J Data Sci. Info. Citation Studies., 2025; 4(3):387-399.
https://www.jcitation.org

Research Article

Scientometric Portrait of Dr. S.V. Kamat: A Distinguished Defence and Material Scientist

Anand R Sarode[1,*], Vaishali S Khaparde[2]

[1]Armament Research and Development Estt.(ARDE), DRDO Pashan, Pune, Maharashtra, INDIA.
[2]Department of Lib and Inf. Science, Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhaji Nagar, Maharashtra, INDIA.

ABSTRACT

Dr. Samir V. Kamat, Secretary, Department of Defence Research and Development (DDR&D), and Chairman, DRDO, is a distinguished scientist and metallurgist known for his pioneering contributions to advanced materials and defence technologies. This scientometric study examines Kamat's research output, impact, and collaboration patterns based on publications indexed in Scopus (1987–2022). His 192 publications, spanning 63 different sources, have received 4, 264 citations from 3, 364 citing documents, reflecting substantial scholarly recognition. His H-index of 35 in Scopus signifies a strong and sustained research impact. Collaborative research is evident, with 164 co-authors, and 13.2% international co-authorship, highlighting his global research engagement. The study explores publication productivity, authorship trends, keyword analysis, and research impact across multiple disciplines. These findings provide insights into Kamat's contributions to defence science and technology in India and beyond.

Keywords: Bio-bibliometrics, Dr. Samir V. Kamat, DRDO, Scientometric portrait, India, South Asia.

Correspondence:
Anand R Sarode
Technical Officer B, Armament Research and Development Estalishment (ARDE), DRDO Pashan, Pune-411021, Maharashtra, INDIA.
Email: libsci.ars@bamu.ac.in
ORCID: 0000-0001-8734-1234

Received: 22-08-2025;
Revised: 06-10-2025;
Accepted: 17-12-2025.

INTRODUCTION

Scientific research systematically advances human knowledge through empirical investigation and methodological rigor. Scientists are crucial in this process, engaging in structured inquiries, analyzing data, and developing theories that drive technological and scientific progress (Busha *et al.*,1980). Within this framework, scientometric portrait studies provide a biographical analysis of an individual scientist's career, emphasizing their contributions and impact on the global scientific community. The concept of a 'scientometric portrait' or 'bio-bibliometric' was introduced by (Kalyane and Kalyane, 1994). They demonstrated that the scientometric analysis of a successful scientist's list of works can shed light on the history of science, scientific development, interactions within research groups, the organization of research systems, and the quality of scientific leadership (Kalyane and Kalyane, 1994). Evaluating research output is essential for understanding its impact, prominence, and the overall progress of an individual or institution (Kavita and Chandrashekara, 2020). Scientometric portraits serve to recognize eminent scholars, inspire future researchers, and provide guidance to those dedicated to scientific progress (Serenko A, *et al.*, 2022).

Dr. Samir V. Kamat, a distinguished scientist, metallurgist and researcher, has made significant contributions to materials science and defence technology. Currently serving as the Secretary, Department of Defence Research & Development (DDR&D), and Chairman, DRDO, Ministry of Defence, Govt. of India, he has played a pivotal role in the development of advanced materials, including metal matrix composites, ceramic matrix composites, high-strength aluminum alloys, and titanium alloys, for defence applications (DRDO, 2022). His expertise extends beyond materials research into areas such as autonomous underwater vehicles, sonar technologies, and fuel-cell-based propulsion systems. Kamat has provided research leadership in DRDO, particularly at the Defence Metallurgical Research Laboratory (DMRL), Hyderabad, where he contributed to the establishment of state-of-the-art experimental facilities for defence materials research. His work has significantly impacted the development of critical defence technologies, including novel materials for MEMS-based applications (DRDO, 2022). This scientometric study conducts a quantitative assessment of Kamat's research contributions by analyzing Scopus-indexed publications from 1987 to 2022. It examines key indicators such as publication trends, citation impact, co-authorship patterns, and thematic research focus. By exploring these dimensions, the study aims to provide insights into Kamat's influence on India's defence research landscape and his contributions to global scientific advancements.

OPEN ACCESS

Manuscript TECHNOMEDIA

DOI: 10.5530/jcitation.20250250

Publishing Partner : Manuscript Technomedia. [www.mstechnomedia.com]

Biographical Sketch and Professional Achievements of Dr. S.V. Kamat

Dr. Samir Venkatpati Kamat was born in 1964. His schooling was completed at Sanjeevan Vidyalaya, a residential school at Panchgani, a better-known town of Mahabaleshwar, Maharashtra, India. He passed the matriculation (10th) in 1979 and Higher Secondary (12th) in 1981 from King Jeorge School, Mumbai. He obtained a B.Tech. (Hons) in Metallurgical engineering from IIT, Kharagpur, India in 1985 and was awarded Silver Medal. He received a fellowship from Ohio State University (OSU), Columbus in Metallurgical engineering and completed his PhD under the advisership of Prof. John Hirth, a well-known author of classic book on "Dislocation of Solids". Kamat's doctoral thesis focused on the deformation and fracture behavior of particulate reinforced metal matrix composites, which were emerging as promising materials. Additionally, he investigated the impact of image and coherency stresses on interface dislocations in multilayer heterostructures, aiming to enhance microelectronic device performance. He was awarded PhD in 1988 from the Ohio State University, USA, and postdoctoral fellow at Washington State University, Pullman, WA (Kamat, 2015). Kamat joined DRDO at Defence Material Research Laboratory (DMRL), Hyderabad, as Scientist 'C' in 1989 and rose to the position of the Director of the lab in 2015. His works on Stress Corrosion Cracking (SCC) behaviour of ultrahigh strength 250 grade maraging and DMR 1700 steels resulted in the development of three-layer coating system for protection of these steels against SCC failure in marine environment. Kamat and his team have made significant contributions to the development of Rare Earth Permanent Magnet (REPM) Technology as well as small scale production in DMRL. This domestically developed technology has been used to create and supply specialty magnetic components for various DRDO and ISRO missions. He became Director General (DG) Naval Science and Materials (NS&M) in 2017. In recognition of his outstanding contributions and exemplary accomplishments in Defence Science, Technologies, and Metallurgical Engineering, the Appointment Committee of the Cabinet, Government of India, appointed him as Chairman, DRDO on August 26, 2022 (Economic Times, 2022).

Awards and Recognition

Kamat had received many awards and honors for his various technical contributions during the entire tenure. He received the Indrani Medal by the Mining, Geological and Metallurgical Institute of India in 1986; DRDO Young Scientist Award in 1998; Binani Gold Medal (Jointly) of the Indian Institute of Metals in 2006; the National Metallurgist Day, Metallurgist of the Year Award by Ministry of Steel in 2008; the National Science Day Oration Silver Medal in 2009, the DRDO Scientist of the Year award in 2012 and Distinguished Alumni Award from IIT Kharagpur in 2018. Kamat is a Fellow of the Indian National Academy of Engineering (INAE) and Institution of Engineers India (IEI), Life Member of the Indian Institute of Metals, Materials Research Society of India, Magnetics Society of India, Society for Failure Analysis (and Chairman of the Hyderabad Chapter) and Indian Society for Structural Integrity. He has guided four PhD theses and 35 technical reports to his credit.

Literature Review and Gap in Existing Literature

A literature review provides a foundation for research by summarizing prior studies and identifying gaps. Scientometric analyses have been widely used to assess research productivity, collaboration, and citation impact of eminent scientists.

Behra and Mehta (2024) examined Dr. Raghuram Rajan's Scopus-indexed research (1991-2022), highlighting 100 publications with a 4.5% annual growth rate and 265.8 citations per paper. Hakkaraki (2024) profiled Nobel Laureate John F. Clauser's 55 publications (1966-2023), noting his most cited work on quantum entanglement with 5, 363 citations. Vasantha and Sangitha (2023) analyzed Prof. Manvi's 292 publications (1999-2022), with a peak in 2011 and strong collaborations around 2007. (Gholampour and Nourzi, 2022) reviewed Prof. Glanzel's 276 collaborative publications over 37 years, highlighting his peak productivity during 2008 to 2017 in Scientometrics. (Serenko *et al.*, 2022) studied 110 scientometric portraits, noting increased interest in profiling researchers, with Indian scientists comprising 65% of cases but only three women. Other studies include Thackare and Ahirrao (2021) on Dr. Raghunath Mashelkar's 26 books (1980-2019), (Kumbar *et al.*, 2021) on Nobel Laureate Yoshino Akira's 480 publications in lithium-ion battery research, and (Barik and Jena, 2016) on Dr. Amartya Sen's 111 articles, mainly solo-authored. Most scientometric studies focus on Nobel Laureates, economists, and fundamental science researchers, while defence scientists remain under explored due to the classified nature of their work. To address this gap, this study analyzes Kamat's research productivity, collaborations, and citation impact, offering insights into Defence R&D and encouraging further exploration in this strategically significant field.

OBJECTIVES OF THE STUDY

Following are the objectives of the proposed research:

- To analyze the chronological distribution of SV Kamat's research output.
- To investigate authorship patterns and research collaboration.
- To classify the types of scholarly documents produced and to identify the core channels of scholarly communication.
- To assess the impact of the author's research contributions and map the co-authorship network.

- To analyze the citation impact of the author's publications and Citation analysis of various database indexed research papers of Dr. SV Kamat.

METHODOLOGY

The present study assesses the research productivity of Dr. S V Kamat using bibliometric techniques. The bibliographic data for this analysis was sourced from the Scopus database, a widely recognized international bibliographic and citation index. A search was conducted under the "Author" tab on January, 28 2025 using the author's name and institutional affiliation, retrieving a total of 192 research documents and his Scopus author id is 7102494684. The bibliographic data was exported in .csv format for further processing. Microsoft Excel and Power Bl. The R programming language (version 4.4.1) and RStudio were employed for statistical analysis. Specifically, the Bibliometrix R package and its web-based interface Biblioshiny were used to perform in-depth bibliometric evaluations. For network visualization, co-authorship structures were analyzed using VOSviewer software. The study incorporates established scientometric laws and indicators to evaluate different aspects of research output. The findings from these analyses provide a comprehensive overview of Kamat's publication trends, collaborative research patterns, and citation impact, offering valuable insights into his contributions to the field of Defence R&D and Metallurgical Science.

RESULTS AND DISCUSSION

Publication Trends and Productivity

Table 1 and Figure 1 illustrate SV Kamat's 36-year research productivity (1987–2022), totaling 192 publications. His peak phase (2011–2015) contributed 62 papers (32.29%), with the highest in 2015 (21 papers, 10.94%). Productivity peaked at ages 47–51, aligning with leadership roles. Post-2016, output declined, possibly due to administrative focus. Notable gaps in 1988, 1997, and 2020 suggest shifting research priorities.

Authorship pattern and Collaboration Network

Table 2(a) illustrates the authorship analysis reveals a transition from single-author to predominantly multi-authored publications, emphasizing growing research collaboration. The Degree of Collaboration (DC) (Subramanyam, 1983) confirms this trend, while the Collaboration Coefficient (CC) (Ajiferuke *et al*., 1988) indicates peak collaboration between 2011–2015, aligning with Kamat's leadership roles. Cumulative publication milestones show that 50% of his research output was achieved by 2008 and 75% by 2014, following Price's (1963) exponential growth model. Publication Density (PD), calculated using Pao's (1981) formula, is 5.33 papers per year, reflecting sustained research productivity. Authorship position reflects an author's role among co-authors. Table 2(b) shows Kamat's shift from single-author papers (first author in 38 papers, 19.79%) to a collaborative approach. He served as a second author in 43 papers (22.40%) and participated in multi-authored collaborations in 111 papers (57.81%), highlighting his active engagement in team-based and interdisciplinary research.

Types of Documents published and Channels of Communications

Figure 2 depicts Kamat's research output, primarily composed of 179 journal articles (93.2%), forming the backbone of his academic contributions. Other contributions include 1 book chapter (0.52%), 10 conference papers (5.21%), 1 erratum (0.52%), and 1 review paper (0.52%), reflecting a diversified scholarly engagement. His works have been published in 63 different sources, demonstrating a broad dissemination of research. The dominance of *Materials Science and Engineering: A* suggests a strong focus on materials engineering research. Table 3 and Figure 3 represent the most preferred publication channels,

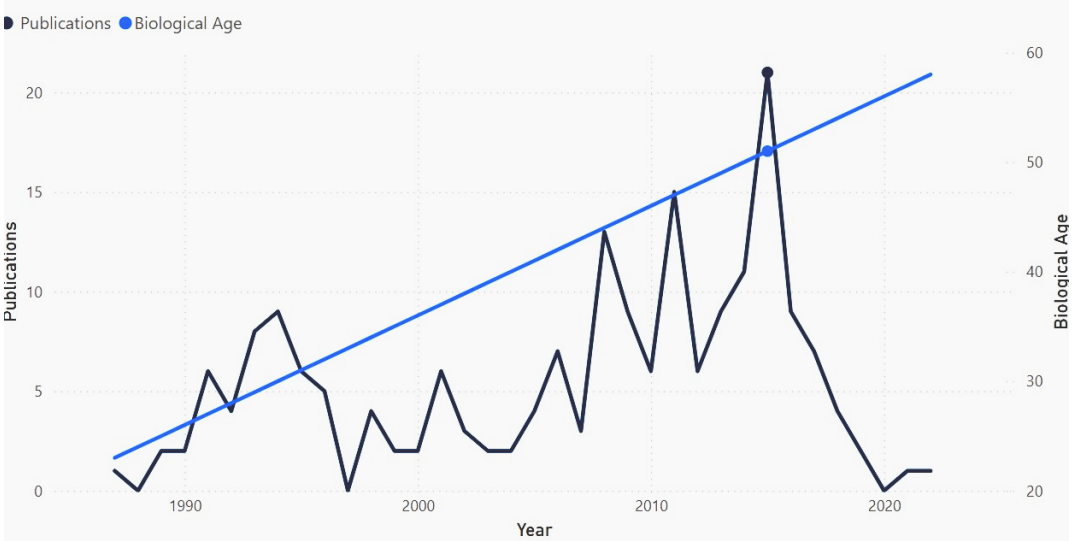

Figure 1: Year-wise Publications and Biological Age of SV Kamat.

Table 1: Annual Scientific Output by SV Kamat.

Year	Publications	Year-wise Percentage	Cumulative Publications	Year-wise Cumulative Percentage	Biological Age	Productive Age
1987	1	0.52%	1	0.52%	23	1
1988	0	0.00%	1	0.52%	24	2
1989	2	1.04%	3	1.56%	25	3
1990	2	1.04%	5	2.60%	26	4
1991	6	3.13%	11	5.21%	27	5
1992	4	2.08%	15	7.29%	28	6
1993	8	4.17%	23	11.46%	29	7
1994	9	4.69%	32	16.67%	30	8
1995	6	3.13%	38	19.79%	31	9
1996	5	2.60%	43	22.40%	32	10
1997	0	0.00%	43	22.40%	33	11
1998	4	2.08%	47	24.48%	34	12
1999	2	1.04%	49	25.52%	35	13
2000	2	1.04%	51	26.56%	36	14
2001	6	3.13%	57	29.69%	37	15
2002	3	1.56%	60	31.25%	38	16
2003	2	1.04%	62	32.29%	39	17
2004	2	1.04%	64	33.33%	40	18
2005	4	2.08%	68	35.42%	41	19
2006	7	3.65%	75	39.06%	42	20
2007	3	1.56%	78	40.63%	43	21
2008	13	6.77%	91	47.40%	44	22
2009	9	4.69%	100	52.08%	45	23
2010	6	3.13%	106	55.21%	46	24
2011	15	7.81%	121	63.02%	47	25
2012	6	3.13%	127	66.15%	48	26
2013	9	4.69%	136	70.83%	49	27
2014	11	5.73%	147	76.56%	50	28
2015	21	10.94%	168	87.50%	51	29
2016	9	4.69%	177	92.19%	52	30
2017	7	3.65%	184	95.83%	53	31
2018	4	2.08%	188	97.92%	54	32
2019	2	1.04%	190	98.96%	55	33
2020	0	0.00%	190	98.96%	56	34
2021	1	0.52%	191	99.48%	57	35
2022	1	0.52%	192	100.00%	58	36

Table 2(a): Authorship pattern in S.V.Kamat's research publications.

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	Total	Cumulative Total	Cumulative %	CC	DC
1987	0	0	1	0	0	0	0	0	0	0	1	1	0.52	1.00	1
1988	0	0	0	0	0	0	0	0	0	0	0	1	0.52	0.00	0
1989	0	0	2	0	0	0	0	0	0	0	2	3	1.56	1.00	1
1990	0	2	0	0	0	0	0	0	0	0	2	5	2.6	1.00	1
1991	0	4	2	0	0	0	0	0	0	0	6	11	5.21	1.00	1
1992	0	1	3	0	0	0	0	0	0	0	4	15	7.29	1.00	1
1993	0	4	1	0	2	0	1	0	0	0	8	23	11.46	1.00	1
1994	0	3	3	2	1	0	0	0	0	0	9	32	16.67	1.00	1
1995	0	4	1	1	0	0	0	0	0	0	6	38	19.79	1.00	1
1996	0	2	3	0	0	0	0	0	0	0	5	43	22.4	1.00	1
1997	0	0	0	0	0	0	0	0	0	0	0	43	22.4	0.00	0
1998	0	0	2	2	0	0	0	0	0	0	4	47	24.48	1.00	1
1999	0	1	0	1	0	0	0	0	0	0	2	49	25.52	1.00	1
2000	0	1	0	1	1	0	0	0	0	0	3	52	27.08	1.00	1
2001	0	2	1	1	0	1	0	0	0	0	5	57	29.69	1.00	1
2002	0	0	1	1	0	1	0	0	0	0	3	60	31.25	1.00	1
2003	0	1	0	0	0	1	0	0	0	0	2	62	32.29	1.00	1
2004	0	0	1	0	1	0	0	0	0	0	2	64	33.33	1.00	1
2005	0	0	2	1	1	0	0	0	0	0	4	68	35.42	1.00	1
2006	0	0	5	0	1	1	0	0	0	0	7	75	39.06	1.00	1
2007	0	0	1	1	1	0	0	0	0	0	3	78	40.63	1.00	1
2008	0	1	2	4	4	2	0	0	0	0	13	91	47.4	1.00	1
2009	1	1	3	3	1	0	0	0	0	0	9	100	52.08	0.89	0.89
2010	0	2	0	0	3	1	0	0	0	0	6	106	55.21	1.00	1
2011	0	1	2	6	4	1	1	0	0	0	15	121	63.02	1.00	1
2012	0	0	1	3	1	1	0	0	0	0	6	127	66.15	1.00	1
2013	0	0	1	5	2	0	0	1	0	0	9	136	70.83	1.00	1
2014	0	0	1	4	2	2	2	0	0	0	11	147	76.56	1.00	1
2015	1	1	2	3	7	6	1	0	0	0	21	168	87.5	0.95	0.95
2016	0	0	1	4	1	1	1	0	1	0	9	177	92.19	1.00	1
2017	0	0	0	0	2	2	1	2	0	0	7	184	95.83	1.00	1
2018	0	0	0	0	1	1	1	0	0	1	4	188	97.92	1.00	1
2019	0	0	0	2	0	0	0	0	0	0	2	190	98.96	1.00	1
2020	0	0	0	0	0	0	0	0	0	0	0	190	98.96	0	0
2021	0	0	0	0	0	0	0	0	0	0	0	190	98.96	0	0
2022	0	0	0	0	0	0	0	1	1	0	2	192	100	1.00	1
Total	2	31	42	45	36	21	8	4	2	1	192				

(CC: Collaborative coefficient; DC: Degree of Collaboration).

Table 2(b): Author's Position in Scholarly Communication.

Year	1st	2nd	3rd	Multi-Author	Total Papers Published
1987-1991	10	1	0	0	
1992-1996	16	14	2	0	
1997-2001	4	6	1	3	
2002-2006	4	3	7	4	
2007-2011	4	13	19	11	
2012-2016	0	6	11	38	
2017-2022*	0	0	0	15	
Total	38	43	40	71	192

* 2022 has been clubbed in the last Quinquennium, being a single year.

Table 3: Top Ten Preferred Journals by SV Kamat.

Sl. No.	Sources	Articles	H- index	g-index	TC	PY Start
1	Materials Science and Engineering: A	22	15	21	479	2001
2	Journal of Magnetism and Magnetic Materials	14	10	14	244	2012
3	Journal of Alloys and Compounds	13	10	13	365	2010
4	Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science	12	8	12	422	1994
5	Scripta Metallurgica Et Materiala	11	7	11	183	1990
6	Acta Materialia	9	9	9	572	1996
7	Materials Science and Technology	7	5	5	97	2001
8	Transactions of the Indian Institute of Metals	7	5	6	47	2005
9	International Journal of Fracture	5	4	5	44	1991
10	Journal of Material Science	5	5	5	86	1993

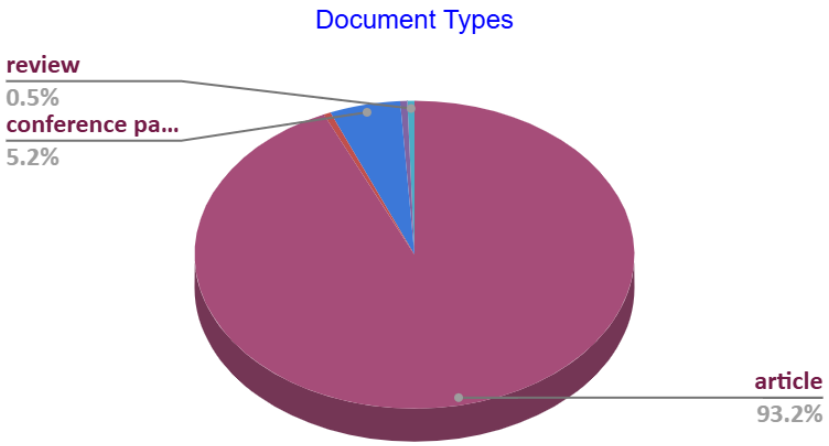

Figure 2: Types of Documents published by SV Kamat.

while Table 4 applies Bradford's Law of Scattering to categorize the research output into three zones. Zone 1 (Core Journals) contains the five most productive journals, contributing 72 articles. Zone 2 consists of 12 journals with moderate productivity, accounting for 57 articles, while Zone 3 includes 46 journals contributing 63 articles. This distribution aligns with Bradford's Law, reinforcing the observation that a limited number of journals serve as primary knowledge hubs in materials science.

The Average Bradford Multiplier (b) was found to be 3.2, indicating that each successive zone contains approximately three times the number of journals as the previous one. This metric is particularly useful for potential authors in selecting appropriate journals for publication, ensuring their work reaches the most impactful and widely recognized sources. By targeting Zone 1 journals, researchers can enhance the visibility, reach, and credibility of their findings. Similarly, the indicator also guides the author to stay updated with recent advancements, track emerging research trends, and align their work with high-impact sources, ultimately contributing to the progressive development of the field.

Author's Collaboration Network

A total of 164 co-authors have collaborated with Kamat in producing 192 research publications. The top 20 co-authors, listed in Table 5, are the most frequent collaborators of SV Kamat, ranked by the number of co-authored articles. Co-authorship Network (Figure 4) depicts that SV Kamat is at the center of the network, with the highest number of collaborations (192). Co-authors like M. Srinivas (23), A.K. Gogia (18), J.P. Hirth (18), and P. Saravanan (18) are among the most frequent contributors. Several authors collaborated only once or twice, forming the outer ring of the network. Some co-authors (like those with 10+ papers) form a closely knit structure, while others have limited interactions.

Most Relevant Affiliations & Country Collaboration

Table 6 present, SV Kamat's research output is primarily affiliated with DRDO, Defence Metallurgical Research Laboratory (DMRL), contributing to a significant 179 publications. Other key affiliations include the Indian Institute of Science (22 papers), Washington State University Pullman (19), Voiland College of Engineering and Architecture (18), and the International Advanced Research Centre for Powder Metallurgy and New Materials (13). The data highlights international collaborations with National Taiwan University (10) and other institutions, demonstrating a broad research network. This distribution underscores Kamat's strong association with defense research institutions, academic collaborations, and global research partnerships, particularly in materials science and metallurgy.

Most Cited Papers and Citation Overview

Table 7 and Figure 5 present the citation analysis of Kamat's research output, highlighting key publication and citation trends. Over this period, 192 papers were published, accumulating 4, 262 citations, with an average citation per paper (MeanTCperArticle) of 22.20. The highest citation impact was recorded in 1989, with

Table 4: Bradford's distribution (Three Zones) of channels of communication used by SV Kamat.

Zone	Number of journals	Number of Articles	Bradford multiplier
Core Zone 1	5	72	0
Zone 2	12	57	2.4
Zone 3	46	63	3.83

(Average Bradford multiplier (b) = 2.4 + 3.83 / 2 = 3.2).

Table 5: Most Collaborative Authors of SV Kamat.

Co-author Name	No. of Articles	Co-author Name	No. of Articles
Srinivas, M.	23	Alam, M.Z.	8
Gogia, A.K.	18	Das, D.K.	8
Hirth, J.P.	18	Jayaram, V.	8
Saravanan, P.	18	Kumar, A.	8
Nandy, T.K.	11	Malakondaiah, G.	8
Basumatary, H.	10	Paradkar, A.	8
Hsu, J.H.	10	Prasad, K.	8
Srinivas, A.	10	Rama Rao, P.	8
Varma, V.K.	10	Arout Chelvane, J.	7
Kashyap, B.P.	9	Kutumbarao, V.V.	7
Manivel Raja, M.	9	Niranjani, V.L.	7

an average of 165.00 citations per paper, reflecting significant academic influence. Older publications (1987–1999) demonstrate a higher citation impact due to extended visibility, while high-impact years such as 1996, 1998, 2004, 2005, 2008, 2009, and 2010 reported a MeanTCperArticle exceeding 30. Post-2000, citation trends stabilized, fluctuating between 10 and 35 citations per paper, indicating sustained academic recognition. The decline in citation impact for 2018–2022 aligns with the expected lag in citation accumulation for recent publications, with 2022 papers yet to receive citations. Table 8 presents the top twenty most cited papers authored by Dr. S.V. Kamat.

Table 6: **Most Relevant Affiliation of SV Kamat and his collaborators.**

Affiliation	No. of Papers
DRDO Defence Metallurgical Research Laboratory	179
Indian Institute of Science	22
Washington State University Pullman	19
Voiland College of Engineering and Architecture	18
International Advanced Research Centre for Powder Metallurgy and New Materials, Hyderabad	13
National Taiwan University	10
Project Office Materials	9
University of Hyderabad	9
Indian Institute of Technology Hyderabad	9
Indian Institute of Technology Bombay	8

Author's Research Impact

Table 9 illustrate that, the 192 Scopus-indexed publications have received 4262 citations, with an H-index of 35, indicating that 35 papers have at least 35 citations each. However, broader citation impact is observed in Google Scholar (231 papers, 5016 citations, H-index 38, i10 Index 129) and ResearchGate (203 papers, 4354 citations, *h*-index 35), reflecting wider recognition beyond peer-reviewed sources. The variation across databases highlights differences in indexing policies and citation coverage.

Keyword occurrences

The keyword co-occurrence analysis of Kamat's research publications, based on Zipf's Law, highlights a structured pattern where a few key terms appear frequently, indicating core research themes, while many other terms appear less often, reflecting diverse but less central topics (Zip, *et al*., 1949). Table 10 and Figure 6 depict, high-frequency keywords such as *Fracture Toughness (47 occurrences, 266 total link strength)*, Aluminum Alloys (30, 182), *Microstructure (29, 202), Magnetic Properties (26, 192)*, and *Titanium Alloys (26, 174)* represent core research domains with extensive interconnections, reinforcing their foundational role in materials science. Mid-range terms like *Martensitic Transformations (13, 92), Strain Rate (14, 74)*,

Table 7: **Author Citation Analysis (Year-wise).**

Year	TP	TC	Mean TC per Art	Citable Years	Year	TP	TC	Mean TC per Art	Citable Years
1987	1	65	65.00	39	2007	3	83	27.67	19
1989	2	330	165.00	37	2008	13	343	26.38	18
1990	2	131	65.50	36	2009	9	334	37.11	17
1991	6	138	23.00	35	2010	6	192	32.00	16
1992	4	25	6.25	34	2011	15	257	17.13	15
1993	8	130	16.25	33	2012	6	116	19.33	14
1994	9	104	11.56	32	2013	9	163	18.11	13
1995	6	65	10.83	31	2014	11	248	22.55	12
1996	5	152	30.40	30	2015	21	345	16.43	11
1998	4	136	34.00	28	2016	9	110	12.22	10
1999	2	45	22.50	27	2017	7	101	14.43	9
2000	2	24	12.00	26	2018	4	61	15.25	8
2001	6	101	16.83	25	2019	2	14	7.00	7
2002	3	6	2.00	24	2021	1	10	10.00	5
2003	2	14	7.00	23	2022	1	0	0.00	4
2004	2	83	41.50	22		192	4262	22.2	
2005	4	143	35.75	21					

(TP: Total papers; TC: Total Citations; MeanTCperArt: Mean total citation per article).

Table 8: Top 20 Most Cited Paper of SV Kamat.

Sl. No.	Year	Title	Source	TC	TCpY
1	1989	Mechanical Behavior of Particulate-Reinforced Aluminum Matrix Composites	Acta Metallurgica	282	7.622
2	2009	Dynamic Strain Aging Behavior in Ni-Based Superalloy 720li	Acta Materialia	177	10.41
3	2006	Effect of B Grain Size on Tensile Properties and Fracture Toughness of Ti-10v-2fe-3al Alloy	Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science	145	7.25
4	2005	Influence of B Grain Size on Stress-Induced Martensitic Transformation In B Solution-Treated Ti-10v-2fe-3al Alloy	Scripta Materialia	139	6.619
5	1990	Dislocation Injection in Deformed Multilayered Structures	Journal of Applied Physics	124	3.444
6	1991	Plastic Deformation Behavior in Alumina-Reinforced Al-Alloy Matrix Composites	Scripta Metallurgica Et Materiala	90	2.571
7	2008	Temperature and Strain Rate Effects on the Tensile Properties of Ni-Based Superalloy 720li	Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science	86	4.778
8	2011	Influence of Boron on the Microstructure and Mechanical Properties of Thermomechanically Processed Near-Alpha Titanium Alloy Ti-1100	Journal of Alloys and Compounds	83	5.533
9	2009	Low-Cycle Fatigue Behavior of A Low-Interstitial Nickel-Based Superalloy	Acta Materialia	77	4.529
10	1987	Image Forces Acting on Screw Dislocations in Multilayered Structures	Scripta Metallurgica	65	1.667
11	2015	Ferroelectric, Piezoelectric, and Mechanical Properties of Lead-Free (0.5)Ba($Zr_{0.2}ti_{0.8}$)O_3-(0.5)($Ba_{0.7}ca_{0.3}$)Tio_3 Electroceramics	Ceramics International	58	5.273
12	2012	Direct and Indirect Magnetoelectric Effects In Lead-Free Ferroelectric ($Na_{0.5}bi_{0.5}tio_3$)–Magnetostrictive ($Cofe_2o_4$) Particulate Composites	Applied Physics Letters	58	4.143
13	1998	Influence of Alloying Elements and Heat Treatment on the Fracture Toughness of Ti-Al-Nb Alloys	Acta Materialia	58	2.071
14	2004	Fracture Behavior of 2D-Woven Silica-Silica Continuous Fiber-Reinforced Ceramic Matrix Composites (CFCCs)	Engineering Fracture Mechanics	57	2.591
15	2013	Tensile Properties of a Free-Standing Pt-Aluminide (PtAl) Bond Coat	Acta Materialia	56	4.308
16	2010	Influence of Minor Boron Additions on the Microstructure and Mechanical Properties of As-Cast Near-Alpha Titanium Alloy	Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science	53	3.313
17	2014	Influence of $CoFe_2O_4$ Mole Percentage on the Multiferroic and Magnetoelectric Properties of $Na_{0.5}Bi_{0.5}TiO_3/CoFe_2O_4$ Particulate Composites	Ceramics International	50	4.167
18	1998	Mixed-Mode I/III Fracture Toughness of ARMCO® Iron	Acta Materialia	50	1.786
19	2008	Effect of Grain Size on Trigger Stress for Stress-Induced Martensitic Transformation in Ti-Al-Nb Alloys Under Tensile Deformation	Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science	49	2.722
20	1989	Fracture Toughness of Alumina Particulate-Reinforced Aluminum Alloy-Matrix Composites Under Combined Mode I/III Loading	Scripta Metallurgica	48	1.297

(TCpY: Total citations per year; TC: Total Citations).

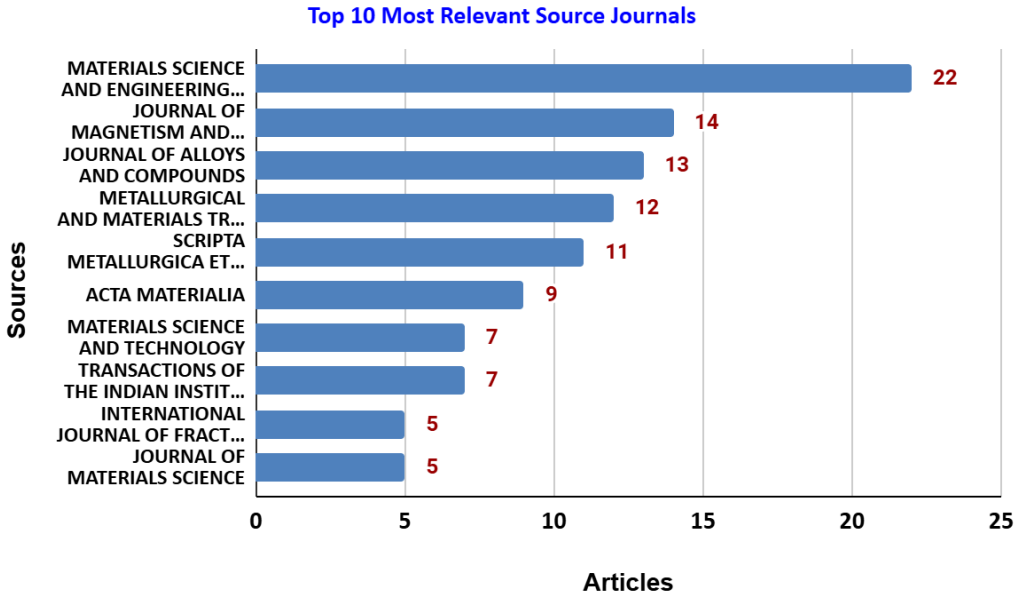

Figure 3: Most Relevant Source Journals preferred by SV Kamat.

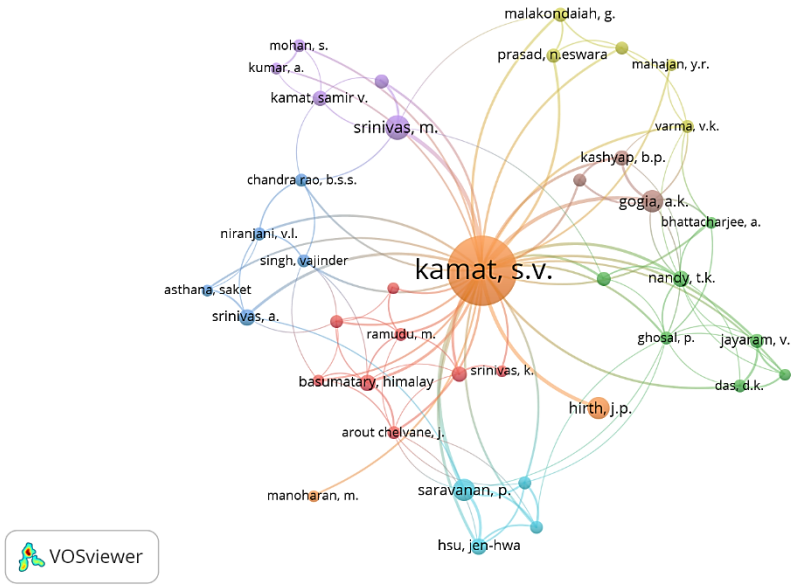

Figure 4: Collaborating Authors of SV Kamat.

Table 9: Research Impact in International Citation Databases.

Databases	Total No. of Papers	Total Citations Received	H- index	i10 Index
Google Scholar	231	5016	38	129
Research Gate	203	4354	35	-
Scopus	192	4262	35	-

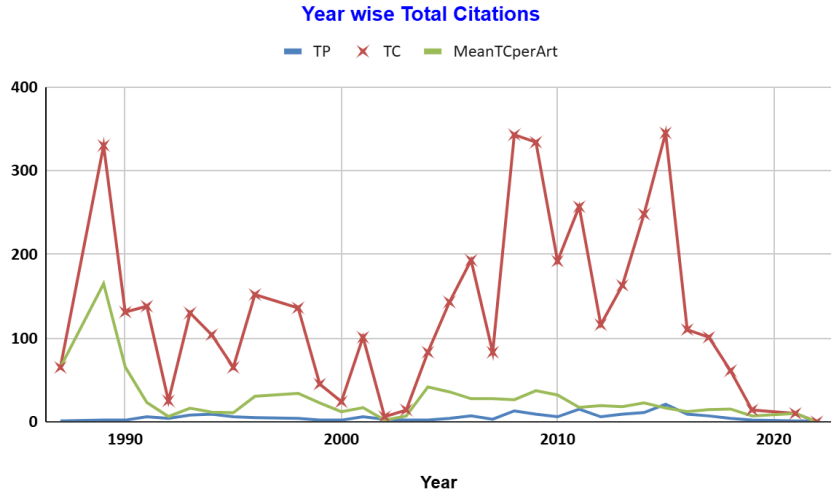

Figure 5: Year-wise Citation Overview.

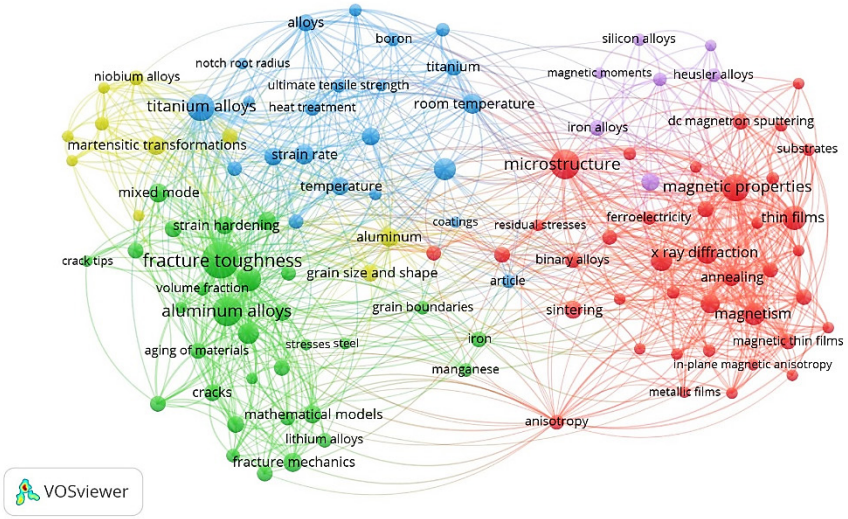

Figure 6: Keywords co-occurrence Networks.

Table 10: Keywords Co-occurrences.

Keyword	Occurrences	Total Link Strength	Keyword	Occurrences	Total Link Strength
Fracture Toughness	47	266	Deformation	15	94
Aluminum Alloys	30	182	Room Temperature	14	99
Microstructure	29	202	Strain Rate	14	74
Magnetic Properties	26	192	Cobalt	13	112
Titanium Alloys	26	174	Fracture Mechanics	13	67
Fracture	20	112	Martensitic Transformations	13	92
Thin Films	20	175	Aluminum	12	66
Magnetism	17	139	Mixed Mode	12	67
Mechanical Properties	17	88	Cobalt Alloys	11	70
X Ray Diffraction	16	129	Mathematical Models	11	68
Coercive Force	15	124	Sintering	11	43

and *Sintering (11, 43)* suggest emerging yet significant subfields. Meanwhile, lower-ranked keywords—such as *Stress-Induced Martensitic Transformation (5, 43)* and *Perpendicular Magnetic Anisotropy (5, 49)*—form the long tail, indicative of specialized, evolving research fronts. The network graph demonstrates clear thematic clustering: (1) Mechanical behavior (green cluster), focusing on fracture mechanics and material toughness; (2) Alloy compositions (blue cluster), highlighting titanium, aluminum, and boron-based materials; and (3) Magnetic and thin-film properties (red cluster), underscoring research in ferroelectricity, magnetism, and coatings. This structured distribution not only validates Zipf's frequency model but also maps the progression of research trends, with highly cited themes sustaining long-term relevance and niche topics driving innovation at the frontiers of materials science.

CONCLUSION

The scientometric analysis of Dr. SV Kamat's 36-year research career (1987–2022) highlights his consistent and impactful contributions, with a total of 192 publications. His peak productivity phase (2011–2015) accounted for 32.29% of his total output, with the highest number of publications in 2015 (21 papers, 10.94%). Over time, his research evolved from single-author publications (19.79%) to predominantly multi-authored collaborations (57.81%), emphasizing a shift toward team-based and interdisciplinary research. His contributions are largely journal articles (93.2%), ensuring broad scholarly dissemination across 63 different sources. The Bradford Multiplier (3.2) confirms the concentration of impactful journals in his field. Kamat has established a strong co-authorship network, with his most frequent collaborators being M. Srinivas, A.K. Gogia, J.P. Hirth, P. Saravanan, and T.K. Nandy, reflecting extensive teamwork and knowledge exchange. His primary institutional affiliation is DRDO-DMRL (179 papers), with notable collaborations involving Indian Institute of Science, Washington State University, and Voiland College of Engineering and Architecture. His research has accumulated a total of 4, 262 citations over the years 4, 262 citations, with an average of 22.20 citations per paper, demonstrating significant academic influence. Key research themes include Fracture Toughness, Aluminum Alloys, Microstructure, Magnetic Properties, and Titanium Alloys, reinforcing his foundational role in materials science and metallurgical engineering. This study underscores Kamat's pioneering contributions, strong research collaborations, and sustained impact in his domain. The present scientometric study focuses on SV Kamat's research publications indexed in Scopus Database however future research should integrate multiple citation sources for a comprehensive impact assessment.

ACKNOWLEDGEMENT

Authors wish to express their gratitude to the Director, ARDE for continuous encouragement support. Authors also express their sincere thanks to the Vice Chancellor, Dr. Babasaheb Amedkar Marathwada University, Chhatrapati Sambhajinagar.

ABBREVIATIONS

TP: Total paper(s); **TC:** Total citation(s); **TCperArti:** Total citations per article(s); **TCpY:** Total citations(s) per year; **CC:** Collaborative coefficient; **DC:** Degree of Collaboration.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

REFERENCES

Ajiferuke, B. K, & Tague, J. (1988). Collaborative coefficient: A single measure of the degree of collaboration in research. *Scientometrics*, 14(5-6), 421-433.

Aria, M, & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975. DOI: 10.1016/j.joi.2017.08.007

Barik, N, Jena, P. (2016). Scientometric Portrait of Dr. Amartya Kumar Sen, The Nobel Laureate & Bharat Ratna. *KIIT Journal of Library and Information Management*, 3(2), 109-116. url: http://www.publishingindia.com

Behra, M, Meher, D. (2024). Scientometric Portrait of Dr. Raghuram Rajan: An Economist and 23rd RBI Governor. *Journal of Data Science, Information, Citation Studies*, 3(2), 206-2015

Busha, C. H, & Harter, S. P. (1980). Research methods in librarianship: techniques and interpretation. Academic Press.

DRDO. (2022, August 26). Dr. Samir V Kamat. Who is who. Retrieved January 28, 2025, from https://www.drdo.gov.in/drdo/dr-samir-v-kamat

Economic Times. (2022, August 26). Top scientist Samir V. Kamat appointed DRDO Chairman, Satheesh Reddy new scientific advisor to Defence Minister.

Egghe, L. (2006). Theory and practice of the g-index. *Scientometrics*, 69(1), 131–152. DOI: 10.1007/s11192-006-0144-7

Garg, K. C, & Kumar, N. (2019). Scientometric Portrait of Hari Chand Sharma an Outstanding Agricultural Scientist. *DESIDOC Journal of Library & Information Technology*, 39(3), 109–115. DOI: 10.14429/djlit.39.3.14071

Hakkaraki, V.P. (2024). Scientometric Portrait of Nobel Laureate John F Clauser. *Journal of Data Science, Information, Citation Studies*, 3(1), 58-68

Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences*, 102(46), 16569–16572. DOI: 10.1073/pnas.0507655102

Kademani, B. S, Kalyane, V. L, & Kademani, A. B. (1990). Scientometric portrait of Nobel Laurate Dr. C.V. Raman. *Indian J. Inform. Lib. Soc*, 7(3-4), 215-249.

Kamat, S. V. (2015). My Journey as a Materials Engineer. In The Mind of an Engineer (pp. 245-249). Springer Singapore. DOI: 10.1007/978-981-10- 0119-2_32

Kalyane, V.L, Munnolli, S.S. (1995). Scientometric Portrait of T.S. West. *Scientometrics*, 33(2), 233-256

Kalyane, V.L, Kalyane S.V. (1994). Scientometric Portrait of M.S. Swaminathan. *Library Science with a Slant to Documentation and Information Studies*, 31, 31-46.

Kavita, M, & Chandrashekhara, M. (2020). Scientometric Portrait of Professor K.Byrappa: Scientist of High Repute. *Asian Journal of Information Science and Technology*, 10(2), 15-20.

Kavi, P, Chandrashekara, M, Byrappa, A, & Francis, J. D. (2021). Scientometric Portrait of Prof. Dipankar Das Sarma, Solid State & Structural Chemistry Unit, Indian Institute of Science, Bengaluru. *Library Philosophy and Practice*. https://digitalcommons.unl.edu/libphilprac/5864

Kumbar, P, Kumbar, M. (2021). Communication and Collaborative Research Pattern of Nobel Laureate Yoshino Akira: A Scientometric Portrait. *Journal of Library Development*, 7(1), 69-87

Pao, P. L. (1981). A bibliometric analysis of the literature of biotechnology. *Scientometrics*, 3(4), 289-299.

Price, D. J. d. S. (1963). Little Science, Big Science. Columbia University Press

Serenko, A, Marrone, M, & Dumay, J. (2022). Scientometric portraits of recognized scientists: a structured literature review. *Scientometrics*, 4827-4846. DOI: 10.1007/s11192-022-04466-8

Subramanyam, K. (1983). Bibliometric studies of research collaboration: A review. *Journal of Information Science*, 6(1), 33-38.

Thakare, N, Ahirrao, M.K. (2021). Books Authored by Dr. Raguhunath A. Mashelkar: A Scientometric Portrait. *International Journal of Science and Research*, 10(11), 1032-1034

Vasantha, B, Sangeetha, M. (2023). Research Productivity of Prof. Sunilkumar S. Manvi: A Scientometric Portrait. *Asian Journal of Information Science and Technology*, 13(2), 8-16, DOI: 10.51983/ajist-2023.13.2.3600

Zipf, G. K. (1949). Human behavior and the principle of least effort: An introduction to human ecology. Addison-Wesley.

Cite this article: Sarode A, Khaparde VS. Scientometric Portrait of Dr. S.V. Kamat: A Distinguished Defence and Material Scientist. Journal of Data Science, Informetrics, and Citation Studies. 2025;4(3):387-9.