

Research Output in Physics from Pakistani Universities 2004-2008

Although Higher Education Commission (HEC) in the previous years had received only 15% of the national budget allocated for education, it had made excellent use of the funds made available to it. One of the significant ways to gauge the impact HEC had on the tertiary education in Pakistan, is to determine the number of research papers produced by national universities which were published in peer-reviewed international journals with impact factor.

This analysis will be the first in a series of analysis to determine the situation of research output in various the subject areas. For this analysis the subject area of *Physics* is under review. The objective is to determine the number of research papers in Physics produced by the universities across Pakistan. As *Physics* is a very broad ranging subject and also the analytical tool of *ISI-Web of Science* from Thomson-Reuters classify Physics into many sub categories.

For this analysis wherever a term “Physics” is used it composed of following sub-categories.

1. Applied Physics
2. Nuclear Science & technology
3. Multidisciplinary Physics
4. Condensed-Matter Physics
5. Fluids and Plasmas Physics
6. Optics
7. Atomic, Molecular & Chemical Physics
8. Mathematical Physics
9. Particles and Fields Physics

Considering all of the above mentioned sub-categories as one field of “Physics”, the research output from the universities of Pakistan reveals the following picture.

The analysis is complete until June 4, 2008. It is also very vital to note that all the research papers produced by the universities in this duration are not published in low quality unknown journals. All of these research papers are produced in peer-reviewed international journals with impact factor. All the journals are indexed by Thomson-Reuters Web of Science which is considered as the primary analytical tool for these matters.

Total Research Output

	2008 *	2007	2006	2005	2004	Total
	157	308	242	153	118	978

Table 1.1

* Analysis is complete until June 4, 2008

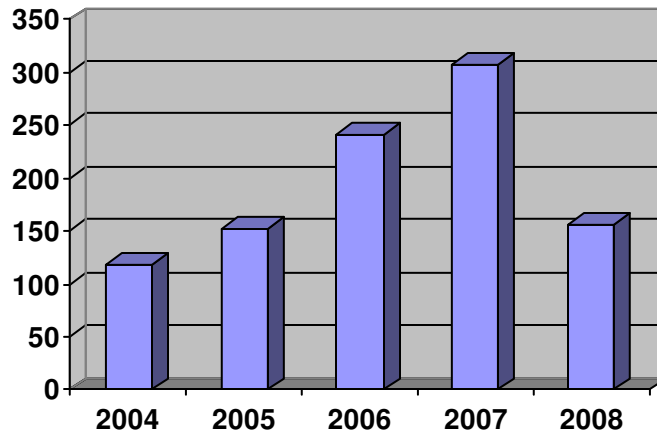


Fig. 1

Table 1.1 indicates that there has been an overwhelming progress in terms of research papers produced in Physics. It reflects an increase of **161%** from 118 papers in 2004 to 308 papers produced in 2007. The encouraging aspect is that the every year there has been significant increase over the previous year (Fig.1)

Complete figures for the year 2008 will be available in first quarter of 2009.

Let's take a look at what is the research output in Physics at the university level.

Top Universities of Pakistan (min 2 articles)

	Institution	Papers Published					
		2008*	2007	2006	2005	2004	Total
1.	Quaid-e-Azam University	62	90	98	45	49	344
2.	University of Punjab	15	34	25	17	10	101
3.	Government College University	12	36	29	12	5	94
4.	Pakistan Institute of Engg. & Applied Sciences	7	26	22	12	11	78
5.	COMSATS INST INFORMAT TECHNOLOG	15	24	14	12	3	68
6.	National University of Science & Technology	6	16	4	4	5	35
7.	GIK Inst. Of Engineering & Technology, Topi	5	6	3	5	5	24
8.	University of Engineering & Technology, Lahore	8	9	3	2	1	23
9.	Gomal University	2	0	7	5	3	17
10.	Bahauddin Zakariya University	1	5	5	2	2	15
11.	University of Karachi	3	5	4	0	0	12
12.	University of Sargodha	0	7	2	0	0	9
13.	University of Peshawar	1	1	2	1	0	5
14.	Allama Iqbal Open University	0	1	2	1	1	5
15.	Islamia University, Bahawalpur	0	3	0	1	0	4
16.	University of Azad Jammu & Kashmir	1	0	0	1	2	4
17.	Lahore College for Women University	0	4	0	0	0	4
18.	Lahore University of Management Sciences	1	0	1	1	0	3
19.	Federal Urdu University of Arts, Science and Technology	1	1	1	0	0	3
20.	NED University of Engg & Tech, Karachi	0	0	0	1	1	2
21.	Mehran University of Engg. & Technology	0	0	0	0	2	2
22.	National University of Computer & Engg Sciences	0	2	0	0	0	2

Table 1.2

It is interesting to note that overall the universities mentioned above have shown a continual progress since 2004. Between the year 2004 and 2007 Quaid-e-Azam University has shown the biggest increase in terms of research papers produced in the international journals with impact factor. It has gone from 49 research papers in 2004 to 90 research papers in 2007. The increase is 41 research articles. It is followed by Government College University, Lahore with an increase of 31 research papers from 5 in 2004 to 36 in 2007. Closely followed by University of The Punjab where it has shown an increase of 24 research papers over the same period. Quaid-e-Azam University also stays on the top of the list with 344 research papers for overall number of research articles produced from 2004 to 2008 followed by University of The Punjab with 101 research papers. Government College University, Lahore is in third place with 94 research papers. However, GCU is fast catching up with the University of Punjab as depicted in the Table 1.2

In terms of biggest percentage (minimum 50 research papers), COMSATS Institute of Information Technology, Islamabad has shown the biggest improvement where it has produced a staggering 700% improvement in 2007 when compared with year 2004. It is followed by Government College University, Lahore which has shown 620% improvement over the same period. University of The Punjab is third in the list of achieving highest percentage increase in research papers produced with 240% over the same period.

The percentage increase of the Top 5 universities

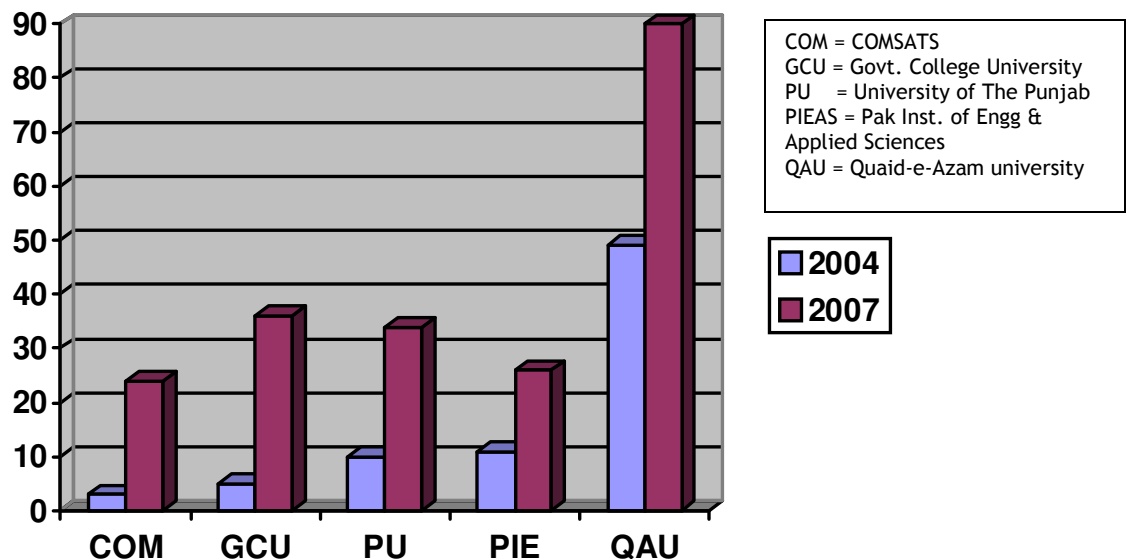


Fig. 2

Top Authors from Universities of Pakistan (Min. 20 publications)

	Author Name	Institution	Articles	Impact Factor
1.	Dr. M. Aslam BAIG	QAU, Dept. of Physics, Islamabad	44	94.448
2.	Dr. M SHARIF	PU, Dept. of Mathematics, Lahore	40	36.692
3.	Dr. Muhammad ZAKAULLAH	QAU, Dept. of Physics, Islamabad	43	64.919
4.	Dr. Ghulam MURTAZA	GCU, Salam Chair of Physics, Lahore	35	66.64
5.	Dr. Nawazish Ali KHAN	QAU, Dept. of Physics, Islamabad	33	41.203
6.	Dr. Hamid SALEEM	CIIT, Dept. of Physics, Islamabad	29	54.665
7.	Dr. Shahid HUSSAIN	QAU, Dept. of Physics, Islamabad	30	52.856
8.	Dr. Shaukat MAHMOOD	QAU, Dept. of Physics, Islamabad	28	51.497
9.	Dr. Asghari MAQSOOD	QAU, Dept. of Physics, Islamabad	26	36.2
10.	Dr. Tasawwar, HAYAT	QAU, Dept. of Mathematics, Islamabad	26	37.882
11.	Dr. Arshad Majeed MIRZA	QAU, Dept of Physics, Islamabad	24	42.384
12.	Dr. Hassan Amir Shah	GCU, Dept. of Physics, Lahore	24	31.315
13.	Dr. Qaisar Abbas Naqvi	QAU, Dept. of Electronics	23	7.584

Table 1.3

The table 1.3 highlights the significance of Quaid-e-Azam University; Islamabad as 9 out of total 13 top authors belongs to Quaid-e-Azam University, Islamabad. In the area of research activity in Physics it overshadows all the institutions of Pakistan. Two authors are form Government College University, Lahore while one each from COMSATS Institute of Information Technology, Islamabad and University of the Punjab, Lahore.