

TABLE II AUTHORSHIP PATTERN OF PUBLICATIONS

Years	One Author	Two Authors	Three Authors	Four Authors	Five Authors	Six Authors	Seven Authors	Eight Authors	Nine Authors = ^	Total
2010	3	25	36	24	18	3	1	0	2	112
2011	9	38	56	38	13	6	2	1	1	164
2012	3	39	59	45	12	2	1	0	2	163
2013	6	53	89	39	21	10	1	4	1	224
2014	5	73	91	47	25	6	3	1	1	252
2015	2	62	113	65	44	22	7	0	1	316
5 year	28	290	444	258	133	49	15	6	8	1231
%	2.27	23.56	36.07	20.96	10.80	3.98	1.22	0.49	0.65	100.00

C. Type of Publications

TABLE III DISTRIBUTIONS OF PUBLICATIONS ACCORDING TO TYPE

Document Types	No. of Publications	% of Total No. of Publications
Letter	2	0.16
Erratum	3	0.24
Note	4	0.32
Editorial	10	0.81
Review	25	2.03
Book Chapter	36	2.92
Conference Paper	550	44.68
Article	601	48.82
Total	1231	100.00

Table III show that distribution of publications according to their types. It shows that research articles comprised of the highest number of publications i.e., 601 (48.82%) followed by proceedings papers 550 (44.68%), Book Chapter 36 (2.92%) review papers 25(2.03%) and Note 04 (0.32%) and other reflected in following table.

D. Collaboration of Research Publications with Other Top Countries

Table IV shows the collaboration of the research and publishing with other Top countries authors. It reflects that the USA is at the top with 54 (4.39%) publications followed by United Kingdom with 51 (4.14%) which is at second position and Germany with 32 (2.60%) publications at the third position and collaborations with other countries are given in Table IV.

TABLE IV RESEARCH PUBLICATIONS WITH OTHER TOP COUNTRIES

Sl. No.	Countries/Regions	No. of Publications	% of TP	Rank
1	United States	54	4.39	1
2	United Kingdom	51	4.14	2
3	Germany	32	2.60	3
4	Canada	27	2.19	4
5	Australia	24	1.95	5
6	Singapore	23	1.87	6
7	Saudi Arabia	13	1.06	7
8	Italy	12	0.97	8
9	Finland	10	0.81	9
10	Russian Federation	10	0.81	10
11	South Africa	8	0.65	11
12	Turkey	8	0.65	11
13	Japan	7	0.57	12
14	South Korea	7	0.57	12

Collaboration with authors of countries fairly reflects the global reach of the MNIT, Jaipur and exposure and visibility of its faculty.

E. Top Collaborative Institutions/Organizations: Table V includes the top institutions/ organizations involved in the

collaborative work with the MNIT Jaipur. The analysis of top collaborative institutions/organizations with MNIT Jaipur indicates that the MNIT Jaipur researchers largely collaborated with the University of Rajasthan, as they jointly published 56 (4.55%) publications.

TABLE V TOP INSTITUTIONS/ORGANIZATIONS INVOLVED IN THE COLLABORATIVE WORK

Top Collaborative Institutions/Organization Affiliation	No. of Publications	% of TP
University of Rajasthan	56	4.55
Indian Institute of Technology Delhi	42	3.41
Indian Institute of Technology Roorkee	35	2.84
Government Engineering College, Ajmer	27	2.19
University of Saskatchewan	21	1.71
National University of Singapore	20	1.62
Ruhr-Universitat Bochum	18	1.46
Central Electronics Engineering Research Institute India	18	1.46
Indian Institute of Technology Kanpur	18	1.46
North Dakota State University	18	1.46
National Institute of Technology Hamirpur	17	1.38
University of Bath	17	1.38
Rajasthan Technical University	16	1.30
Banasthali Vidyapith	15	1.22

F. Extent of Publication in Open Access Form

Table VI includes the extent of publications in open access from shows that distribution of publications in open access

form. Data in table reflect that percentage of open access publication was i.e., 95 (7.72%) of total publication.

TABLE VI EXTENT OF PUBLICATION IN OPEN ACCESS FORM

Access type	No. of Publication	Percentage of TP
Open Access	95	7.72
Other type of access	1136	92.28
Total	1231	100

G. Top Preferred Sources of Publications

Table VII shows the top ten journal titles and conference proceedings preferred by contributors of MNIT Jaipur for publication (2010-2015). It was found that IEEE Power and Energy Society General Meeting published the highest number of 24 publications. Proceedings of SPIE. The International Society For Optical Engineering 20 publications. ACM International Conference Proceeding Series published 18 publications. It indicates that some research work of MNIT Jaipur.

most of the articles with multiple authors are highly cited. The article which received the largest number of citations is entitled “A survey on nature inspired metaheuristic algorithms for partitional clustering” by Nanda S.J., Panda G. published in 2014 in Swarm and Evolutionary Computation.

It received 274 citations in Scopus from 2010 to 2015. Another publication entitled “Android security: A survey of issues, malware penetration, and defenses” by Faruki P., Bharmal A., Laxmi V., Ganmoor V., Gaur M.S., Conti M., Rajarajan M. published in IEEE Communications Surveys and Tutorials in 2015s received 255 citations and is second highly cited publication as per Scopus data.

H. Highly Cited Publications

Table VIII reflect the publications of authors of MNIT Jaipur which have been cited by other authors. It shows that

TABLE VII TOP SOURCES PREFERRED FOR PUBLICATIONS

Sl. No.	Source Title	No. of Publications	Percentages % of Total Publications
1	IEEE Power and Energy Society General Meeting	24	1.95
2	“Proceedings of SPIE The International Society for Optical Engineering”	20	1.62
3	ACM International Conference Proceeding Series	18	1.46
4	Green Energy and Technology	18	1.46
5	AIP Conference Proceedings	16	1.30
6	Communications in Computer and Information Science	16	1.30
7	“Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics”	14	1.14
8	International Conference on Recent Advances and Innovations in Engineering ICRAIE 2014	13	1.06
9	International Journal of Electrical Power and Energy Systems	13	1.06
10	Macromolecular Symposia	13	1.06
11	“International Conference on Signal Propagation and Computer Technology ICSPCT 2014”	12	0.97
12	Advances in Intelligent Systems and Computing	12	0.97
13	Energy and Buildings	12	0.97

TABLE IX HIGHLY CITED PUBLICATIONS

Authors	Title	Source title	Year	Cited by	DOI
Nanda S.J., Panda G.	“A survey on nature inspired metaheuristic algorithms for partitional clustering”	Swarm and Evolutionary Computation	2014	274	10.1016/j.swevo.2013.11.003
Faruki P., Bharmal A., Laxmi V., Ganmoor V., Gaur M.S., Conti M., Rajarajan M.	“Android security: A survey of issues, malware penetration, and defenses”	IEEE Communications Surveys and Tutorials	2015	255	10.1109/COMST.2014.2386139
Rana S., Jasola S., Kumar R.	“A review on particle swarm optimization algorithms and their applications to data clustering”	Artificial Intelligence Review	2011	167	10.1007/s10462-010-9191-9
Shukla P., Wang S., Singh K., Ang H.M., Tad� M.O.	“Cobalt exchanged zeolites for heterogeneous catalytic oxidation of phenol in the presence of peroxymonosulphate”	Applied Catalysis B: Environmental	2010	164	10.1016/j.apcatb.2010.06.013
Pingale S.M., Khare D., Jat M.K., Adamowski J.	“Spatial and temporal trends of mean and extreme rainfall and temperature for the 33 urban centers of the arid and semi-arid state of Rajasthan, India”	Atmospheric Research	2014	153	10.1016/j.atmosres.2013.10.024
Hoang D.C., Yadav P., Kumar R., Panda S.K.	“Real-time implementation of a harmony search algorithm-based clustering protocol for energy-efficient wireless sensor networks”	IEEE Transactions on Industrial Informatics	2014	143	10.1109/TII.2013.2273739
Bansal V., Misra R., Agrawal G.D., Mathur J.	“Performance analysis of earth-pipe-air heat exchanger for summer cooling”	Energy and Buildings	2010	142	10.1016/j.enbuild.2009.11.001
Gupta T., Chaudhary S., Sharma R.K.	“Assessment of mechanical and durability properties of concrete containing waste rubber tire as fine aggregate”	Construction and Building Materials	2014	130	10.1016/j.conbuildmat.2014.09.102
Kumar R., Sharma D., Sadu A.	“A hybrid multi-agent based particle swarm optimization algorithm for economic power dispatch”	International Journal of Electrical Power and Energy Systems	2011	118	10.1016/j.ijepes.2010.06.021
Thomas B.S., Gupta R.C., Kalla P., Csetenyi L.	“Strength, abrasion and permeation characteristics of cement concrete containing discarded rubber fine aggregates”	Construction and Building Materials	2014	99	10.1016/j.conbuildmat.2014.01.074

VI. FINDINGS AND CONCLUSION

As per Scopus data the MNIT Jaipur has contributed 1231 publications from 2010 to 2015 and its number of publications is consistently growing as it published 112 publications in 2010 and this number increased to 316 in 2015.

The authorship pattern indicates that maximum number of 444 (36.07%) had joint publications of three authors followed by joint 290 (23.56%) publications of two authors, four authors 258 (20.96%), five authors 133 (10.80%), which shows that contributors of MNIT Jaipur have tendency to publish their works collaboratively. This multi-author pattern also indicates teamwork in research.

Distribution of publications according to their types Most researchers 601 (48.82%) publications prefer to publish their research as research articles followed by proceedings papers 550 (44.68%), Book Chapter 36 (2.92%) review papers 25 (2.03%) and Note 04 (0.32%)

The distribution of collaboration teamwork research and publishing with other Top countries authors. It reflects that the USA is at the top with 54 (4.39%) publications followed by United Kingdom with 51 (4.14%) which is at second position and Germany with 32 (2.60%) publications at the third position and collaborations.

The analysis of top collaborative institutions/organizations with MNIT Jaipur indicates that the MNIT Jaipur researchers largely collaborated with the University of Rajasthan, as they jointly published 56 (4.55%) publications.

Extent of publications in open access from shows that distribution of publications in open access form reveals that percentage of open access publication was i.e., 95 (7.72%) of total publication.

Highly cited publication shows that most of the articles with multiple authors are highly cited. The article which received the largest number of citations is entitled, "A survey on nature inspired metaheuristic algorithms for partitional clustering" by Nanda S.J., Panda G. published in 2014 in Swarm and Evolutionary Computation. It received 274 citations in Scopus from 2010 to 2015. Another publication entitled "Android security: A survey of issues, malware penetration, and defenses" by Faruki P., Bharmal A., Laxmi V., Ganmoor V., Gaur M.S., Conti M., Rajarajan M. published in IEEE Communications Surveys and Tutorials

in 2015 received 255 citations and is second highly cited publication as per Scopus data.

REFERENCES

- [1] Singh, Vivek Kumar, (2015). A Scientometric Mapping of Research Output of Pondicherry University. *Indian J.Sci.Res.*, 11(2), 141-144.
- [2] Malhan, I. V. & Gupta, B. M. (2011, December). A Scientometric Assessment of Growth and Impact of Research output of the University of Jammu: A case study. *SALIS Journal of Library and Information Science*, 3(1-4), 30-45.
- [3] Jan, Asifa, Ahmed, Suhail, Nisa, Nahida Tun, & Ahmed, Asiya, (2015). Mapping the Research Output of University of Kashmir, *International Journal of Knowledge Management and Practices*, 3(2), 12-18.
- [4] Banshal, Sumit Kumar, Singh, Vivek Kumar, Basu, Aparna, Muhuri, & Pranab Kumar (2017). Research Performance of Indian Institutes of Technology. *Current Science*, 112(5), 923-932.
- [5] Hasan, Nabi, & Singh, Mukhtiar (2015). Research Output of Indian Institutes of Technology (IITs): A Scientometric Study. *Qualitative and Quantitative Methods in Libraries (QQML)*, 4, 293-305.
- [6] Bid, Subhodip (2016). Indian Institute of Technology, Kharagpur: A Scientometric study of Research Output. *SSARSC International Journal of Library Information Network and Knowledge*, 1(1), 1-15.
- [7] Jeevan, V. K. J., & Gupta, B. M. (2002). A scientometric Analysis of Research Output from Indian Institute of Technology, Kharagpur. *Scientometrics, Short communication*, 53(1), 165-168.
- [8] Vimlesh Patel & Thakur, N. S. (2018, January-June). A Scientometrics Analysis of Research Productivity: A Case Study of National Environmental Engineering Research Institute, Nagpur, *International journal of library network and knowledge*, 3(1), 43-53.
- [9] Vimlesh Patel, (2017). A Scientometrics Analysis of Research Productivity: A Case Study of National Institute of Technology Kurukshetra, *International Journal of Information Studies and Libraries*, 2(2), 24-30.
- [10] The Malviya National Institute of Technology, Jaipur, (2020). About. Retrieved from http://www.mnit.ac.in/about_us/about_mnit.php.
- [11] National Institutional Ranking Framework, Ministry of Human Resource Development, Government of India (2020). Ranking. Retrieved from <https://www.nirfindia.org/EngineeringRanking.html>
- [12] National Institutional Ranking Framework, Ministry of Human Resource Development, Government of India (2020). Ranking. Retrieved from <https://www.nirfindia.org/2018/EngineeringRanking.html>.
- [13] Ahmad Darmadji, Lantip Diat Prasojjo, Yatim Riyanto, Fitri Ayu Kusumaningrum & Yuli Andriansyah (2018) Publications of Islamic University of Indonesia in Scopus Database: A bibliometric assessment, *COLLNET Journal of Scientometrics and Information Management*, 12(1), 109-131, DOI: 10.1080/09737766.2017.1400754
- [14] Meera & Surendra Kumar Sahu. (2014). Research Output of University College of Medical Science, University of Delhi: A Bibliometric Study, *COLLNET Journal of Scientometrics and Information Management*, 8(2), 401-418, DOI: 10.1080/09737766.2014.954865.
- [15] Vimlesh Patel & Malhan, I. V., (2018). A Scientometric Study of Research Productivity of the National Institute of Technology, Hamirpur (2013-2017). *International Journal of Library Information Network and Knowledge, Scopus*, 3(2), 20-33, www.slp.org. retrieved Nov 6, 2020 from <https://www.scopus.com>.