate-Yoichiro Nambu. *Journal of Advances in Library and Information Science*, 2 (4), *202-208*

Sedam, M. V. & Keshava. (2015). Collaborative Research Pattern of Nobel Laureates in the field of Physics as Reflected through Science Citation Index during 2008-2009: A Scientometric Study. *International Journal of Multidisciplinary Approach and Studies*, 2 (4), 45-49.

Sedam, M. V. & Keshava. (2012). Contribution of Konstantin S Novoselov to the Global Science and Technology: A Scientometric Portrait. *Indian Journal of Library and Information Technology (IJLIT*), 2 (1), 12-15.

Sedam, M. V. & Keshava. (2013). Communication and Collaborative Research Pattern of Charles K Kao: A Scientometric Portrait. *PEARL: A Journal of Library and Information Science*, 7 (1), 5-10.

Sedam, M. V., Keshava and KB Agadi. (2014). Collaborative Authorship Credits of Researchers with Nobel Laureate Andre Geim: A Scientometric Study. *Journal of Indian Library Association*, L (1), 31-40.

Tripathia, H., and Garg, K. C. (2014). Scientometrics of Indian crop science research as reflected by the coverage in Scopus, CABI and ISA databases during 2008-2010. *Annals of Library and Information Studies*, *61*, 41-48.

Trivedi, G. (2019). Visualization and Scientometric Mapping of Global Agriculture Big Data Research. Library Philosophy and Practice (e-journal). 2478. https://digitalcommons.unl.edu/libphilprac/2478.

Verma, M., and Shukla, R. (2019). Mapping the Research Trends on Information Literacy of Selected Countries during 2008-2017: A Scientometric Analysis. *DESIDOC Journal of Library and Information Technology*, *39*(3), 125-130.

Nobelprize.org (2011). Adam G. Riess: Facts. Retrieved from https://www.nobelprize.org/prizes/physics/2011/riess/facts/

Cite this article: Sedam MV, Keshava. Research Trends in Physics: A Scientometric Study of Collaborative Research Pattern of Physics Nobel Laureate Adam Guy Riess. Journal of Data Science, Informetrics, and Citation Studies. 2025;4(2):269-73.