JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

OPEN ACCESS INSTITUTIONAL REPOSITORY OF IISC: EPRINT AN OVERVIEW

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Abstract

An institutional repository is an online location for collecting, preserving, and disseminating - in digital form - the intellectual output of a research institution. The main aim of the study was to overview the ePrint institutional repository of IISC. In this study, the concepts and definitions of Institutional Repositories are discussed, along with an overview of the Indian Institute of Science, the general concept of ePrints, and the open access institutional repository of IISc. The study's observations indicate that the ePrint@IISc repository contains various types of documents, with journal articles being the most abundant. The study determined the statistics of subject-wise distribution of documents, year-wise collection of documents, author contributions, IISc author contributions, and the journal/conference collection status.In the future, the ePrint@IISc repository is expected to continue growing, with an increasing number of entries.

Keywords

Institutional Repository, Open Access, Indian Institute of Science, IISc, ePrint

1. Introduction

An Institutional Repository (IR) is a digital archive designed to collect, preserve, and disseminate the intellectual output of an institution, typically a university, research organization, or academic body. It serves as a centralized platform for storing a wide range of scholarly materials, including research articles, theses, dissertations, conference papers, datasets, and other academic works produced by members of the institution **(Mali & Deshmuk, 2024).**

The primary goal of an institutional repository is to enhance the visibility, accessibility, and impact of the institution's research output by making it freely available to a global audience **(Asadi & et. al., 2019).** This open-access approach

promotes knowledge sharing, fosters academic collaboration, and supports long-term digital preservation of scholarly content.

Institutional repositories are typically managed by university libraries or IT departments and are built using specialized software platforms such as DSpace, ePrints, or Fedora **(Halder & Chandra, 2013).** They play a critical role in supporting open science, complying with funders' open-access mandates, and preserving the academic legacy of institutions.

2. Concepts of Institutional Repository

An Institutional Repository (IR) is a digital platform where an academic institution stores and shares its scholarly work, such as research papers, theses, and data. Key concepts include open access, metadata standards, digital preservation, and interoperability. The IR aims to increase research visibility and promote collaboration. Essential components are infrastructure, policy, content and rights management, metadata creation, and quality control. Institutional Repository (IR) is a digital archive designed to collect, preserve, and disseminate an organization's intellectual output, typically a university, research institute, or similar entity **(Jain, Bentley & Oladiran, 2009).**

3. Definition of Institutional Repository

Foster & Gibbons, (2004) defined an institutional repository is "an electronic system that captures, preserves, and provides access to the digital work products of a community," according to **(Bhanuda, 2020).**

According to Lynch (2003), institutional repository is a collection of services that a university provides to its community members for the administration and distribution of digital information produced by the institution and its members **(Mali & Deshmuk, 2024).**

An Institutional Repository is “an online locus for collecting, preserving, and disseminating, in digital form, the intellectual output of an institution, particularly a research institution” **(Institutional repository, n.d.).**

4. Learning Objectives

- To know the growth and development of institutional repositories in IISC’s.
- To overview of the various documentaries formats available in ePrints@IISc.
- To know the subject-wise distribution of documents.
- To know the year wise distribution of documents deposited.
- To identify author contribution of documents.
- To know the IISc author contribution of documents
- To determining the journal / conference collection status of ePrints@IISc.

5. Overview of the Indian Institute of Science (IISc)

The Indian Institute of Science (IISc), located in Bengaluru, Karnataka, is India's premier institution for advanced scientific and technological research and education. Established in 1909 through the collaborative efforts of Jamsetji Tata, the Government of India, and the Maharaja of Mysore, IISc has played a pivotal role in shaping India's scientific landscape **(Indian Institute of science. n.d.).**

- **Academic Excellence:** IISc offers a wide range of programs, including undergraduate, postgraduate, and doctoral degrees across disciplines like: Science (Physics, Chemistry, Biology, Mathematics), Engineering

(Aerospace, Mechanical, Electrical, Materials, etc.), Interdisciplinary Research (Nanoscience, Climate Science, Artificial Intelligence, etc.). Its focus on research-driven education fosters an environment where students engage in cutting-edge projects that contribute to global scientific advancements.

- **Research and Innovation:** Renowned for its strong emphasis on research and development (R&D), IISc houses numerous state-of-the-art laboratories, research centers, and facilities. The institute collaborates with leading global institutions, industries, and government bodies, making significant contributions in fields like: Space Technology, Sustainable Energy, Biotechnology, Data Science and AI, Quantum Computing.
- **Campus and Infrastructure:** The sprawling 400-acre green campus in Bengaluru provides a serene environment conducive to learning and innovation. It includes: Advanced laboratories, Libraries with extensive academic resources, Residential facilities for students and faculty, Recreational and cultural centers
- **Global Recognition:** IISc consistently ranks among the top institutions globally, recognized for its high-impact research, academic excellence, and contributions to science and technology. It has been featured prominently in global rankings such as: QS World University Rankings, Times Higher Education (THE) Rankings
- **Notable Alumni and Contributions:** IISc boasts a legacy of distinguished alumni who have made significant contributions to science, engineering, academia, and industry. Its alumni include renowned scientists, CEOs of major tech firms, and policy-makers who have shaped India's scientific and technological growth **(Indian Institute of science. n.d.).**

6. ePrint Repository

ePrints is an open-source software platform used for building open access repositories. It allows institutions to manage, archive, and provide public access to research outputs such as articles, theses, reports, and data sets. ePrints can be downloaded and used by anybody for free and allow modification of the program as the user likes. Organizations with limited budgets benefit from this. Additional software is needed to run ePrints, including Perl, Linux, Apache, and MySQL **(Beazley, 2010).** Features of ePrints provide open access to promote free access to scholarly content. Institutions can customize or modify the interface and features to suit their needs; advanced search options make it easy to find research materials and handle detailed metadata for better discoverability **(Pradana, 2023).**

7. Open Access Institutional Repository of IISc

The Open Access Institutional Repository (OAIR) of the Indian Institute of Science (IISc) is called ePrints@IISc. It provides access to research outputs such as journal articles, conference papers, theses, dissertations, technical reports, and more, authored by IISc researchers. The research output produced by the IISc research community is gathered, preserved, and distributed digitally by the ePrints@IISc repository. Through a web interface, it allows the Institute community to deposit their preprints, postprints, and other scholarly papers and arranges them for convenient retrieval. Only members of the IISc research community are able to submit documents to this repository. The EPrints open source software may be downloaded for free from on ePrints.orgwebsite, which is powers the ePrints@IISc repository. Because ePrints@IISc adheres to the Open Archives Initiative (OAI) structure, web search engines and other indexing services can readily index articles **(ePrints@IISc, 2025).**

8. Analysis of ePrints@IISc Collection

In ePrints@IISc, authors are invited (and encouraged) to establish their own open archives for self-archiving. Guidelines are available on the website for authors to submit publications to the IISC ePrints repository. Also, the benefits of ePrints@IISc repository for authors was available on website like enhances faculty visibility and prestige, lowers access barriers, and promotes wide dissemination of scholar's work. Open access articles have higher citation rates than traditional publications. It establishes priority of ideas and intellectual property, manages research output, and provides easy access to faculty papers. It also preserves and preserves scholars' research output, making it easily accessible in global indexing and search services. Also, copyright issue and contact details is available on website. **(ePrints@IISc, 2025).**

8.1 Distribution of Available Documents in the ePrints@IISc Repository

The Indian Institute of Science (IISc) ePrint Repository hosts a wide range of research documents across various subject divisions. This analysis examines the subject-wise distribution of documents to identify major areas of research contribution within the institute. The findings highlight IISc's strong emphasis on core science disciplines while also reflecting the presence of interdisciplinary and emerging research fields.

Table No 1. Distribution of Available Documents in the ePrints@IISc Repository

Type of Document		No of Documents Frequency	Percent	Rank
Valid	Book	68	0.10%	8
	Book Chapter	844	1.28%	5
	Conference Proceedings	2182	3.31%	3
	Conference Paper	8347	12.66%	2
	Conference Poster	94	0.14%	7
	Departmental Technical Report	62	0.09%	9
	Journal Article	52060	78.95%	1
	Editorials/ Short Communications	1970	2.99%	4
	Patent	26	0.04%	11
	Preprint	236	0.36%	6
	Teaching Resource	04	0.01%	12
	Audio	01	0.002%	13
	Conference or workshop item	01	0.002%	13
	Other	43	0.07%	10
	Total	**65938**	**100.00%**	

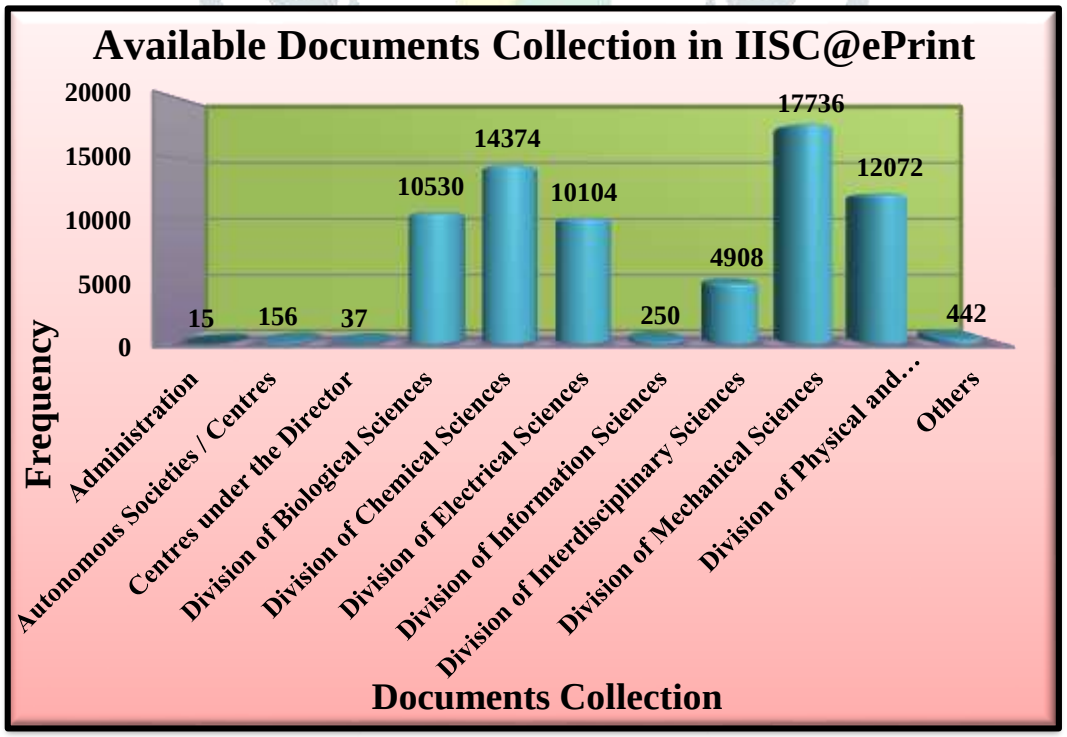

Fig. 1Distribution of Available Documents in the ePrints@IISc Repository

Interpretation: Table No. 1 data reveal that the IISc ePrint Repository predominantly comprises journal articles, which account for 52,060 documents (78.95%), ranking first among all document types. This indicates that journal publications are the primary mode of scholarly communication at IISc. The conference paper category ranks second with 8,347 documents (12.66%), followed by conference proceedings with 2,182 documents (3.31%), and editorials or short communications with 1,970 documents (2.99%) ranked 3rd and 4th respectively. These categories together emphasize IISc's strong engagement in conference-based and peer-reviewed research dissemination.Other document types such as book chapters (844; 1.28%) ranked 5th, preprints (236; 0.36%) ranked 6th, and conference posters (94; 0.14%) ranked 7th contribute modestly to the overall collection. Less represented categories include books (68; 0.10%), departmental technical reports (62; 0.09%), and other documents (43; 0.07%) ranked 8th to 10th respectively. A very small number of patents (26; 0.04%) ranked 11th, teaching resources (4; 0.01%) ranked 12th, and audio and Conference or workshop item both of (1 each; 0.002%) ranked 13th respectively are also archived.

Overview: Journal articles dominate, reinforcing the importance of peer-reviewed research. Conferences play a significant role, particularly in fields with fast-evolving research. Alternative formats (e.g., books, patents, preprints) exist but are less common. Teaching and multimedia resources are minimal, indicating a primary focus on traditional academic publications.

8.2 Subject-Wise Distribution of Documents in ePrints@IISc Repository

The ePrints@IISc Repository archives research outputs across multiple subject divisions of the Indian Institute of Science. This analysis summarizes the subject-wise distribution of documents, highlighting the institute's key research areas and their relative contributions to the repository.

Table No 2. Subject-wise distribution of documents in erints@IISc

Subject-Wise Distribution of Documents		No of Documents Frequency	Percent	Rank
Valid	Administration	15	0.02%	11
	Autonomous Societies / Centres	156	0.22%	9
	Centres under the Director	37	0.05%	10
	Division of Biological Sciences	10530	14.91%	4
	Division of Chemical Sciences	14374	20.35%	2
	Division of Electrical Sciences	10104	14.31%	5
	Division of Information Sciences	250	0.35%	8
	Division of Interdisciplinary Sciences	4908	6.95%	6
	Division of Mechanical Sciences	17736	25.11%	1
	Division of Physical and Mathematical Sciences	12072	17.09%	3
	Others	442	0.63%	7
	Total	**70624**	**100.00%**	

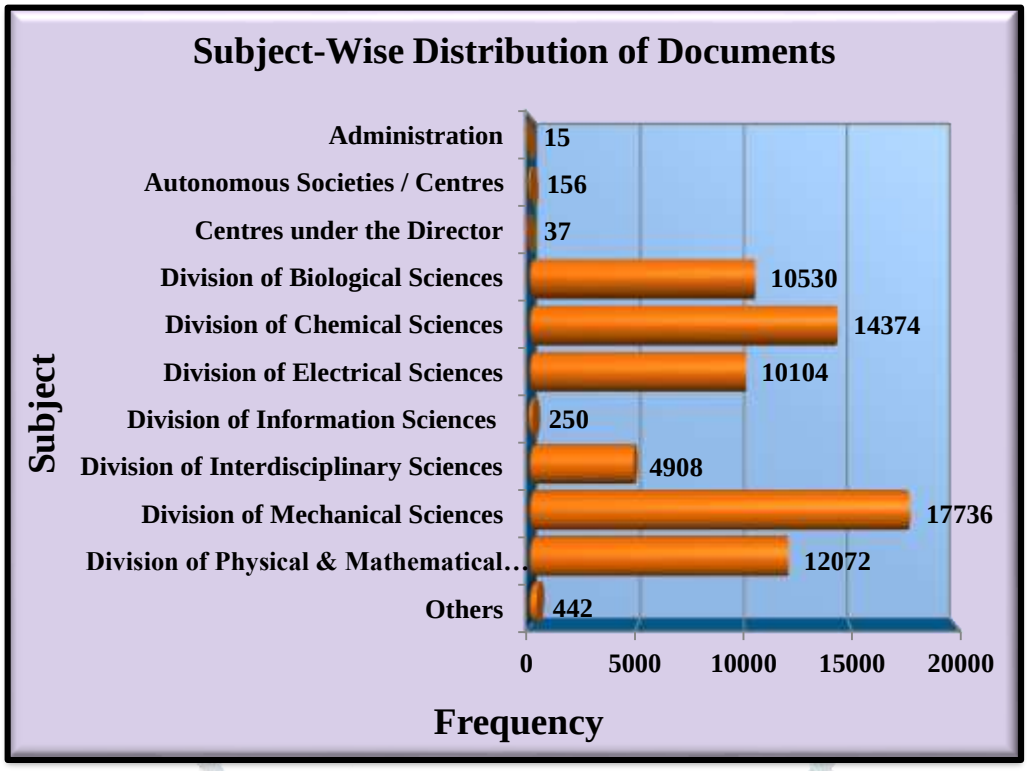

Fig. 2 Subject-wise distribution of documents in erints@IISc

Interpretation: The data presented in Table 2 indicate that the Indian Institute of Science (IISc) ePrint Repository encompasses a wide array of subject areas, reflecting the institute's multidisciplinary research environment. Among the various divisions, the Division of Mechanical Sciences contributes the largest share of documents, accounting for 17,736 records (25.11%) of the total collection ranked 1st. This dominance highlights the institute's strong research output and publication activity in the field of mechanical sciences.The Division of Chemical Sciences ranks second, contributing 14,374 documents (20.35%) ranked 2nd, followed by the Division of Physical and Mathematical Sciences with 12,072 documents (17.09%) ranked 3rd, and the Division of Biological Sciences with 10,530 documents (14.91%) ranked 4th. These figures suggest that the core science and engineering disciplines form the backbone of IISc's research repository. The Division of Electrical Sciences also makes a significant contribution, with 10,104 documents (14.31%), ranked 5th. In contrast, the Division of Interdisciplinary Sciences accounts for 4,908 documents (6.95%) ranked 6th, showing a growing but smaller share of cross-disciplinary research.Other divisions, such as Information Sciences (250; 0.35%), Autonomous Societies / Centres (156; 0.22%), Centres under the Director (37; 0.05%), and Administration (15; 0.02%) ranked 8th to 11th respectively, have relatively fewer documents, indicating limited publication activity in these areas. The category labeled others (442; 0.63%) ranked 7th may include miscellaneous or unclassified research outputs.

Overview: The data clearly demonstrate that IISc's research repository is dominated by the core science and engineering disciplines, particularly mechanical, chemical, and physical sciences, which together contribute over 60% of the total documents. This reflects the institute's strong foundation in scientific and technological research. Meanwhile, the presence of documents in interdisciplinary and emerging fields highlights IISc's commitment to diversified and collaborative research across multiple domains.

8.3 Year-Wise Collection of Documents in ePrints@IISc Repository

The ePrints@IISc Repository archives the institute's research output over the years. A year-wise analysis highlights the growth and trends in document contributions, showing how IISc's research output has evolved annually.

Table No 3. Year-Wise Collection of Documents in ePrints@IISc Repository

	Year Range	No of Documents Frequency	Percent	Rank
Valid	1914-1923	98	0.175	8
	1924-1936	95	0.170	9
	1937-1948	52	0.093	10
	1949-1959	23	0.041	11
	1960-1969	446	0.798	7
	1970-1979	1872	3.349	6
	1980-1989	3893	6.964	5
	1990-1999	4766	8.526	4
	2000-2009	14057	25.146	2
	2010-2019	17377	31.085	1
	2020-2025	13223	23.654	3
	Total	**55902**	**100.00%**	

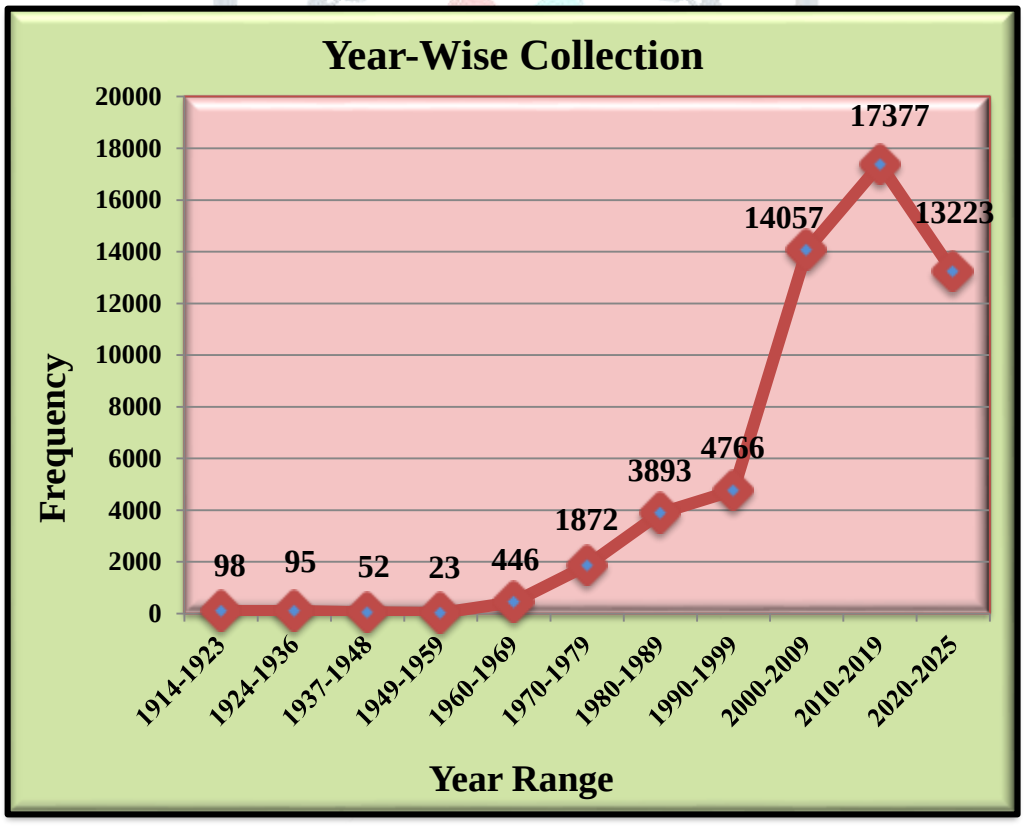

Fig. 3 Year-Wise Collection of Documents in ePrints@IISc Repository

Interpretation: Table 3 shows the year-wise distribution of documents in the ePrints@IISc Repository, reflecting a steady growth in research output over approximately 100 years. The early periods, from 1914 to 1959, have minimal contributions, with frequencies ranging from 23 to 98 documents (0.04–0.18%), ranked 11th to 8th, reflecting the nascent stage of research documentation at IISc. A noticeable increase occurs from 1960–1969 (446

documents; 0.80%), ranked 7th, followed by a more significant rise in the 1970s and 1980s, with 1,872 (3.35%) and 3,893 (6.96%) documents, ranked 6th and 5th respectively, indicating expanding research activity. Growth accelerates further in the 1990s (4,766; 8.53%), ranked 4th, and peaks in the 2010–2019 period (17,377; 31.09%), ranked 1st. The periods 2000–2009 (14,057; 25.15%), ranked 2nd, and 2020–2025 (13,223; 23.65%), ranked 3rd, also show high contributions, demonstrating sustained and substantial research output in recent decades.

Overview: The data clearly indicate that IISc's research output has grown significantly over the last century, with a dramatic increase in publications from the 1990s onward. The majority of documents are from the 2010–2019 period, followed by 2000–2009 and 2020–2025, highlighting the repository's role in capturing the institute's recent surge in research productivity. Early years contributed minimally, reflecting the gradual development of organized research documentation at IISc.

8.4 Author-Wise Contribution of Documents in ePrints@IISc Repository

The author-wise contribution analysis in the ePrints@IISc Repository highlights the research productivity and scholarly output of IISc faculty and researchers. It helps identify the most prolific contributors, active research areas, and patterns of publication within the institution. This section presents the distribution of documents by authors, reflecting their engagement and impact in institutional research dissemination.

Table No 4. Alphabetical Author-Wise Contribution in ePrints@ IISc

Alphabetical Author-Wise Contribution		No of Documents Frequency	Percent	Rank
Valid	A-E	23339	23.34%	3
	F-J	13800	13.80%	4
	K-O	24366	24.37%	2
	P-T	30361	30.36%	1
	U-Z & Other	8124	8.13%	5
	Total	**99990**	**100.00%**	

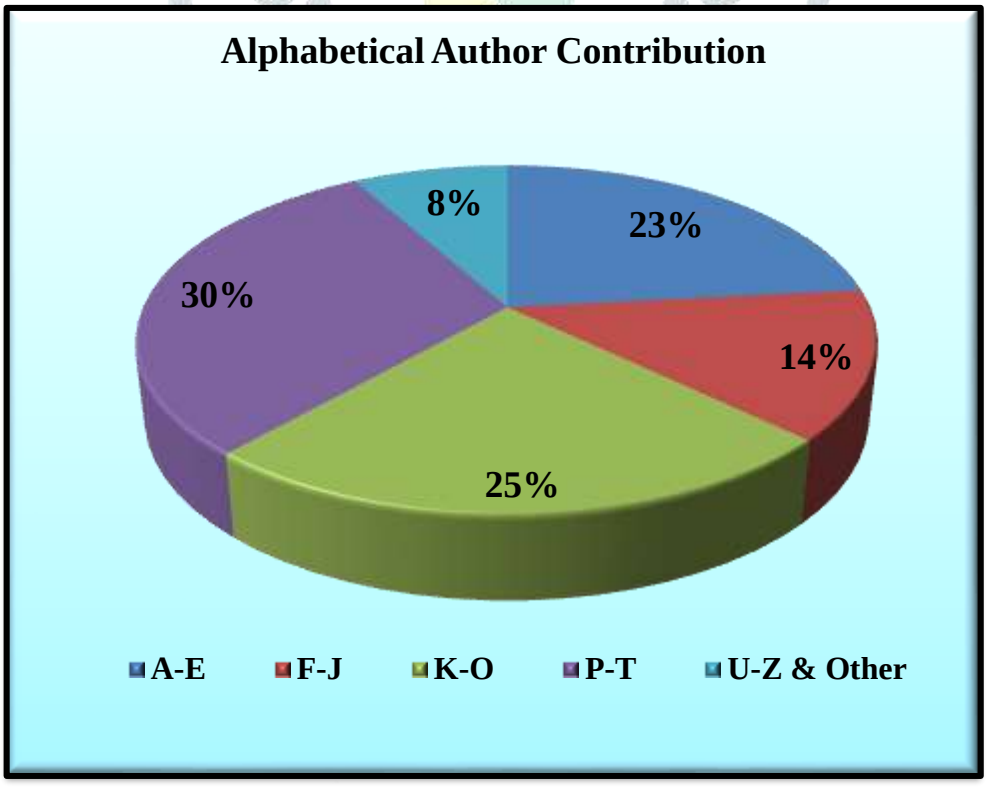

Fig. 4Alphabetical Author-Wise Contribution in ePrints@ IISc

Interpretation: Table No. 4 presents the alphabetical author-wise contribution of documents in the ePrints@IISc Repository. The data reveal that authors whose names fall under the alphabets P–T have contributed the highest number of documents 30361 (30.36%) ranked 1st, indicating a dominant presence of researchers in this group. This is followed by authors in the K–O category 24366 (24.37%) and A–E 23339 (23.34%) ranked 2nd and 3rd respectively, showing substantial contributions from these segments as well. The F–J group contributed 13800 (13.80%) ranked 4th of the total documents, while the U–Z and Others category accounts for the least share at 8124 (8.13%) ranked 5th.

Overview: The analysis highlights a wide distribution of research contributions among authors in the ePrints@IISc Repository. Although all alphabetical groups are represented, the majority of the documents originate from authors whose names begin with **P–T**, reflecting their higher research output. Overall, the repository demonstrates diverse authorship participation, emphasizing the active involvement of IISc researchers across disciplines.

8.5 IISc Author-Wise Contribution in ePrints@ IISc institutional repository

The author-wise contribution in the ePrints@IISc institutional repository reflects the research productivity and scholarly engagement of IISc authors. It provides insights into the distribution of publications among researchers, showcasing their active participation in knowledge creation and dissemination within the institution.

Table No 5. Alphabetical IISc Author-Wise Contribution in Eprints@IISc

Alphabetical IISc Author-Wise Contribution		No of Documents Frequency	Percent	Rank
Valid	A-E	3953	22.28%	3
	F-J	2118	11.94%	4
	K-O	4332	24.41%	2
	P-T	6247	35.20%	1
	U-Z	1095	6.17%	5
	Total	**17745**	**100.00%**	

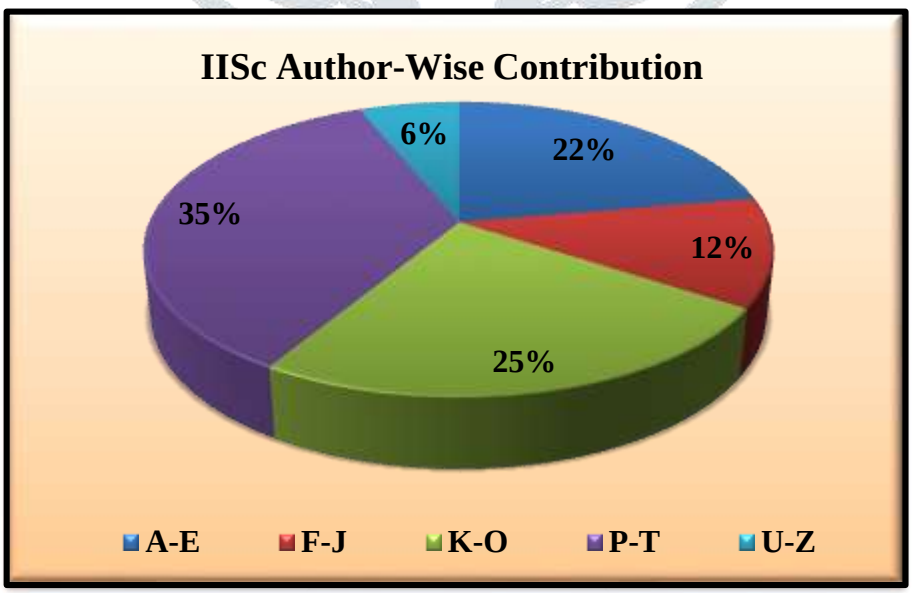

Fig. 5 Alphabetical IISc Author Contribution

Interpretation: Table No. 5 presents the alphabetical author-wise contribution of IISc researchers in the ePrints@IISc institutional repository. The data indicate that authors whose names begin with the letters P–T have the highest contribution, with 6,247 documents (35.20%), ranked 1st, followed by the K–O group with 4,332 documents (24.41%) and the A–E group with 3,953 documents (22.28%), ranked 2nd and 3rd, respectively. Authors in the F–J group contributed 2,118 documents (11.94%), ranked 4th, while the U–Z category recorded the lowest share with 1,095 documents (6.17%), ranked 5th. This distribution highlights variations in publication activity among different author groups within the institute.

Overview: The analysis reveals that the majority of research contributions in the ePrints@IISc repository come from authors whose names fall within the P–T range, reflecting their strong research productivity. Although contributions are observed across all alphabetical groups, the dominance of the P–T and K–O categories indicates active scholarly participation by a significant portion of IISc researchers.

8.6 Distribution of Journal / Conference Collection Status in ePrints@ IISc Repository

The distribution of journal and conference collections in the ePrints@IISc Repository provides insights into the diversity and composition of scholarly works contributed by IISc researchers. It highlights the balance between journal articles and conference papers, reflecting the institution's research dissemination patterns across various academic and scientific platforms.

Table No 6. Numerical and Alphabetical Distribution of Journal / Conference Collection in ePrints@ IISc

Numerical and Alphabetical Journal / Conference Collection		No of Documents Frequency	Percent	Rank
Valid	00-04	353	3.43%	5
	05-09	30	0.29%	7
	A-E	2532	24.63%	2
	F-J	3796	36.93%	1
	K-O	1157	11.26%	4
	P-T	2178	21.19%	3
	U-Z& Other	233	2.27%	6
	Total	**10279**	**100.00%**	

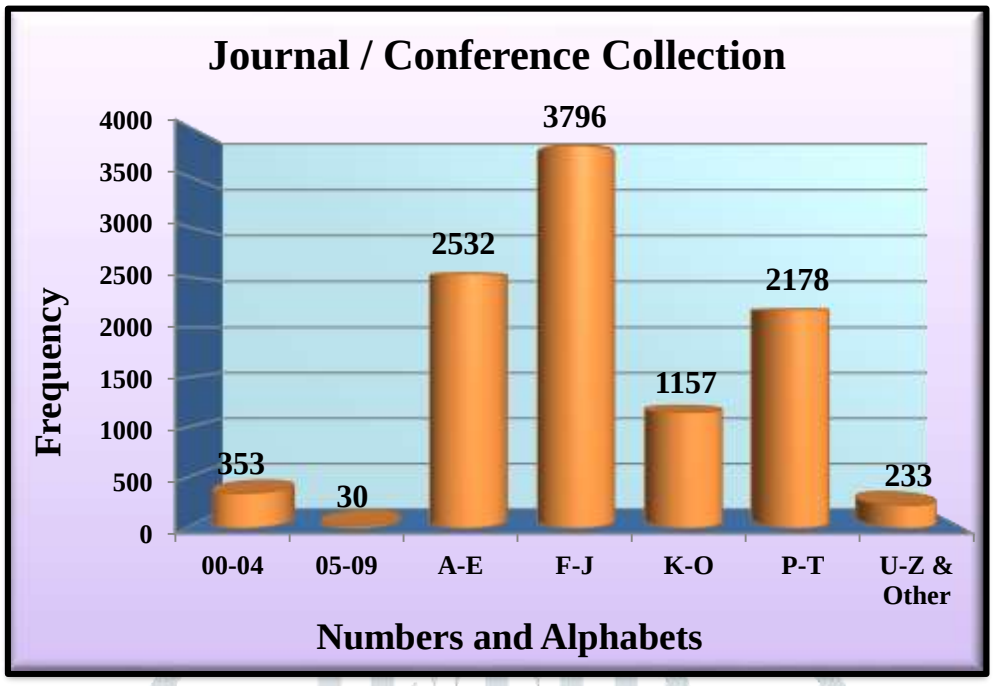

Fig. 6. Numerical and Alphabetical Distribution of Journal / Conference Collection

Interpretation: Table no. 6 shows the numerical and alphabetical distribution of journal and conference collections in the ePrints@IISc Repository. The data reveal that the highest number of documents belong to the F–J category with 3,796 records (36.93%), ranked 1st, followed by the A–E category with 2,532 records (24.63%), ranked 2nd, and the P–T category with 2,178 records (21.19%), ranked 3rd. The K–O group accounts for 1,157 documents (11.26%), ranked 4th. The U–Z & Other category contributes the least, with 233 documents (2.27%), ranked 6th. While the numerical categories 00–04 and 05–09 represent smaller portions with 3.43% and 0.29%, ranked 5th and 7th.

Overview: The analysis indicates that the majority of journal and conference materials in the ePrints@IISc Repository are concentrated in the **F–J** alphabetical range, followed by **A–E** and **P–T** groups. This suggests a higher representation of journals and conferences starting with these alphabets. Overall, the collection demonstrates a broad yet uneven distribution, reflecting diverse sources of scholarly contributions within the repository.

9. Conclusion

The concept of institutional repositories is gaining popularity in educational and research institutions for disseminating emerging knowledge and expertise. They are crucial for scholarly success and sustainability and should be regularly reviewed. ePrints@IISc encourages authors to establish open archives for self-archiving, offering benefits such as enhanced faculty visibility, lower access barriers, and wider dissemination of scholarly work. Open-access articles have higher citation rates, prioritize ideas and intellectual property, manage research output, and provide easy access to faculty papers.The website provides information on copyright issues, contact details, document types, subject-wise distribution, year-wise collection, author contributions, and journal/conference collection status for IISc. In the future, the ePrints@IISc repository is expected to continue growing, increasing the number of available documents.

Acknowledgement:

I express my heartfelt gratitude to all the dignitaries who guided and supported me in submitting my research article for publication in the journal. First of all, special thanks to my mentor Prof. Dr. B. G. Mukhadayal who provided proper guidance, valuable contributions of suggestions and continuous encouragement at every stage of the research work.

Also, my heartfelt gratitude to the Vice Chancellor, Head of Department and all the faculty members and Library professionals of Kavyatri Bahinabai North Maharashtra University for the necessary educational facilities and cooperation. Finally, my heartfelt gratitude to my family and friends for their support and inspiration.

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