

Major Awards Winners in Mathematics: A Bibliometric Study

Rajani. S

Research Scholar, Rani Channamma University,
Belagavi & Professional Assistant, Bangalore
University Library, Bangalore

Dr. Ravi. B

Deputy Librarian
University of Hyderabad, Hyderabad

Abstract— The purpose of this paper is to study the bibliometric analysis of major awards like Fields Medal, Wolf Prize and Abel Prize in Mathematics, as a discipline since 1936 to 2014. Totally there are 120 nominees of major awards are received in these honors. The data allow us to observe the evolution of the profiles of winners and nominations during every year. The analysis shows that top ranking of the author's productivity in mathematics discipline and also that would be the highest nominees received the award at Institutional wise and Country wise. competitors. The United States of America awardees got the highest percentage of about 50% in mathematics prize.

Index terms –Bibliometric, Mathematics, Awards and Nobel Prize

I. INTRODUCTION

The Nobel Prize is the best known and prestigious scientific prize in the world. Six Nobel Prizes are awarded each year on [literature](#), [physics](#), [chemistry](#), [peace](#), [economics](#), [physiology & medicine](#). Notably absent from this list is an award for Mathematics, because it was not considered as practical science. But many mathematicians have won the prize, most commonly for physics but occasionally for economics, and in one case for literature. From the point of view of bibliometrics, one could ask if Nobel laureates are more cited than the average scientist and can find a particular pattern for winners that would distinguish them from the rest of the community. According to Eugene Garfield series of papers attempting to elucidate the profile of prize winners by describing a subset of scientists "of Nobel class" via their citation statistics.

An important aspect is that most bibliometric analysis of prize winners is a sensitivity to the evolution in time of the dynamics and growth of science that may affect the pattern of citations and the relative position of prize winners in the structure of the scientific field. The aim of this investigation has been an attempt to examine whether by some more exact delineation of the criteria of the national and international crediting of Fields Medal and other prizes to a certain countries and their attributing to that specific one would point to more correct ways of using the prize in mathematics as indicators in the form of ranked lists. The authors aware of the fact that there are also many other questions which would have to be investigated the Fields Medal and other prizes as Mathematics indicators of international merit.

II. MATHEMATICS AS A DISCIPLINE

Mathematics is the discipline; it deals with concepts such as quantity, structure, space and change. It is use of abstraction and logical reasoning, from counting, calculation, measurement and the study of the shapes and motions of physical objects. According to the [Aristotle](#) defined mathematics as "the science of quantity", and this definition prevailed until the 18th century. Benjamin Peirce called it "the science that draws necessary conclusions".

According to David Hilbert said that "We are not speaking here of arbitrariness in any sense. Mathematics is not like a game whose tasks are determined by arbitrarily stipulated rules. Rather than, it is a conceptual system possessing internal necessity that can only be so and by no means otherwise." [Albert Einstein](#) (1879–1955) stated that "As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality."

Today, mathematics is used throughout the world in many fields including natural science, engineering, medicine, and the social sciences such as economics. Applied mathematics is the application of mathematics to such fields, inspires and makes use of new mathematical discoveries and sometimes leads to the development of entirely new disciplines. Mathematicians also engage in pure mathematics for its own sake without having any application in mind. There is no clear line separating pure and applied mathematics, and practical applications for what began as pure mathematics are often discovered.

III. AWARDS

A person has been awarded a benefit means that the person has become entitled to a certain type of benefit. Award is defined as a prize, medal or a mark that is given to someone or something for recognition in honour of a certain achievement. It is also defined as the act of giving, assign or appoint prizes. Award can also be defined as the decision of arbitrators on a matter submitted to them. They are several prizes in mathematics and more than 90 prizes are awarded periodically for outstanding mathematical achievement. The most prestigious mathematical award is known as the [Fields Medal](#).

A. Fields Medal

The Fields Medal is considered to be the equivalent of the Nobel Prize for mathematics. The International Congress of Mathematicians in Toronto resolution was made and adapted in 1924 to award the Fields Medal for recognizes outstanding mathematical achievement. Professor J. C. Fields, a Canadian mathematician who was Secretary of the 1924 Congress, later donated funds establishing the medal, which were named in his honor. It is awarded for every four years on this occasion. This medal is the highest scientific award for mathematicians; the prize comes with a monetary award since 2006 in [Canadian dollars](#) is \$15,000. In 1966 it was agreed that, up to four medals could be awarded at each Congress of its medal.

B. Wolf Prize

The Wolf Prize is awarded by the Wolf Foundation in Israel. It's begun activities in 1976 and the prize has been awarded since 1978 for every year. The wolf Prize of others fields are in [Agriculture](#), [Chemistry](#), [Medicine](#), [Physics](#) and [Arts](#). Each prize consists of a diploma and US\$100,000 donated by the Wolf family. The Foundation's founders and major donors were Dr. Ricardo Subirana y Lobo Wolf and his wife Francisca.

C. Abel Prize

The Abel Prize is an international prize presented by the [King of Norway](#) to one or more outstanding [mathematicians](#) of the Norwegian Academy of Science and Letters, dedicated to the memory of Niels Henrik Abel (1802-1829) on the occasion of the bicentenary of his birth. This prize proposal by the mathematics department at the University of Oslo in fulfillment of a request formulated by the Norwegian mathematician Sophus Lie towards the end of the 19th century. The Niels Henrik Abel Memorial Fund was established on 1ST January 2002. The prize amount is 6 million NOK (about 750,000 Euro) and was awarded for the first time on 3 June 2003.

IV. REVIEW OF LITERATURE

There have been few studies conducted on Nobel Awards in Mathematics. Some of the relevant studies are **Tibor Braun, Zsuzsa Szabadi-Peresztegi and Eva Kovacs-Nemethi** they studied the ranked lists of Nobelists used as science indicators of national merit in the sciences, in the case of the Fields, Wolf and other mathematics prizes of the awardees to a certain country has been made consequently on the basis of their affiliation in the year of awarding. Analysed the country ranking of the nobel prize in mathematics, physics, medicine and chemistry. **Florin Diacu** have discussed the "Nobel Prize top awards of the field medals" and he explained the yearwise received the awards in nobel prize. **Lawrence Smolinsky and Aaron Lercher** have used this methodology to compares citation counts for award winning mathematicians is different subdisciplines of mathematics. They found that the pattern in which mathematicians working in some subdisciplines have been fewer citations than others who won the same award, and this pattern is consistent for all awards. They concluded the discipline level for different overall

citation rates for disciplines, citation counts for different subdisciplines do not match peer evaluation. Demographic and hiring data for mathematics provides a context for a discussion of reasons and interpretations.

V. OBJECTIVES OF THE STUDY

- To prepare a comprehensive list of the major awards in Mathematics;
- To analyse the major awards distribution pattern;
- To trace the rate of growth pattern of major awards in mathematics;
- To examine the authorship and collaboration of awards;
- To identify the Ranking list of awards in Country wise distribution and
- To find out the highest percentage of awards received in institution wise characteristics.

VI. METHODOLOGY

In this data analysed that the ranked lists of Nobel laureates used as mathematics indicators of National and International merit as a science subject, in the case of the Fields Medal, Wolf Prize and Abel prize, the crediting of the awardees to a certain countries has been made consequently on the basis of their affiliation in the year of awarding since 1936 to 2014. There are 120 awardees was received in these prizes but in mathematics more than 90 prizes offered in a year these prizes are not included in this survey.

Some of the awards are major prizes, which is equivalent to noble prizes, American Mathematical Society Prizes having Ten Prizes, London Mathematical Society Prizes having Five Prizes, Royal Society Prizes are Three, Royal Statistical Society Prizes having Three prizes, Society for Industrial and Applied Mathematics Prizes are Six, Japanese Mathematical Society Prizes having Five and lastly Other Prizes are having 35 Prizes. But, for this paper analyses the data only for major Prizes (i.e. Nobel Prize).

A number of studies have been carried out by using bibliometric data analysis techniques to present an overview of the nomination of awardees in this discipline. The present study has explored major awards and prizes received in the field of Mathematics particularly on (1) Ranking of Authorship Pattern awardees (2) Institutional-wise as measured and to find out the highest prizes have been received in different institutions in those countries (3) To know the Ranking of Countrywise nominees. These data were presented and tabulated in Table no. 1-4.

Table-1: the table shows that the data during the period of 1936 to 2014 a total no. of 120 awardees was received in their honors from major prizes (i.e Field Medal, Wolf Prize and Abel prize) at international level. There was a break during the year 1937 to 1949 due to war and the medals were presented

next on 1950. The table also reveal that the period of 1936 to 1962, 1974 and 2002 nominees was awarded for 2 authors, while 1982 and 1986 nominees was awarded for 3 authors in different fields.

The Wolf Prize has been awarded since 1978 by the Wolf Foundation in every year for 2 authors in different field. In the year 1991, 2008, 2009 and 2011 was not awarded in these prize. It is found that during 1994, 1995 and 2014 nominees

were awarded for single authors and while 2008 for three authors.

The Abel Prize is awarded annually for single author; it was started in the year 2003. This study shows that, for the period of 2004 and 2008 nominees were awarded for two authors in same research field.

Table-1: List of Fields Medal, Wolf Prize and Abel Prize Awardees in Mathematics

Sl. No.	Year	Total No. of Awards	FM, WP & AP	Author	Fields	Institutions	Countries
1.	1936	02	Field Medal	Lars Valerian Ahlfors	Riemann Surfaces	University of Helsinki, Finland	Europe
				Jesse Douglas	Plateau Problem	Massachusetts Institute of Technology	USA
2.	1950	02	Field Medal	Laurent Moise Schwartz	Functional Analysis	University of Nancy, France	Europe
				Atle Selberg	Number Theory	Institute for Advanced Study, Princeton, N.J	USA
3.	1954	02	Field Medal	Kunihiko Kodaira	Algebraic Geometry	Institute for Advanced Study, Princeton, N.J	USA
				Jean-Pierre Serre	Algebraic Topology	Centre National de la Recherche Scientifique, France	Europe
4.	1958	02	Field Medal	Klaus Friedrich Roth	Number Theory	Imperial College London	U.K
				René Thom	Topology	University of Strasbourg, France	Europe
5.	1962	02	Field Medal	Lars Hörmander	Partial Differential Eqns.	University of Stockholm, Sweden	Europe
				John Willard Milnor	Differential Topology	Princeton University	USA
6.	1966	04	Field Medal	Michael Francis Atiyah	Topology	University of Oxford	U.K
				Paul Joseph Cohen	Set Theory	Stanford University	USA
				Alexander Grothendieck	Algebraic Geometry.	Institut des Hautes Études Scientifiques, France	Europe
				Stephen Smale	Topology	University of California, Berkeley	USA
7.	1970	04	Field Medal	Alan Baker	Number Theory	University of Cambridge	U.K
				Heisuke Hironaka	Algebraic Geometry	Harvard University	USA
				Sergei Petrovich Novikov	Topology	Moscow State University	Russia
				John Griggs Thompson	Group Theory	University of Cambridge	U.K

8.	1974	02	Field Medal	Enrico Bombieri	Number Theory	University of Pisa, Italy	Europe
				David Bryant Mumford	Algebraic Geometry	Harvard University	USA
9.	1978	06	Field Medal	Pierre René Deligne	Algebraic Number Theory	Institut des Hautes Études Scientifiques, Belgium	Europe
				Charles Louis Fefferman	Classical Analysis	Princeton University	USA
				Gregori Aleksandrovic Margulis	Lie Groups	Moscow State University	Russia
				Daniel Grey Quillen	Algebraic K-theory,	Massachusetts Institute of Technology	USA
			Wolf Prize	Izrail M Gelfand	Functional Analysis,	Moscow State University, Moscow, USSR	Russia
				Carl L Siegel	Theory of Numbers, Complex Variables	Georg-August University, Göttingen, Germany	Europe
10.	1979	02	Wolf Prize	Jean Leray	Topological Methods to Differential Equations.	College de France, Paris, France	Europe
				André Weil	Algebro-Geometry	Institute for Advanced Study, Princeton, New Jersey	USA
11.	1980	02	Wolf Prize	Henri Cartan	Algebraic Topology & Complex Variables,	Université de Paris, Paris, France	Europe
				Andrei N Kolmogorov	Fourier Analysis, Probability Theory, Ergodic Theory	Moscow State University, Moscow,	Russia
12.	1981	02	Wolf Prize	Lars V Ahlfors	Geometric Function Theory	Harvard University, cambridge,	USA
				Oscar Zariski	Algebraic Geometry	Harvard University, cambridge,	USA
13.	1982	05	Field Medal	Alain Connes	Theory of Operator Algebras,	Institut des Hautes Études Scientifiques, Belgium	Europe
				William Paul Thurston	Topology	Princeton University, N.J	USA
				Shing-Tung Yau	Differential Equations	Institute for Advanced Study, Princeton	USA
			Wolf Prize	Hassler Whitney	Algebraic Topology,	Institute for Advanced Study, Princeton, New Jersey	USA
				Mark Grigor'evich Krein	Functional Analysis	Ukrainian S.S.R. Academy of Sciences, Odessa,	Russia
14.	1983/4	2	Wolf Prize	Shiing-Shen Chern	Differential Geometry,	University of California, Berkeley,	USA
				Paul Erdős	Mathematical Analysis,	Hungarian Academy of Sciences, Budapest, Hungary	Europe
15.	1984/5	2	Wolf Prize	Kunihiko Kodaira	Complex Manifolds and Algebraic Varieties.	The Japan Academy, Tokyo, Japan	Asia
				Hans Lewy	Partial Differential Eqns.	University of California, Berkeley,	USA

	1986	5	Field Medal	Simon Kirwan Donaldson	Topology	Imperial College London	U.K
				Gerd Faltings	Arithmetic Algebraic Geometry, (Mordell conjecture)	Princeton University, N. J	U.K
				Michael Hartley Freedman	Topological Analysis (Poincare Conjecture)	University of California, San Diego, California	USA
			Wolf Prize	Samuel Eilenberg	Algebraic Topology	Columbia University, New York	USA
				Atle Selberg	Number Theory and on Discrete Groups	Institute for Advanced Study, Princeton, New Jersey	USA
16.	1987	2	Wolf Prize	Kiyosi Itô	Stochastic Differential and Integral Calculus.	Kyoto University, Kyoto, Japan	Asia
				Peter D Lax	Applied Mathematics.	New York University, New York	USA
17.	1988	2	Wolf Prize	Friedrich Hirzebruch	Topology, Algebraic and Differential Geometry,	Max-Planck-Institut and University of Bonn, Germany	Europe
				Lars Hörmander	Linear Partial Differential Equations.	University of Lund, Sweden,	Europe
18.	1989	2	Wolf Prize	Alberto P Calderon	Partial Differential Equations.	University of Chicago, Chicago,	USA
				John W Milnor	Algebraic, Combinatorial & Differentiable	Institute for Advanced Study, Princeton, New Jersey	USA
19.	1990	6	Field Medal	Vladimir Gershonovich Drinfeld	Algebraic Geometry	University of Kharkiv, Ukraine	Russia
				Vaughan Frederick Randal Jones	Low-Dimensional Topology. (Knot Theory)	University of California, Berkeley	USA
				Shigefumi Mori	Algebraic Geometry,	Kyoto University, Japan	Asia
				Edward Witten	(Superstring Theory)	Institute for Advanced Study, Princeton	USA
			Wolf Prize	Ennio De Giorgi	Partial Differential Equations	Scuola Normale Superiore, Pisa, Italy	Europe
				Ilya Piatetski-Shapiro	Discrete Groups & Automorphic Forms.	Tel-Aviv University, Tel Aviv, Israel	Asia
20.	1992	2	Wolf Prize	Lennart A E Carleson	Fourier Analysis & Complex Analysis,	UCLA, Los Angeles,	USA
				John G Thompson	Finite Group Theory	University of Cambridge, Cambridge,	U.K
21.	1993	2	Wolf Prize	Mikhael Gromov	Partial Differential Eqns	Institut des Hautes Etudes Scientifiques (IHES), Bures-Sur-Yvette, France	Europe
				Jacques Tits	Algebraic	College de France, Paris, France	Europe

22.	1994	5	Field Medal	Jean Bourgain	Mathematical Analysis	Institut des Hautes Études Scientifiques, Belgium	Europe
				Pierre-Louis Lions	Partial Differential Equations,	Paris Dauphine University, France	Europe
				Jean-Christophe Yoccoz	Dynamical Systems	Paris-Sud 11 University, France	Europe
				Efim Isaakovich Zelmanov	Group Theory,.	University of California, San Diego, California	USA
			Wolf Prize	Jürgen K Moser	Nonlinear Differential Equations.	Swiss Federal Institute of Technology (ETH), Zurich, Switzerland	Europe
23.	1995/6	2	Wolf Prize	Robert Langlands	Number Theory,	Institute for Advanced Study, Princeton,	USA
				Andrew J Wiles	Number Theory	Princeton University, Princeton, N.J.,	USA
24.	1996/7	2	Wolf Prize	Joseph B Keller	Statistical Mechanics	Stanford University, Stanford, California,	USA
				Yakov G Sinai	Statistical Mechanics & Ergodic Theory	Landau Institute of Theoretical Physics, Moscow,	Russia
25.	1998	6	Field Medal	Richard Ewen Borcherds	Algebra Mathematical Physics	University of California, Berkeley	USA
				William Timothy Gowers	Functional Analysis	University of Cambridge	U.K
				Maxim Lvovich Kontsevich	Mathematical Physics	Institut des Hautes Études Scientifiques, Belgium	Europe
				Curtis Tracy McMullen	Chaos Theory	Harvard University	USA
26.	1999	2	Wolf Prize	László Lovász	Theoretical Computer Science	Yale University, New Haven, Connecticut,	USA
				Elias M Stein	Classical and "Euclidean" Fourier Analysis	Princeton University, Princeton, New Jersey,	USA
27.	2000	2	Wolf Prize	Raoul Bott	Topology & Differential Geometry	Harvard University, Cambridge, Mass.,	USA
				Jean-Pierre Serre	Topology	College de France, Paris, France	Europe
28.	2001	2	Wolf Prize	Vladimir I Arnold	Differential Equations	University Paris-Dauphine, Paris, France	Europe
				Saharon Shelah	Mathematical Logic and Set Theory	Hebrew University of Jerusalem, Jerusalem, Israel	Asia
29.	2002	4	Field Medal	Laurent Lafforgue	Number Theory	Institut des Hautes Études Scientifiques, Belgium	Europe
				Vladimir Aleksandrovich Voevodsky	Algebraic Geometry	Institute for Advanced Study, NJ	USA

			Wolf Prize	Mikio Sato	Algebraic Analysis	Research Institute for Mathematical Sciences, Kyoto University, Kyoto, Japan	Asia
				John T Tate	Algebraic Number Theory.	University of Texas, Austin, Texas,	USA
30.	2003	1	Abel Prize	Jean-Pierre Serre	Topology, Algebraic Geometry & Number Theory.	Collège de France, Pairs, France	Europe
31.	2004	2	Abel Prize	Sir Michael Francis Atiyah	Index Theorem, bringing together	University of Edinburgh, Scotland	U.K
				Isadore Manuel Singer	Topology, Geometry Analysis	Massachusetts Institute of Technology, Cambridge,	USA
32.	2005	3	Wolf Prize	Gregory A Margulis	Algebra, Ergodic Theory	Yale University, New Haven, Connecticut, USA	USA
				Sergei P Novikov	Algebraic and Differential Topology	University of Maryland, College Park, Maryland,	USA
			Abel Prize	Peter D Lax	Partial Differential	Courant Institute of Mathematical Sciences, New York University	USA
33.	2006	7	Field Prize	Andrei Yuryevich Okounkov	Mathematical Physics	Princeton University, NJ	USA
				Grigori Yakovlevich Perelman	Geometry	Saint Petersburg	Russia
				Terence Chi-Shen Tao	Partial Differential Equations,	University of California, Los Angeles	USA
				Wendelin Werner	Geometry	Paris-Sud 11 University, France	Europe
			Wolf Prize	Stephen Smale	Differential Topology	University of California at Berkeley, Berkeley, California	USA
				Harry Furstenberg	Ergodic Theory, Probability, Topological Dynamics	The Hebrew University of Jerusalem, Jerusalem, Israel	Asia
			Abel Prize	Lennart Carleson	Dynamical Systems.	Royal Institute of Technology, Sweden	Europe
34.	2007	1	Abel Prize	Srinivasa S R Varadhan	Probability Theory	Courant Institute of Mathematical Sciences, New York University	USA
35.	2008	5	Wolf Prize	Pierre R Deligne	Arithmetic	Institute for Advanced Study, Princeton, NJ	USA
				Phillip A Griffiths	Complex Differential Geometry	Institute for Advanced Study, Princeton, NJ	USA
				David B Mumford	Modern Algebraic Theory	Brown University, Providence, Rhode Island,	USA
			Abel Prize	John Thompson	Algebra and Group Theory	University of Florida	USA
				Jacques Tits		Collège de France, Paris, France	Europe

36.	2009	1	Abel Prize	Mikhail Leonidovich Gromov	Geometry	Institut des Hautes Études Scientifiques, Bures-sur-Yvette, France	Europe
37.	2010	7	Field Medal	Elon Lindenstrauss	Ergodic Theory	Princeton University	USA
				Ngô Bảo Châu	Algebraic Geometry	Institute for Advanced Study, N J	USA
				Stanislav Smirnov	Mathematical Physics	University of Geneva	Europe
				Cédric Villani	Mathematical Physics	École Normale Supérieure de Lyon, France	Europe
			Wolf Prize	Shing-Tung Yau	Geometric Analysis	Zhejiang University, China	Asia
				Dennis Sullivan	Algebraic Topology	Stony Brook University, New York	USA
			Abel Prize	John Tate	Number Theory	University of Texas at Austin	USA
38.	2011	1	Abel Prize	John Milnor	Topology, Geometry & Algebra	Stony Brook University, New York	USA
39.	2012	3	Wolf Prize	Michael Aschbacher	Finite Groups	California Institute of Technology, Pasadena,	USA
				Luis Caffarelli	Partial differential Eqns.	University of Minnesota	USA
			Abel Prize	Endre Szemerédi	Discrete Mathematics and Theoretical Computer Science	Alfréd Rényi Institute and Rutgers University, Hungary	Europe
40.	2013	2	Wolf prize	George D Mostow	Geometry and Lie Group Theory.	Yale University, New Haven, Connecticut,	USA
				Michael Artin	Algebraic Geometry.	Massachusetts Institute of Technology	USA
			Abel Prize	Pierre Deligne	Algebraic Geometry,	Institute for Advanced Study, Princeton, NJ	USA
41.	2014	1	Wolf Prize	Peter Sarnak	Number Theory & Geometry	Institute for Advanced Study, Princeton, New Jersey,	USA

Table-2: Table 2 shows that the authorship awardees received awards during the period of study. The First place goes to the Jean-Pierre Serre and Pierre Deligne from Europe and John G Thompson from UK received all the awards from

major prizes. The remaining of 9 authors received their honors for Field Medal and Wolf prize where as in both Wolf Prize and Abel Prize have got the Five authors. While Zero awardees for Field Medal and Abel Prize.

Table-2: Ranking of Authorship awardees in Mathematics

Sl. No.	Authors	No. of Awards received in his honors	Field Medals, wolf prize and Abel Prize	Field Medal and Wolf Prize	Wolf Prize and Abel Prize	Field Medal and Abel Prize	Ranking
1.	Jean-Pierre Serre	3	FM-1954 WP-2000 AP-2003	---	---	---	1

2.	John G Thompson	3	FM-1970 WP-1992 AP-2008	---	---	---	1
3.	Pierre Deligne	3	FM-1978 WF-2008 AP-2013	---	---	---	1
4.	Atle Selberg	2	---	FM-1950 & WP-1986	---	---	2
5.	David B Mumford	2	---	FM-1978 WP- 2008	---	---	2
6.	Jacques Tits	2	---	---	WP-1993 AP-2008	---	2
7.	John Tate	2	---	---	WP-2002/3 AP-2010	---	2
8.	John W Milnor	2	---	FM-1962 WP-1989	---	---	2
9.	Kunihiko Kodaira	2	---	FM-1954 WP-1984/5	---	---	2
10.	Lars Hormander	2	---	FM-1962 WP-1988	---	---	2
11.	Lars V Ahlfors	2	---	FM-1936 WF-1981	---	---	2
12.	Lennart A E Carleson	2	---	---	WP-1992 AP-2006	---	2
13.	Mikhail Leonidovich Gromov	2	---	---	WP-1993 AP-2009	---	2
14.	Peter D Lax	2	---	---	WP-1987 AP-2005	---	2
15.	Sergei Petrovich Novikov	2	---	FM-1970 WP-2005	---	---	2
16.	Shing-Tung Yau	2	---	FM-1982 WP-2010	---	---	2
17.	Stephen Smale	2	---	FM-1966 WP-2006/7	---	---	2

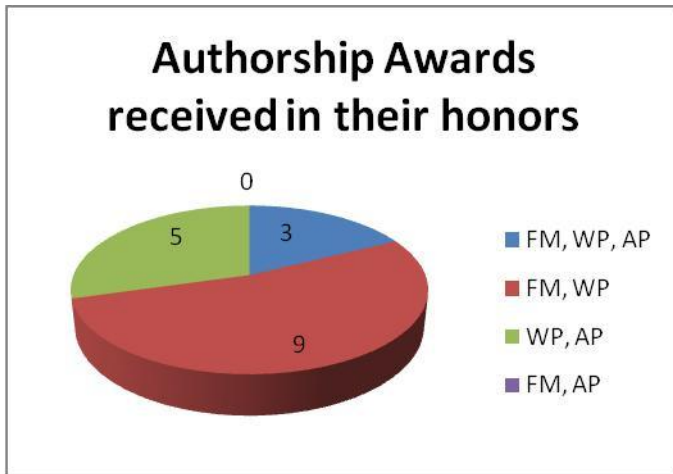


Table No.3: The Study reveals that the major prizes of nominees are received by Institute for Advanced Study, New Jersey, USA with 15 (12.5%) awardees. While Princeton University, New Jersey 8 (6.66%), Institutues Hautes Edudes with 7 (5.83%) and remaining institutes have got 5 and 4 awardees. In other universities with 40(33.3%) its includes singleinstitutions.

Fig-1: Ranking of Authorship Awardees in Mathematics

Table-3: Ranking of Institutional wise awardees in Mathematics

Sl. No.	Institution	No. of awards received	Distribution of major awards	Ranking	Percentage
1.	Institute for Advanced Study, Princeton, NJ, USA	15	FM-6 WF-8 AP-1	1	12.5%
2.	Princeton University, Princeton, New Jersey, USA	8	FM-6 WP-2	2	6.66%
3.	Institut des Hautes Études Scientifiques, France, Europe	7	FM-6 AP-1	3	5.83%
4.	Harvard University, USA	6	FM-3 WF-3	4	5%
5.	University of California at Berkeley, Berkeley, California, USA	6	FM-3 WP-3	4	5%
6.	College de France, Paris, Europe	5	WP-3 AP-2	5	4.16%
7.	Massachusetts Institute of Technology, USA	4	FM-2 WP-1 & AP-1	6	3.33%
8.	Moscow State University, Moscow, USSR	4	FM-2 WP-2	6	3.33%
9.	University of Cambridge, USA	4	FM-3 WP-1	6	3.33%
10.	Paris-Sud 11 University, France, Europe	3	FM-3	7	2.5%
11.	University of California, Los Angeles, USA	3	FM-3	7	2.5%
12.	Yale University, New Haven, Connecticut, USA	3	WP-3	7	2.5%
13.	Courant Institute of Mathematical Sciences, New York University, USA	2	AP-2	8	1.66%
14.	Imperial College London, UK	2	FM-2	8	1.66%
15.	Kyoto University, Japan	2	FM-1 WP-1	8	1.66%
16.	Stanford University, USA	2	FM-1 WP-1	8	1.66%
17.	Stony Brook University, New York, USA	2	WP-1 AP-1	8	1.66%
18.	University of Texas at Austin	2	AP-1 WP-1	8	1.66%
19.	Other University	40	FM-12 WP-24 AP-4		33.33%

VII. RESULTS

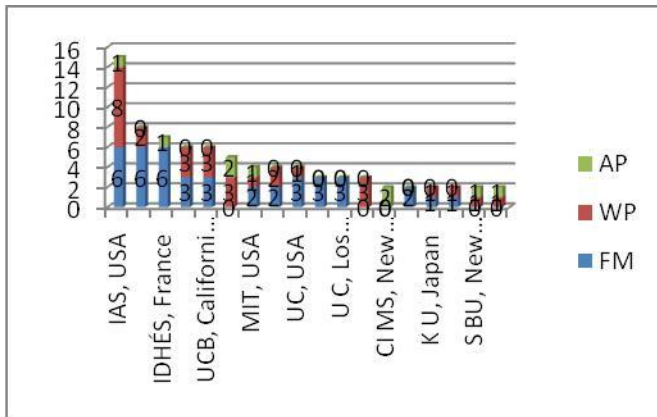


Fig-2: Ranking of Institutional Wise awardees in Mathematics

Table No.4:- The Table indicates that among the country wise distribution of awardees in mathematics covered Border area of the countries by the study. United State of America have got top ranking with 61 (50.83%) awardees which are followed by the Europe with 34(28.33%). While United Kingdom with 9 (7.5%), Russia and Asia with 8(6.66%).

Table-4: Ranking of Country wise awardees in Mathematics

Sl. No.	Country wise	No. of Awards received each Countries	Ranking	%
1.	USA	61	1	50.83%
2.	Europe	34	2	28.33%
3.	U.K	9	3	7.5%
4.	Russia	8	4	6.66%
5.	Asia	8	4	6.66%

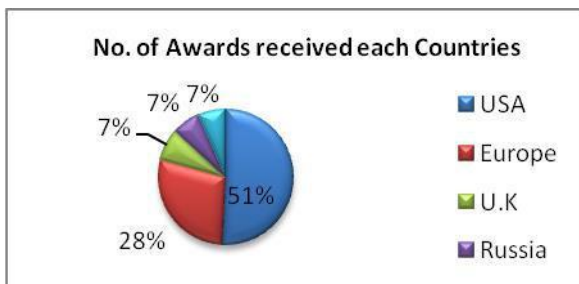


Fig-3: Ranking of Country wise Awardees

- The Fields Medal, Wolf Prize and Abel Prize awardees is presented in Table -1; it has been found that the Field Medal awardees on 17 times to 52 nominees are awarded since (1936-2010). The prize in mathematics as a discipline has gained a reputation for identifying future winners of the Wolf Prize- from 28 times to 55 nominees are awarded between 1978 and 2014 for every year. In 1991, 1998, 2004, 2009 and 2011 was not awarded in these years. Abel Prize is awarded annually from 2003 onwards and it is presented in the same table. In this data 11 times to 13 awardees are received in the Abel prize. Two times to Two nominees are awarded in the year 2004 and 2008.

- The ranking of authors by their major prizes was shown in table-2, The First place of authors goes to Jean-Pierre Serre, Pierre Deligne from Europe country and John G Thompson in UK country received in their honors (i.e. Fields Medal, Wolf Prize and Abel Prize). For the Second place goes to 14 awardees out of these, 9 awardees has got medal from both awards in Fields Medal and Wolf Prize. Where as in Wolf Prize and Abel Prize has received the awards for 5 nominees. 0 awardees have got nominees from Fields Medal and Abel Prize.

- The List of ranking in the Institutional wise awarding of these prizes was presented in Table 3. As mentioned, its compared the institutional wise ranking and percentage of all mathematics awardees based on awards in Fields Medal, Wolf Prize and Able Prize. 15 awardees (12.5%) are awarded to the Institute for Advanced Study, Princeton, NJ, USA and Princeton University, Princeton, New Jersey, USA institution awarded to 8 awardees (i.e 6.66%) and other institutions like totally added to single institutions together have received 40 nominees (i.e. 33.3%) in these prizes.

- In the country wise, it was selected main countries to analyses in mathematics discipline. The ranking of the Major awardees by their country affiliation is presented in Table- 4. In this table, United States of America awardees have got the highest percentage (i.e. 50.83%) in mathematics prize, Europe (28.33%), U.K (7.5%) and the least percentage (i.e. 6.66%) has got Asia in china country

VIII. CONCLUSION

The Fields Medal, Wolf Prize and Abel Prize were probably the closest equivalent of a “Mathematicians Nobel Prize”. This prize is highly recognized due to its objective and well grounded prize awards systems. Thus, the distributions of the awards given valuable solutions of the problems on the main trends of the Mathematics.

The terms of Bibliometrics are very essential tool but not only to understanding the limits and it is also for gaining insight within Mathematics discipline. From the results, it was found that the distribution of ranking peaks at around the time of the Prize is awarded and observable in the years following the attribution of the Prize. However, it is interesting to note that the “popularity” brought about by the Prize appears to be less important than the importance attributed to scientists before they become Fields awards and other prizes. Further, it was able to benchmark the medals against other nominees.

REFERENCES

- [1]. Braun, Tibor , Szabadi-peresztegi Zsuzsa and Nemethieva, Kovacs (2003). About Abels and similar international awards for ranked lists of awardees as science indicators of national merit in mathematics Scientometrics, Vol. 56, No. 2 161–168
- [2]. Peter Ross. (1995). Why Isn't There a Nobel Prize in Mathematics?. Math Horizons, Vol. 3, No. 2 (November 1995), p. 9
- [3]. Prielipp, Robert W. Three Four Mathematicians (1969). The Mathematics Teacher. Vol. 62, No. 2 pp. 125-127

Web Site address:

- [1]. <http://mathworld.wolfram.com/WolfPrize.html>
- [2]. <http://en.wikipedia.org>
- [3]. <http://www-history.mcs.st-and.ac.uk/Societies/>
- [4]. <http://www.mathunion.org/index.php?id=prizewinners>
- [5]. <http://www.math.uvic.ca/faculty/diacu/index.html>

Authors Profile



S. Rajani received the B.Sc, MLISc, PGDLAN, M.Phil degree in Library and Information Science. Currently doing **Ph.D** in Library and Information Science in Rani Channamma University, Belgaum, India. Presently working as a Professional Assistant in Bangalore University Library, Bangalore, India. His research work interest includes Scientometrics and Bibliometrics.



B. Ravi received the M.Sc, PGDLAN, PhD in Library and Information science. He has authored a book, edited two books and written nearly 50 research articles in various journals, conferences and seminars. Worked as Associate Professor in Library and Information science at Rani Channamma University, Belagavi for a short period and presently working as Deputy Librarian at University of Hyderabad, Central University, Hyderabad.