

Curriculum Vitae

(Prof. H. K. Pathak)

Born at Raipur, Chhattisgarh in 1954. He did B.Sc. from Govt. Digvijay college, Rajnandgaon (C.G.) in 1975 and M.Sc. in Mathematics from the same college in 1977. He earned his Ph.D. under the dual title '*Mappings on Fixed Point Theorems on Different Spaces and Some Results on Convergence and Summability*' in 1988 from Pt. Ravishankar Shukla University, Raipur (C.G.). He joined as Lecturer at Dhamtari Science College, Dhamtari (C.G.) in Jan '78. He joined Kalyan PG College, Bhilai Nagar (C.G.) as Lecturer /Assistant Professor in July '78. He promoted to Asst. Professor (Senior Grade) in 1986 and obtained Selection Grade in 1991. He joined Pt. Ravishankar Shukla University, Raipur as Professor in April, 2005. At present, he is the **Chairman of Board of Studies in Mathematics, Director, Center for Basic Sciences (CBS), and Director, Human Resource Development Centre, Pt. Ravishankar Shukla University, Raipur.**



Currently, he is Head of School of Studies in Mathematics of Pt. Ravishankar Shukla University, Raipur, having teaching and research experience of 38 years, has published more than **232 research papers (Reviewed in MR)** mostly in SCI journals having more than **249 citations (MathSciNet)** and **1733 google citations (h-index-22; i10-index 36)** in Science Citation Index journals in areas of *Approximation Theory, Operator Theory, Integration Theory, Fixed Point Theory, Number Theory, Cryptography, Summability Theory and Fuzzy Set Theory*; his work published in journals of international repute such as *Proceeding Amer. Math. Soc., Math. Nach., Acta Math. Hungarica, Applied Math. Letters, J. Computational and Applied Mathematics, Math Nachr., Topological Methods in Nonlinear Analysis, CAMWA, Nonlinear Analysis- Theory, Methods and Applications, Applied Mathematics and Computations, Applied Mathematics letters, Journal of Mathematical Analysis and Applications, Fuzzy Sets & Systems, International Journal of Wavelets, Multiresolution and Information Processing* etc.; supervised 11 Ph.Ds and 18 M.Phils; published more than 50 books for under graduate and post graduate students and has served as a reviewer for **MR** (American Mathematical Society) and research journals published by *American Mathematical Society, Elsevier, Springer, Hindawi, Academic Press* etc.

He has travelled widely in India and abroad for academic activities; besides his visits to USA, Singapore, Hongkong, S.Korea, Sultanate of Oman, S. Africa. He has visited S. Korea and S.Africa several times as Visiting Fellow/Visiting Researcher. He has visited Qaboos University, Sultanate of Oman thrice as Research Consultant to support research project. He has been member of some academic bodies such as American Mathematical Society, International Federation of Nonlinear Analysts, Calcutta Mathematical Society, Vijnana Parishad of India etc. and has lectured or presented papers at over 30 national and international conferences. He has successfully nominated an Indian professor for **Abel prize** in 2010. His several articles rated **Top 25 Hottest Articles in top25.sciencedirect.com**. He has been awarded "**Distinguished Service Award-2011**" by Vijnana Parishad of India.

Prof. Pathak, a multifaced researcher working in divergent field of pure and applied mathematics, is basically a Nonlinear Analyst. The epicenter of his work is *Nonlinear Analysis*. It is, indeed, an important branch of mathematics. A multitude of his work mainly concern to generate useful analytical tools to deal with existence and uniqueness of solution of certain problems arising in applied mathematics. Notice that in the study of nonlinear analysis, we often use an important ingredient as a tool to handle real world problems what is known as 'Fixed Point Theory'. The application of fixed point theorems is very important in diverse disciplines of mathematics, statistics, engineering and economics in dealing with problems arising in: approximation theory, potential theory, game theory, mathematical economics, theory of differential equations, theory of integral equations, etc.

The scientific contributions of Prof. H. K. Pathak

Nowadays, leading mathematicians of the world are working at the interface of mathematics and its applications. Prof. Pathak is a nonlinear analyst working in the interface of topology and mathematical analysis. His major scientific contribution can be listed as follows:

- Framed weaker form of non-commutative mappings such as compatibility of type (P), type (B), type (C), weak compatibility of type (T)/type (I), f -weak compatibility, biased maps, almost compatible maps, almost biased and weakly compatible maps of type (T)/type (I) for hybrid functions, besides P -operator pair, H -operator pair, PD -operator pair, and obtained their common fixed points under certain contraction conditions in their respective natural terrains. These results were shown viable, productive and applicable to solve problems of existence and uniqueness of solutions of certain nonlinear integral equations, functional equations arising in dynamic programming problems, best approximation problem, variational inequalities arising in two point obstacle problems in stochastic game theory etc.
- Introduced a new class of set-valued mappings in a non-convex setting called \mathcal{D} -KKM mappings and proved a general \mathcal{D} -KKM theorem. This extends and improves the KKM theorem for several families of set-valued mappings, such as $\mathcal{M}(X, Y)$, $\mathcal{K}_c(X, Y)$, $\mathcal{V}_c(X, Y)$, $\mathcal{A}_c(X, Y)$ and $\mathcal{U}_c(X, Y)$. This result was used to get some existence results for maximal elements, generalized variational inequalities, and price equilibria.
- Existence of common fixed point was ensured for a Banach operator pair under certain generalized contractions to obtain some best approximation results and applied these results for the first time to the problem of existence of solutions of variational inequalities and the solution of functional equations arising from dynamic programming.
- Successfully dealt with Maximization-Minimization Process in two-person zero-sum game that arises in stochastic game theory and to determine the best strategies for each player on the basis of maximin and minimax criterion of optimality.
- Solved a new problem of existence of solution of a pair of simultaneous Volterra-Hammerstein integral equations with infinite delay.
- Introduced the concepts of "weak/strong topological contraction" and a generalization of celebrated Banach contraction principle called " p -contraction" and used this concept to obtain certain fixed point theorems for self-mappings from a topological / metric space into itself satisfying topological contraction / metric p -contraction, respectively. Certain nonlinear integral equations defined on $\mathbf{C}[a, b]$ satisfying generalized Lipschitzian continuity condition were solved by applying these theorems. It was shown by suitable technique

that under certain conditions it is always possible to control optimally the solution of the ordinary differential equation via dynamic programming.

- Introduced the concept of an occasionally pseudomonotone operator in Hilbert space. There was a long standing problem— the proximal point algorithm converges weakly to a zero of a maximal monotone operator, but it failed to converge strongly. In this context, a modified proximal-type algorithm was introduced with varied degree of rate of the convergence depending upon the choice of p ($1 < p < \infty$) for occasionally monotone operator, which is a generalization of monotone operator, to extend some known result in Banach spaces to more general Banach spaces which are not necessarily uniformly convex like locally uniformly Banach spaces. This result was successfully used in the problem of finding a minimizer of a convex function in a more general setting of Banach spaces.
- Introduced the concept of P -Lipschitzian maps which is weaker than \mathcal{D} -Lipschitzian maps. This concept was found very useful in finding the existence of solution of some nonlinear integral equations.
- Existence of a best proximity point for a cyclic φ -contraction map in a reflexive Banach space was proved by using appreciable generalized notions. Introduced a new concept of C -proximity point and a new class of maps, called cyclic C_φ -contractions, which contains cyclic contraction maps and cyclic φ -contraction maps as subclass.
- New common fixed point, coincidence point, and homotopy results were presented for single-valued as well as multi-valued f -hybrid compatible generalized ϕ -contractive maps defined on complete metric spaces and more general spaces called complete gauge spaces. This work appeared in a very long paper containing 76 pages.
- Introduced multi-valued Nemytskij operator and successfully applied a multi-valued version of Krasnoselski's fixed point theorem in a cone to discuss the existence of $C[0, T]$ and $L^p[0, T]$ (positive) solutions to nonlinear Fredholm integral inclusion $y(t) \in \int_0^T k(t,s) [a(s)g(s, y(s)) + f(s, y(s), y'(s))] ds$.
- Introduced appreciably new concepts of H^* -type contraction and H^* -type nonexpansive mappings. These concepts were proved viable, productive and useful in generalization of the fixed point result of Nadler by weakening the multi-valued contraction via the concept of H^* -type contraction. The famous fixed point result of Lami Dozo was extended for H^* -type nonexpansive mappings. Filippov type existence theorem for a nonconvex integral inclusion was solved for the first time by using an appropriate norm on the space of selection of the multifunction and a H^* -type contraction for set-valued maps.
- Proposed a new modified algorithm in the arena of cryptography what we call Direct Recoding Method (DRM) for computation of signed binary representation. This method has been shown most efficient when compared to other known standard methods such as NAF the Non Adjacent form, MOF the Mutual Opposite form and CRM the complementary recoding method;
- Proposed a new public key cryptosystem and a Key Exchange Protocol based on the generalization of Discrete logarithm problem (DLP) using non-abelian group of block upper triangular matrices of higher order. The proposed cryptosystem is efficient in producing keys of large sizes without the need of large primes. The security of both the systems relies on the difficulty of discrete logarithms over finite fields;
- Floated many conjectures in number theory, formulated formula for obtaining n th prime and established many recurrence formulae with due importance to place value of number system.

Achievements & Services

- Service to our great institution (secured Nirf ranked 46) by holding three prominent positions, namely:
 - (i) Head, School of Studies in Mathematics
 - (ii) Director, Center for Basic Sciences
 - (iii) Director, Human Resource Development Centre
- Being the first author who wrote 09 text books of Mathematics in Hindi for graduate students of Madhya Pradesh during 1986-1988.
- Awarded “*Distinguished Service Award-2011*” by Vijnana Parishad of India.
- His several articles rated Top 25 Hottest Articles in top25.sciencedirect.com.
- Reviewer of American Mathematical Society for Mathematical Reviews.
- A good number of citations of his research publications in Mathematical Reviews.
- Proposal drafted in 2014 and submitted to State Government for establishment of Center for Basic Sciences (Abbreviated as CBS) to cater the needs of such center to tribal dominated State of Chhattisgarh.
- Government of Chhattisgarh proactively supported our proposal and the Center for Basic Sciences was established in 2015-2016 in the Campus of Pt. Ravishankar Shukla University, Raipur.
- CBS has been shifted to its own building in 2016. Establishment of Modular Labs in Physics, Chemistry and Biology in CBS are already in pipeline.
- CBS printed and published her own Magazine – JARAI (First Issue) in 2016 from the centre itself.
- Students of first batch of the Center for Basic Sciences made an academic tour to ISSER, Pune, Inter-University Centre for Astronomy and Astrophysics, Pune, University of Pune, University of Bombay, Mumbai, CBS, Mumbai etc.
- 80% seats were reserved for admission in CBS through EST-2016 conducted by the University and the remaining 20% seats were offered for admission in CBS through NEST-2016 in the year 2016. Notice that National Entrance Screening Test are conducted for admission in NISER, Bhubneshwar and CBS, Mumbai.

BIO-DATA

1. **Name :** **H. K. Pathak**
M.Sc., Ph.D.
(Hemant Kumar Pathak)
2. **Sex:** Male
3. **Date of birth:** 20th July, 1954
4. **Place of birth:** Raipur, Chhattisgarh
5. **Nationality:** Indian
6. **Present Position and Address:**
**Retired Professor & Former Head
School of Studies in Mathematics
Pt. Ravishankar Shukla University
Raipur (C.G.) - 492010, India**

Telephone: 0771-2262649(O)
Mob.: 09827930961
Fax: 0771-2262818
e-mail: hkpathak05@gmail.com
7. **Educational qualifications:**
 - (i) HSSC from M.P.Board of Secondary Education, Bhopal (M.P.) in 1971 with **Ist Division**.
 - (ii) B.Sc. from Pt. Ravishankar Shukla University, Raipur in 1975 with **Ist Division**.
 - (iii) M.Sc. (Mathematics) from Pt. Ravishankar Shukla University, Raipur in 1977 with **Ist Division (with Merit Position)**.
 - (iv) Ph.D. in Mathematics from Pt. Ravishankar Shukla University, Raipur in 1988.
8. **Professional experience (Research and Consultancy):**
 - (i) **Visiting Fellow**, Gyeongsang National University, Chinju, **S. Korea** during Nov. 23 to Dec. 10, 1995.
 - (ii) **Visiting Fellow**, Transkai University, Umtata, **South Africa** during April-June, 2000.
 - (iii) **Visiting Researcher**, Changwon National University, Changwon, **S. Korea** during July 26 – Aug. 5, 2002.
 - (iv) **Consultant (Visiting Mathematician)**, Sultan Qaboos University, Muscat, **Sultanate of Oman** during June 16-30, 2003.
 - (v) **Consultant for Research Project**, Sultan Qaboos University, Muscat, **Sultanate of Oman** during 27th Nov.- 3rd Dec, 2006.
 - (vi) **Consultant for Research Project**, Sultan Qaboos University, Muscat, **Sultanate of Oman** during 17th June- 25th June, 2007.
 - (vii) **Visiting Fellow**, Walter Sisulu University, Umtata, **South Africa** during August-September, 2010.
 - (viii) **Visiting Fellow**, Gyeongsang National University, Chinju, **S. Korea** during Sept. 11-26, 2014.
9. **Professional recognitions, awards, fellowships received.**
 - (A) **Awards**
 - (a) **"Distinguished Service Award-2011"** by Vijnana Parishad of India.

(B) Membership in Editorial Board

1. Associate Editor, Fixed Point Theory & Applications, **Springer**
2. International Magazine for Advances in Computer Science and Telecommunications (**IMACST**)
3. Editor, Journal of Modern Methods in Numerical Mathematics (**JMMNM**)
4. Editor, *JP Journal of Fixed Point Theory and Applications* (**JFPTA**)
5. Editor, *International Journal of Diophantine Approximation and Number Theory* (**IJDANT**)
6. Editor, *American Journal of Computation and Applied Mathematics* (**AJCAM**)
7. Guest Editor, *Indian Journal of Mathematics*, Allahabad (India), 2013-14
8. Editor, *Current Advances in Mathematics Research* (**CAMR**)
9. Editor, *Journal of Applied Mathematics and Computations* (**JAMC**)

10. Research Experience: 32 Years

Teaching Experience: 38 Years

PUBLICATIONS by **H. K. Pathak**



Pandit Ravishankar Shukla University

Matches: 232

Citations (MathSciNet) 249

Citations (Google Scholar) 1733

Publications results for "Items authored by Pathak, Hemant Kumar "

♦ **Highest Impact Factor – 2.503 (FPTA July, 2015)**

232 research papers have been published and reviewed in various referred international scientific journals including:

- *Proceeding American Mathematical Society* (American mathematical Society, USA),
- *Computer and Mathematics with Applications* (Pergamon Press, Inc., NY, USA)
- *Nonlinear Analysis TMA* (Elsevier-Netherlands),
- *Applied Mathematics and Computations* (Elsevier-Netherlands),
- *Applied Mathematics letters* (Elsevier-Netherlands),
- *Journal of Computational and Applied Mathematics* (Elsevier-Netherlands),
- *Intern. Jour. Math. & Math. Sci.* (Hindawi Press, USA),
- *Fuzzy Sets & Systems* (Elsevier-Netherlands),
- *Jour. Fuzzy Math.* (USA),
- *Pan-American J. Math.* (USA),
- *Intern. J. Math. Edu. in Sci. & Tech.* (UK),
- *Rostock Math. Kolloq.* (Germany),
- *Math. Nachr.* (Germany),
- *Intern. Math. Forum* (Bulgaria),
- *Bull. Australian Math. Soc., Cambridge Univ. Press* (Australia),
- *Fixed Point Theory* (Romania),
- *Fixed Point Theory and Applications* (USA/Springer),
- *Bull. Belgian Math. Soc.* (Belgium),
- *Italian J. Pure & Appl. Math.* (Italy),
- *Demonstratio Math.* (Poland),
- *Publication Mathematicai* (Debrecen), (Yugoslavia),
- *Novi Sad J. Math.* (Yugoslavia),
- *Filomat* (Republic of Serbia),
- *Acta Math. Hungarica* (Hungary),
- *Czechoslovak Math. J.* (Czechoslovakia),
- *Archivum Mathematicum* (Czechoslovakia),
- *Indian J. Math., Indian J. Math. Pure and Applied Math., Bulletin Calcutta Mathematical Society* (India)
- *Math. Japonica* (Japan),
- *Jour. Nonlinear and Convex Analysis* (Japan),
- *Applied Mathematics E-Notes* (Taiwan-China), etc.
- **50 text books in English have been published (all by Shiksha Sahitya Prakshan, Meerut), during 1986-2009.**

- 25 text books translated in Hindi have been published (all by Shiksha Sahitya Prakshan, Meerut), during 1986-2009.
- 01 text book by CRC Press, USA: November 4, 2015

• top25.sciencedirect.com/

• **Top 25 Hottest Articles**

Ranked **Mathematics > Computers & Mathematics with Applications**

2. **Fixed points for generalized contractions and applications to control theory**
Nonlinear Analysis: Theory, Methods & Applications, Volume 68, Issue 8, April 2008, Pages 2181- 2193
Pathak, H.K.; Shahzad, N.
Mathematics > Nonlinear Analysis: Theory, Methods & Applications
6. **Fixed point results for set-valued contractions by altering distances in complete metric spaces**
Nonlinear Analysis: Theory, Methods & Applications
Pathak, H.K.; Shahzad, N.
Mathematics > Nonlinear Analysis: Theory, Methods & Applications
19. **Common fixed points for Banach operator pairs with applications**
Nonlinear Analysis: Theory, Methods & Applications, Volume 69, Issue 9, November 2008, Pages 2788-2802
Pathak, H.K.; Hussain, N.
Mathematics > Nonlinear Analysis: Theory, Methods & Applications
12. **Strong and weak convergence theorems for nonself-asymptotically perturbed nonexpansive mappings**
Nonlinear Analysis: Theory, Methods & Applications, Volume 70, Issue 5, March 2009, Pages 1929-1938
Pathak, H.K.; Cho, Y.J.; Kang, S.M.
Mathematics > Nonlinear Analysis: Theory, Methods & Applications
13. **Fixed point results for set-valued contractions by altering distances in complete metric spaces**
Nonlinear Analysis: Theory, Methods & Applications, Volume 70, Issue 7, April 2009, Pages 2634-2641
Pathak, H.K.; Shahzad, N.
23. **A Study on Some Problems on Existence of Solutions for Nonlinear Functional-Integral Equations**
Acta Mathematica Scientia, Volume 33, Issue 5, September 2013, Pages 1305-1313
Deepmala, Pathak, H.K.

Citation of my work in Book

(1) Ljubomir Ciric, *Some recent results in metrical fixed point theory*, Beograd, 2003: 07 research papers have been cited in this book, pages 262,268.

12. Details of employment

S.No.	Position held	Name of institution	From	To
1.	Professor	Pt. Ravishankar Shukla University, Raipur (C.G.)	08.04.2005	Till date
2.	Assist.Professor (Selection Grade)	Kalyan PG College, Bhilai Nagar (C.G.)	04.07.1991	08.04.2005
3.	Assist. Professor (Senior Grade)	Kalyan PG College, Bhilai Nagar (C.G.)	04.07.1986	04.07.1991
4.	Lecturer/Assist. Professor(1982) onward)	Kalyan PG College, Bhilai Nagar (C.G.)	04.07.1978	04.07.1986
5.	Ad-hoc Lecturer	Govt. PG College, Dhamtari (C.G.)	02-01-1978	30-04-1978

13. Regularly refereeing the following Mathematics Research Journals by H. K. Pathak

A. National Research Journals:

- Indian J. pure & Appl. Math , **India**
- Bulletin of Calcutta Math soc., **India**
- Indian Academy of Mathematics , **India**
- The Aligarh Bulletin of Mathematics , **India**
- Journal of Natural & Physical Sciences , **India**
- Allahabad Mathematical society, **India**

B. International Research Journals:

- Applied Mathematics Letters (**Elsevier Science**), **USA**
- Mathematics of Computation (**American Mathematical Society**), **USA**
- Meghrab Jour. Math., **Turkey**
- Acta Math. Hangr. (**Springer**), **Hungary**
- Filomat, **Serbia**
- Journal of Mathematical Analysis and application (**Elsevier Science**), **USA**
- International Jour. of Math. & Mathematical Sciences (**Hindawi.com**), **USA**
- Zeitschrift fur analysis, **Germany**
- Computer and Mathematics with Applications (**Elsevier Science**), **USA**
- Mathematical & Computer modelling (**Elsevier Science**), **USA**
- Int. J. Pure and Applied Mathematics, **USA**
- Mathematical Communications, **Hungary**
- Matematicki Vesnik, **Romania**
- Hacettepe Journal of Mathematics and Statistics, **Turkey**
- Fasciculi mathematici, **Poland**
- Fixed Point Theory and Applications (**Hindawi.com**), **USA**
- Journal of the Nigerian Mathematical Society, **Nigeria**
- Bulletin of the Iranian mathematical Society, **Iran**
- Applied Mathematics & Information Sciences, **Bahrain**
- Nonlinear Analysis: Theory, Methods and application (**Elsevier Science**), **USA**
- Jour. of Inequalities and Appl. (**Hindawi.com**), **USA**
- Abstract and Applied Analysis (**Hindawi.com**), **USA**

14. Field of Specialization

Nonlinear Analysis: General Topology, Number Theory, Fuzzy Set Theory & Fuzzy Logic, Operator Theory, Integration Theory, Approximation Theory, Control Theory, Summability Theory and Cryptography

(A) **Special Interest in Fixed Point Theory and Application** to (i) Dynamic Programming; (ii) Nonlinear functional integral equations, Abstract Volterra Integro-differential Equation, Hammerstein Integral Equation, Fredholm Integral Equation; (iii) Approximating Fixed Point; (iv) Convergence Problem on Ishikawa Iteration Process; (v) Inverse Problems ; (vi) KKM Theory ; (vii) Operator Theory ; (viii) Fuzzy Set Theory and Fuzzy Mappings; (ix) Topological Problems in different spaces; (x) Variational inequality and inclusions ; (xi) Complementarity problems; (xii) Abstract Economic Theory ; (xiii) Game Theory; (xiv) Existence problem of solutions of fuzzy integral equations etc.

(B) **Currently working on:** Operator Theoretic Techniques, Integration Theory, Function Spaces & Cryptography

(C) **Courses Taught at various levels (in last 38 Years)**

- (i) **Under-graduate:** Calculus, Analytical Geometry- two and three dimensions, Algebra-Abstract Algebra and Linear Algebra, Differential Equations, Statistical Methods, Analysis, Numerical Analysis at **B.Sc. Course**.
- (ii) **Post-graduate:** Real Analysis, Complex Analysis, Differential Geometry, Topology, Functional Analysis, Advanced Abstract Algebra, Hydromechanics (Hydrostatics and Hydrodynamics), Dynamics of particles, Rigid Dynamics, General Theory of Relativity and Cosmology at **M.A./M.Sc. Course**.
- (iii) **M. Phil. Course:** Topological Structures with Applications ; Nonlinear Analysis and Topological Structures.

15. Honorable Positions

1. Successfully **nominated** an Indian Professor of Statistics (Pt. Ravishankar Shukla University, Raipur) for **Abel prize, May 24, 2010** (Notice that this prize is equivalent to Nobel prize).
2. An **external peer** (proposed by Professor Gerald Jungck) for an **American Professorship 'Professor of Caterpillar'** of Bradley Univ., Peoria, IL, USA in 2000.
3. A **member of the panel of Judges** to evaluate Young Scientist in the field of Mathematics and Computer Science for Young Scientist award of Chhattisgarh Young Scientist Congress organized by **Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.)**, during 28th Feb. – 1st March, 2007.
4. A **member of the panel of Judges** to evaluate Young Scientist in the field of Chemistry & Computer Science in **CONIAPS-X** organized by Guru Ghasidas University, Bilaspur (C.G.) during Feb. 28-29, 2008.
5. **Chaired** 15 Sessions in various Seminars, Symposiums and Conferences in India and abroad.
6. **Distinguished** Service Award of Vijnana Parishad of India(VPI) , 2011.

16. Academic Visits Abroad (in last 20 Years)

- Visited Chinju (S. Korea) as **Visiting Fellow**, **Gyeongsang National University**, Chinju, **S. Korea** during Nov. 23 to Dec. 10, **1995**.
- Visited Masan (S. Korea) to participate and deliver an invited talk in The First International conference on Nonlinear functional Analysis and Applications, **Kyoungnam University**, **Masan, S. Korea** during Dec. 7-8, **1995**.
- Visited Pusan (S. Korea) to deliver an invited talk at **Dong-A University Pusan, S. Korea** during Dec. 7-8, **1995**.
- Visited Orlando (USA) to participate and deliver an invited talk in **Mathematics Today and Tomorrow Conference**, University of Central Florida, Orlando, **U.S.A.**, during March 13-15, **1997**.
- Visited Chinju (S. Korea) to participate and deliver an invited talk in **International Conference on Mathematical Analysis and Applications**, Gyeongsang National University, Chinju, **S. Korea** during Aug. 3-4, **1998**.
- Visited Umtata (S. Africa) for three months as **Visiting Fellow** at Transkai University, Umtata, **South Africa** during April-June, **2000**.
- Visited Kaungju (S. Korea) to participate and to deliver an invited talk in **First Korea-Japan Joint Symposium on Nonlinear Functional Analysis and Convex Analysis**, Kaungju, **S. Korea** during August 2-5, **2002**.
- Visited Changwon (S. Korea) as **Visiting Researcher**, Changwon National University, Changwon, **S. Korea** during July 26-August 5, **2002**.

- Visited Muscat (Sultanate of Oman) as a **Consultant** (Visiting Mathematician) for collaborative research work with Prof. M.S.Khan , Dept. of Mathematics , SQU in research project entitled "FIXED POINTS AND KKM PROPERTY" , Sultan Qaboos University, Muscat, **Sultanate of Oman** during June 16-30, **2003**.
- Visited Orlando (USA) to participate and to deliver an invited talk in **4th World Congress of Nonlinear Analyst**, Orlando, **USA** during 30th June- 7th July, **2004**.
- Visited Granville (USA) to participate and to deliver an invited talk in **2005 Summer Conference on Topology and its Applications**, Denison University, Granville, Ohio, **USA** during July 10-14, **2005**.
- Visited Sultan Qaboos University, Muscat, **Sultanate of Oman** as **Consultant for Research Project** to assist Prof. M. S. Khan in his project entitled "Homotopy Invariance for Fixed Points & Applications" during 27th Nov.- 3rd Dec, **2006**
- Visited Sultan Qaboos University, Muscat, **Sultanate of Oman** as **Consultant for Research Project** to assist Prof. M. S. Khan in his project entitled "Some Applications of Fixed Point Theorems To Approximation Theory" during 17th June- 25th June, **2007**.
- Visited Orlando (USA) to participate and to deliver an invited talk in **Fifth World Congress of Nonlinear Analyst**, Orlando, **USA** during July 2- 9, **2008**.
- A short visit to **NASA**, Florida, **USA** on July 5, **2008**.
- A short visit to Central University of Florida, Florida, **USA** on July 9, **2008**.
- Visited Umtata (S. Africa) for one months as **Visiting Fellow** at Walter Sisulu University, Umtata, **South Africa** during Sept.-Oct., **2010**.
- Visited **Harvard,Cambridge** to participate and to deliver an invited talk in **American Conference on Applied Mathematics (AMERICAN-MATH'12)** Boston, **USA** during January 25-27, **2012**.
- A short visit to **Massachusetts Institute of Technology** (MIT) Boston, **USA** on January 28, **2012**.
- Visited Miami, Florida, USA to deliver an invited talk in **International Conference on Mathematics and Physical Sciences (ICMPS: 2014)** during March, 10-11, **2014**.
- Visited Chinju (S. Korea) as **Visiting Fellow**, **Gyeongsang National University**, Chinju, **S. Korea** during Sept. 11-26, **2014**.
- Visited Atlanta, USA to deliver an invited talk in the **Seventh International Conference on Dynamic systems and Applications** (ICDSA7) & the **Fifth International Conference on Neural, Parallel and Scientific Computations** (ICNPSC5) during May 27-30, **2015**.

17. Research Collaboration

Many researchers from all over the world are working in collaboration with Dr. H. K. Pathak (Some of them are listed below):

- Prof. B.E. Rhoades, Indiana Univ. Bloomington, **USA**,
- Prof. Gerald Jungck, Bradley Univ., Peoria, **USA**,
- Prof. Ravi P. Agarwal, Florida Inst. of Technology, FL, **USA**,
- Prof B. Fisher, Univ. of Liecester, **U.K.**,
- Prof. Donal O'Regan, Nation. Univ. of Ireland, Galway, **Ireland**,
- Prof. V. Popa, Univ. Of Bacau, **Romania**,

- vii) Prof S. S. Chang, Chengdu Univ., **P. R. China**,
- viii) Prof. T. H. Chang, Shih Chein Univ., Taiwan, **R. O. China**,
- ix) Prof. Y. J. Cho and Prof. S. M. Kang, Gyeongsang National Univ. **S.Korea**,
- x) Prof J. S. Jung, Dong A- Univ. Pusan, **S. Korea**,
- xi) Prof. M. S. Khan, Sultan Qaboos Univ., **Sultanate of Oman**,
- xii) Prof. George X. Z. Yuan, Univ. of Queensland, Brisbane, **Australia**,
- xiii) Prof. S. N. Mishra and Prof. A. S. Grewal, Univ. of Transkei, **S. Africa** ,
- xiv) Prof. Lj. B. Ciric, Univ. of NIS ,**Yugoslavia**,
- xv) Prof. Zeqing Liu, Liaoning Normal University, **P.R.China** ,
- xvi) Prof. J. S. Ume , Changwon National Univ., **S. Korea** ,
- xv) Prof. Naseer Shahzad and Prof. Nawab Hussain, King Abdul Aziz Univ., **Saudi Arabia**,
- xvi) Prof. Tomonari Suzuki, Kyushu Institute of Technology, Tobata, **Japan**
and many others.

18. Research Guidance /Ph.D. Evaluation

- **Guidance for Ph.D.** ten research scholars have been awarded Ph.D. degrees, under the supervision of H. K. Pathak, from Pt. Ravishankar Shukla University, Raipur (C.G.). Four students are carrying their Ph.D. work.
- **Guidance for M.Phil.** fifteen candidates have completed their dissertations for M.Phil. degrees
- Evaluated several Ph.D.thesis of Osmania University, Hyderabad; Andhra University, Visakhapatnam; Meerut University, Meerut; Barkatulla University, Bhopal; H.N.B. Central University, Garhwal; Vikram University; Ujjain; Rani Durgawati University, Jabalpur, etc.
- Evaluated Ph.D.thesis of **Rhodes University, Grahamstown; South Africa.**,
- Evaluated several M.Phil. dissertation of Aligarh Muslim (Central) University, Aligarh; Vikram University; Ujjain; etc.

19. Research and Travel Grants

- Received grants from the **University Grants Commission, New Delhi** for minor research project (1987-1990).
- Received full travel grants from **Gyeongsang National University, Chinju, S. Korea** to visit Basic Science Research Institute as visiting Professor during Nov. 23 to Dec. 10, 1995.
- Received grants/awards from the **University Grants Commission and Indian National Science Academy (INSA), New Delhi** to participate and to deliver an invited talk in Mathematics Today and Tomorrow Conference, University of Central Florida , Orlando, **U.S.A.**, during March 13-15, 1997.
- Received full travel grants from **Gyeongsang National University, Chinju, S. Korea** to visit Department of Basic Sciences as visiting Professor during Aug. 3-4, 1998.
- Received full travel grants from **Transkai University, Umtata, South Africa** to visit Department of Basic Sciences as Visiting Fellow during April-June, 2000.
- Received full travel grants from **Changwon National University, Changwon, S. Korea** to visit Department of Mathematical as Visiting Researcher/Research Fellow during July 26-August 5, 2002.
- Identified our department by the **University Grants Commission, New Delhi** as nodal department for Computer Applications to PG students of 5 departments, namely- Physics, Chemistry, Mathematics, Botany & Zoology and granted Rs. Fifteen lakhs.for five years period (w.e.f. 2001-2005) for computer peripherals.
- Received financial assistance from **Chhattisgarh Council of Science & Technology (CCOST), Raipur** to participate and to deliver an invited talk in 2005 Summer Conference on Topology and its Applications, Denison University, Granville, Ohio, **USA** during July 10-14, 2005.
- Received financial assistance from the **Department of Science and Technology, Government of India (DST) and Pt. Ravishankar Shukla University** to attend and deliver an invited talk in Fifth World Congress of Nonlinear Analysts (WCNA-2008) held at Orlando, Florida, **USA** during July 2-9, 2008.
- Received financial assistance from the **Department of Science and Technology, Government of India (DST) and Pt. Ravishankar Shukla University** to attend and deliver an invited talk in **American Conference on Applied Mathematics (AMERICAN-MATH'12) Harvard,Cambridge Boston, USA** during January 25-27, 2012.
- **UGC-Major Research Project 2015-2017**

20. Membership or Fellowship of Professional/Academic Bodies, Societies

- *American Mathematical Society (USA) – Member (1991-1995).*
- *International Federation of Nonlinear Analysts (USA) – Member (1996-2008).*
- *Indian Sciences Congress Association – (1985-86).*
- *Allahabad Mathematics Society – Life Member.*
- *Bharat Ganit Parishad – Life Member.*
- *The Vijnana Parishad of Indian – Life Member.*
- *Calcutta Mathematical Society – Life Member.*
- *National Academy of Mathematics – Life Member.*

21. Other Academic Activities

- **Referee/Reviewer** for research papers (more than 150 papers) published in various journals from India and abroad.
- **Delivered** 31 invited talks/colloquium lectures (20 outside India and 11 in India) and Chaired 15 sessions in various Seminars, Symposiums and Conferences in India and abroad.
- **Delivered** series of lectures to college/university teachers under the **UGC 3rd Refresher Course Program conducted by Manipur University**, Chachipur, Imphal from Jan. 2-4, 2002.
- **Evaluated** several grant schemes of Chhattisgarh Council of science and Technology (CCOST), Raipur.
- **Organized UGC refresher course in Mathematics** from Feb. 1-21, 2013 at S.o.S. in Mathematics, Pt. Ravishankar Shukla University, Raipur.

22. Organization of Workshop

Organized a workshop financially supported by **Madhya Pradesh Council of Science and Technology (MAPCOST)**, Bhopal and **Indian National Science Academy**, New Delhi on '**Recent Developments in Mathematics and Physics**' in collaboration with Russian Scientist from the **Department of Tomography and super conducting metals of Moscow University, Moscow (USSR)** and **Bhilai Steel Plant, Bhilai** under Indo-Soviet Exchange program in 1988.

Organized a National Seminar on '**Advances in Nonlinear Analysis and Optimization**' during **Feb. 15-17, 2014**.

23. Official Positions held/holding in Professional/Academic Bodies, Societies etc.

- **Chairman, Board of Studies in Mathematics**, Pt. Ravishankar Shukla University, Raipur for a period of three years for two consecutive terms (w.e.f. 2005-2007, 2008-2010, 2014-2016).
- **Chairman, Board of Studies in Computer Science & IT**, Pt. Ravishankar Shukla University, Raipur for a period of three years (w.e.f. 2010-2012).
- **Head, School of Studies in Computer Science & IT**, Pt. Ravishankar Shukla University, Raipur since (w.e.f. 2009-2012).
- **Member of the Academic Council of Pt. Ravishankar Shukla University, Raipur** for a period of three years for two consecutive terms (w.e.f. 2005-2007, 2008-2010, 2011-2013, 2014-2016).

- *Member of Inspection team to assess the availability/or non-availability of infrastructure of the Colleges for affiliation/opening of new courses.*
- *Subject Expert of Selection committee/R.D.C. of various Universities including Technical University of Chhattisgarh (CSVТУ, Bhilai).*
- *Expert opinion to NIT, Raipur in Ph.D. equivalence committee meeting (May, 2011).*
- *Member of Library Committee of Pt. Ravishankar Shukla University, Raipur for a period of two years (w.e.f. 2007-2008, 2012-2014).*
- *Member of Central Board of Studies in Mathematics of Chhattisgarh state(2008-2011).*
- *Subject Expert in Selection Board of Public Service Commission (PSC, Chhattisgarh) for selection of lecturer in Mathematics for Govt. Engineering/Polytechnique colleges of Chhattisgarh.*
- *Subject Expert in Vyashaik Parisha Mandal(VYAPAM), Chhattisgarh, Raipur.*
- *Subject Expert on Selection Committees for the post of Assistant Professor in Mathematics for various colleges affiliated to Pt. Ravishankar Shukla University, Raipur (C.G.).*
- *Associated in the organizations of various Seminars/Conferences/ Workshops at National and international level.*
- *Actively engaged in Inspiration program of DST (2010, 2011, 2012, 2013, 2014, 2015, 2016).*

24. Administrative Experience

- *Head, School of Studies in Computer Science & IT, Pt. Ravishankar Shukla University, Raipur (01.09.2009-01.09.2012).*
- *Head, School of Studies in Mathematics, Pt. Ravishankar Shukla University, Raipur (w.e.f. 01.06.2010).*
- *Head, Department of Mathematics, Kalyan Mahavidyalaya, Bhilai nagar for a period of twenty five years (04.07.1978 to 08.04.2005).*
- *UGC Programme Coordinator as Head of Nodal Department (Dept. of Mathematics) for Computer Applications in PG classes– Five years Scheme of UGC for Five Departments: Mathematics, Physics, Chemistry, Botany & Zoology at Kalyan Mahavidyalaya, Bhilai Nagar (w.e.f. 2001-2005).*
- *Coordinator of university examination stationed at Question Paper Distribution Centre- Govt. V.Y.T.P.G. College, Durg (C.G.) during March-May (w.e.f. 2006-2008).*
- *Centre Superintendent in university supplementary/Semester examinations, UTD centre, Pt. Ravishankar Shukla University, Raipur during 2009-2010, 2011, 2012.*
- *Centre Superintendent in autonomous examination of Kalyan Mahavidyalaya, Bhilai Nagar in the year 1995.*
- *Assist. Superintendent in university examination at the centre-Kalyan PG College, Bhilai nagar in the year 1991-94.*
- *Professor-In-Charge – student union of Kalyan PG College, Bhilai Nagar in the year 1997.*
- *Chairman, Board of Studies in Mathematics of Pt. Ravishankar Shukla University, Raipur for a period of three years for two consecutive terms (w.e.f.2009-2011).*
- *Chairman, Board of Studies in Computer Science & IT of Pt. Ravishankar Shukla University, Raipur for a period of three years (w.e.f.2009-2011).*
- *Team Manager of the contingent of 39 members form Pt. Ravishankar shukla University for participation in the 21st East Zone Youth Festival 2005 held at NEHU, Sillong (Meghalaya) from 24th to 28th October'2005.*
- *University nominee in the Academic Council of several autonomous colleges affiliated to Pt. Ravishankar*

Shukla University, Raipur for a period of two years (w.e.f. 2009-2010).

- **Teacher's Representative** on the Governing Body of affiliated College of Pt. Ravishankar Shukla University, Raipur : Kalyan PG College, Bhilai Nagar (1984--1985)
- **University Representative** in the Governing Body of affiliated Colleges of Pt. Ravishankar Shukla University, Raipur (2008-2010, 2011-2012)
- **Director, Center for Basic Sciences**, Pt. Ravishankar Shukla University, Raipur (w.e.f. July 2015).
- **Director, Human Resource Development Centre**, Pt. Ravishankar Shukla University, Raipur (w.e.f. May 2016).

25. List of Published Books Authored by H.K. Pathak

Books for B.A./B.Sc. Courses (For all universities of C.G. and other states of India):

1. *Discrete Mathematics (Hindi/English)*, 10th ed. 2001-02, Shiksha Sahitya Prakashan , Meerut , India.
2. *Abstract Algebra (Hindi/English)*, 8th ed. 2001-02, Shiksha Sahitya Prakashan , Meerut , India.
3. *Differential Equations and Fourier Series (Hindi/English)*, 3rd ed. 2001-02, Shiksha Sahitya Prak., Meerut , India
4. *Analytical Geometry and Differential Equations (Hindi/English)*, Shiksha Sahitya Prakashan, Meerut , India
5. *Mathematical Analysis*, Shiksha Sahitya Prakashan , Meerut , India.
6. *Algebra & Trigonometry (Hindi/English)*, Shiksha Sahitya Prakashan , Meerut , India, 2002 (UGC- Syllabus).
7. *Calculus (Hindi/English)*, Shiksha Sahitya Prakashan , Meerut , India, 2002 (UGC- Syllabus).
8. *Vector Analysis and Geometry (Hindi/English)*, 2002 (UGC- Syllabus), Shiksha Sahit. Prak. , Meerut , India.
9. *Advanced Calculus (Hindi/English)*, 2003 (UGC- Syllabus), Shiksha Sahitya Prakashan , Meerut , India.
10. *Differential Equations (Hindi/English)*, 2003 (UGC- Syllabus), Shiksha Sahitya Prakashan , Meerut , India.
11. *Mechanics (Hindi/English)*, 2003 (UGC- Syllabus), Shiksha Sahitya Prakashan , Meerut , India.
12. *Linear Algebra (Hindi/English)*, Shiksha Sahitya Prakashan , Meerut , India
13. *Analysis (Hindi/English)*, 2003 (UGC- Syllabus), Shiksha Sahitya Prakashan , Meerut , India
14. *Statistical Method (Hindi/English)*, Shiksha Sahitya Prakashan , Meerut , India
15. *Numerical Analysis (Hindi)*, Shiksha Sahitya Prakashan , Meerut , India
16. *Modern Algebra*, Shiksha Sahitya Prakashan , Meerut , India

Books for M.A./M.Sc. Course (For all universities of C.G., M.P. and other states of India):

17. **Real Analysis**, 2003 (UGC- Syllabus), Shiksha Sahitya Prakashan , Meerut , India
18. **Complex Analysis**, 2003 (UGC- Syllabus), Shiksha Sahitya Prakashan , Meerut , India
19. **Functional Analysis**, 2001, Shiksha Sahitya Prakashan , Meerut , India
20. **Operations Research** , 2003 (UGC- Syllabus), Shiksha Sahitya Prakashan, Meerut , India
21. **Topology**, 2003 (UGC- Syllabus), Shiksha Sahitya Prakashan , Meerut , India.
22. **Abstract Algebra**, 2004 (UGC- Syllabus), Shiksha Sahitya Prakashan , Meerut , India.
23. **Advanced Abstract Algebra**, 2007 (UGC- Syllabus), Shiksha Sahitya Prakashan , Meerut , India
24. **Advanced Discrete Mathematics** , 2007 (UGC- Syllabus), Shiksha Sahitya Prakashan , Meerut , India.

Books for B.E. Courses (Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.)):

25. **Applied Engineering Mathematics** (Sem. I), 2006, Shiksha Sahitya Prakashan , Meerut , India.
26. **Applied Engineering Mathematics** (Sem. II), 2005, Shiksha Sahitya Prakashan , Meerut , India.
27. **Applied Engineering Mathematics** (Sem. III), 2007, Shiksha Sahitya Prakashan , Meerut , India.
28. **Discrete Mathematical Structure** (Sem. IV), 2008, Shiksha Sahitya Prakashan , Meerut , India.

Books for B.E. Engineering Courses (Ragiv Gandhi Technical University, Bhopal (M.P.)):

29. **Engineering Mathematics** (Sem. I), 2008, Shiksha Sahitya Prakashan , Meerut , India.
30. **Engineering Mathematics** (Sem. II), 2009, Shiksha Sahitya Prakashan , Meerut , India.
31. **Engineering Mathematics** (Sem. III), 2008, Shiksha Sahitya Prakashan , Meerut , India.

32. **Discrete Structure** (Sem. IV), 2009, Shiksha Sahitya Prakashan , Meerut , India.

Books for B.Sc. Courses (For all universities of M.P. & Chitrakut Univ. (U.P.)):

33. **Matrices, Theory of Equations and Trigonometry** (Sem. I) (Hindi/English), 2008, Shik. Sahit. Prak. , Meerut , India.

34. **Calculus** (Sem. I) (Hindi/English), 2008, Shiksha Sahitya Prakashan , Meerut , India.

35. **Vector** (Sem. I) (Hindi/English), 2008, Shiksha Sahitya Prakashan , Meerut , India.

36. **Elementary Abstract Algebra** (Sem. II) (Hindi/English), 2009, Shiksha Sahitya Prakashan , Meerut , India.

37. **Differential Equations-I** (Sem. II)) (Hindi/English), 2009, Shiksha Sahitya Prakashan , Meerut , India.

38. **Vector Analysis and Vector Calculus** (Sem. II)) (Hindi/English), 2009, Shiksha Sahitya Prakash. , Meerut , India.

39. **Advanced Calculus –Part I** (Sem. III) (Hindi/English), 2009, Shiksha Sahitya Prakashan , Meerut , India.

40. **Differential Equations-Part II** (Sem. III)) (Hindi/English), 2009, Shiksha Sahitya Prakashan , Meerut , India.

41. **Mechanics-Part I** (Sem. III)) (Hindi/English), 2009, Shiksha Sahitya Prakashan , Meerut , India

42. **Advanced Calculus –Part II** (Sem. IV) (Hindi/English), 2009, Shiksha Sahitya Prakashan , Meerut , India

43. **Differential Equations &Calculus of Variation** (Sem. IV) (Hindi/English), 2009, Shiksha Sahitya Prakashan , Meerut , India.

44. **Mechanics-Part II** (Sem. IV)) (Hindi/English), 2009, Shiksha Sahitya Prakashan , Meerut , India

Books for B.C.A. Courses (For all universities of C.G.):

45. **Discrete Mathematics** (B.C.A.-101), 2nd ed. 2008-09, Shiksha Sahitya Prakashan , Meerut , India.

46. **Calculus & Statistical Analysis** (B.C.A.-101), 2nd ed. 2008-09, Shiksha Sahitya Prakashan , Meerut , India.

47. **Differentiation and Integration** (B.C.A.-201), 1st ed. 2008-09, Shiksha Sahitya Prak., Meerut , India

48. **Numerical Analysis** (B.C.A.-201), 1st ed. 2008-09, Shiksha Sahitya Prak., Meerut , India

49. **Differential Equations and Fourier Series** (B.C.A.-301), 1st ed. 2008-09, Shiksha Sahitya Prak., Meerut , India

50. **Calculus and Geometry** (B.C.A.-301), 1st ed. 2008-09, Shiksha Sahitya Prak., Meerut , India

Books for B.E./B.Tech./MCA Courses (For all Indian universities):

51. H.K.Pathak: **Numerical Analysis** (Sem III), 2009, Shiksha Sahitya Prakashan , Meerut , India.

52. H.K.Pathak, Ravi P. Agarwal & Yeol Je Cho :**Functions of a Complex Variable**, CRC Press, USA-Nov. 4, 2015.

26. List of Publications (1995 & Onwards)

1. **Pathak, H.K. V. K. Sahu and Y. J. Cho**, Approximation of a common minimum-norm fixed point of a finite family of σ -asymptotically quasi-nonexpansive mappings with applications, *J. Nonlinear Sci. Appl.* 9 (2016), 3240-3254.
2. **Pathak, H. K., Rodríguez-López, Rosana**, Existence and approximation of solutions to nonlinear hybrid ordinary differential equations, *Applied Mathematics Letters*, 39 (2015), 101–106.
3. **Pathak, H. K., Rodríguez-López, Rosana**, On Some Fixed Point Results for H^+ -Type Contraction Mappings in Metric Spaces, *Discrete Dynamics in Nature and Society*, Volume 2015, Article ID 914158, 12 pages.
4. **Pathak, H. K. , R. George, Hossam A Nabwey, Mahdy S El-Paoumy and K. P. Reshma**, Some generalized fixed point results in a b -metric space and application to matrix equations, *Fixed Point Theory and Applications*, 2015 2015:101, 17 pages.
5. **Pathak, H. K. , Agarwal, R. P. , Cho, Y.J.**, Coincidence and fixed points for multi-valued mappings and its application to nonconvex integral inclusions, *Journal of Computational and Applied Mathematics*, 283 (2015) 201–217.
6. **Dhage, B. C., Dhage, S. B., Pathak, H. K.,** A generalization of Darbo's fixed point theorem and local attractivity of generalized nonlinear functional integral equations, *Diff. Equ. & Appl.*, 7(1) (2015), 57-77.
7. **Pathak, H. K. , Goswami, M. P.,** Some characterizations of fusion Banach frames, *International Journal of Wavelets, Multiresolution and Information Processing* 13 (3) (2015), pages 11.
8. **Dhage, B.C., Dhage, S.B., Ntouyas, S.K., Pathak, H. K.,** On local attractivity of nonlinear functional integral equations via measures of noncompactness, *Malaya J. Mat.*, 3(1) (2015), 191-201.
9. **Deepmala, Pathak, H. K.,** Remarks on occasionally weakly compatible maps versus occasionally weakly compatible maps, *Demonstratio Mathematica*, 47(3) (2014), 695–703.
10. **K. B. Manandhar , K. B. , Jha K., Pathak, H. K. ,** A common fixed point theorem for compatible mappings of type (E) in fuzzy metric space, *Applied Mathematical Sciences*, 8 (2014), 2007–2014.
11. **Pathak, H. K., Khan, M. S.,** Common Fixed Point Results and its Applications to Best Approximation in Ordered Semi-Convex Structure, *Journal of Equilibrium System*, 1(3) (2014), 30-48.

12. [Pathak, Hemant Kumar, Shahzad, Naseer](#), *A generalization of Nadler's fixed point theorem and its application to nonconvex integral inclusions*, *Topological Methods in Nonlinear Analysis*, vol. 41, no. 1, pp. 207–227, 2013
13. [Deepmala, Pathak, H. K.](#), *A Study on Some Problems on Existence of Solutions for Nonlinear Functional-Integral Equations*, *Acta Mathematica Scientia*, vol. 33, no. 5, pp. 1305–1313, 2013
14. [Verma, R. K., Pathak, H. K.](#), *Common fixed point theorems using property (E.A) in complex-valued metric spaces*, *Thai Journal of Mathematics*, vol. 11, no. 2, pp. 347–355, 2013
15. [Pathak, H. K., Mishra, S. N.](#), *Some surjectivity theorems with applications*, *Archivum Mathematicum*, vol. 49, no. 1, pp. 17–27, 2013
16. [Deepmala, Pathak, H. K.](#), *Study on existence of solutions for some nonlinear functional-integral equations with applications*, *Mathematical Communications*, vol. 18, no. 1, pp. 97–107, 2013
17. [Pathak, Hemant Kumar, Shahzad, Naseer](#), *Some results on best proximity points for cyclic mappings*, *Bulletin of the Belgian Mathematical Society - Simon Stevin*, vol. 20, no. 3, pp. 559–572, 2013
18. [Pathak, H. K., Deepmala](#), *Common fixed point theorems for PD-operator pairs under relaxed conditions with applications*, *J. Comput. Appl. Math.* **239** (2013), 103–113.
19. [Rhoades, B. E., Pathak, H. K., Mishra, S. N.](#), *Some weakly contractive mapping theorems in partially ordered spaces and applications*, *Demonstratio Math.* **45** (2012), no. 3, 621–636.
20. [Hussain, N., Pathak, H. K., Tiwari, S.](#), *Application of fixed point theorems to best simultaneous approximation in ordered semi-convex structure*, *J. Nonlinear Sci. Appl.* **5**(2012), no. 4, Special issue, 294–306.
21. [Pathak, Hemant Kumar, Shahzad, Naseer](#), *A new fixed point result and its application to existence theorem for nonconvex Hammerstein type integral inclusions*, *Electron. J. Qual. Theory Differ. Equ.* **2012**, No. 62, 13 pp.
22. [Pathak, H. K., Deepmala](#), *Remarks on some fixed point theorems of Dhage*, *Appl. Math. Lett.* **25** (2012), no. 11, 1969–1975.
23. [Pathak, H. K., Sahu, Vinod Kumar](#), *An iterative scheme for generalized equilibrium problems and fixed point problems of strict pseudo-contraction mappings*, *J. Adv. Res. Pure Math.* **4** (2012), no. 3, 47–60.
24. [Hussain, N., Pathak, H. K.](#), *Common fixed point and approximation results for H-operator pair with applications*, *Appl. Math. Comput.* **218** (2012), no. 22, 11217–11225.
25. [Pathak, Hemant Kumar, Shahzad, Naseer](#), *Convergence and existence results for best C-proximity points*, *Georgian Math. J.* **19** (2012), no. 2, 301–316.
26. [Verma, R. K., Pathak, H. K.](#), *Solution of nonlinear integral equations via fixed point of generalized contractive condition*, *Mat. Vesnik* **64** (2012), no. 3, 223–231.
27. [Pathak, H. K., Deepmala](#), *Existence and uniqueness of solutions of functional equations arising in dynamic programming*, *Appl. Math. Comput.* **218** (2012), no. 13, 7221–7230.
28. [Pathak, H. K., Tiwari, Satyaj](#), *Common fixed point and best simultaneous approximations theorems under relaxed conditions*, *J. Int. Acad. Phys. Sci.* **15** (2011), no. 1, Special issue, 17–22.
29. [Pathak, H. K., Rai, Deepmala](#), *Some common fixed point theorems for occasionally weakly compatible maps with applications in dynamics programming*, *Rev. Bull. Calcutta Math. Soc.* **19** (2011), no. 2, 215–224.
30. [Pathak, H. K., Rodriguez-López, Rosana, Tiwari, Rakesh](#), *Common fixed point result in symmetric spaces*, *Novi Sad J. Math.* **41** (2011), no. 2, 1–15.
31. [Pathak, H. K., Sahu, Vinod Kumar](#), *A viscosity three step iteration schemes and common fixed points of three generalized quasi non expansive mappings*, *Int. J. Pure Appl. Math.* **71** (2011), no. 3, 351–360.
32. [Hussain, N., Pathak, H. K.](#), *Subweakly biased pairs and Jungck contractions with applications*, *Numer. Funct. Anal. Optim.* **32** (2011), no. 10, 1067–1082.
33. [Cho, Yeol Je, Hussain, Nawab, Pathak, Hemant Kumar](#), *Approximation of nearest common fixed points of asymptotically I-nonexpansive mappings in Banach spaces*, *Commun. Korean Math. Soc.* **26** (2011), no. 3, 483–498.
34. [Pathak, H. K., Singh, Prachi](#), *Coincidence and fixed points for mappings satisfying tangential condition*, *J. Fuzzy Math.* **19** (2011), no. 2, 263–274.
35. [Pathak, Hemant Kumar, Tiwari, Rakesh](#), *A Gregus type common fixed point theorem in normed spaces with application*, *Banach J. Math. Anal.* **5** (2011), no. 1, 136–157.
36. [Pathak, H. K., Khan, M. S., Kim, Jong Kyu](#), *Coincidence point and homotopy results for f-hybrid compatible maps*, *Nonlinear Funct. Anal. Appl.* **15** (2010), no. 1, 87–162.

37. [Pathak, H. K., Rodríguez-López, Rosana, Verma, R. K.](#), A common fixed point theorem of integral type using implicit relation, [Nonlinear Funct. Anal. Appl. 15 \(2010\), no. 1](#), 1–12.
38. [Singh, S. L., Pathak, H. K., Mishra, S. N.](#), On a Suzuki type general fixed point theorem with applications, [Fixed Point Theory Appl. 2010](#), Art. ID 234717, 15 pp.
39. [Pathak, H. K., Hussain, N.](#), Common fixed points for P-operator pair with applications, [Appl. Math. Comput. 217 \(2010\), no. 7](#), 3137–3143.
40. [Pathak, H. K., Tiwari, Satyaj](#), Common fixed point and best simultaneous approximations for Ciric type (f, g) -weak contraction and weak asymptotic contraction, [Int. J. Pure Appl. Math. 62 \(2010\), no. 3](#), 291–304.
41. [Pathak, H. K., Tiwari, Satyaj](#), Best simultaneous approximation via KKM-mapping method for multivalued mappings, [Int. J. Pure Appl. Math. 59 \(2010\), no. 2](#), 181–190.
42. [Suzuki, Tomonari, Pathak, Hemant Kumar](#), Almost biased mappings and almost compatible mappings are equivalent under some condition, [J. Math. Anal. Appl. 368\(2010\), no. 1](#), 211–217.
43. [Pathak, H. K., Tiwari, Satyaj](#), On best simultaneous approximation in semi metric spaces, [J. Concr. Appl. Math. 8 \(2010\), no. 4](#), 623–630.
44. [Pathak, H. K., Khan, M. S.](#), Common fixed point results for contractions of integral type in G-fuzzy product metric spaces, [Ital. J. Pure Appl. Math. No. 26 \(2009\)](#), 135–152.
45. [Pathak, H. K.](#), Integral Φ -type contractions and existence of continuous solutions for nonlinear integral inclusions, [Nonlinear Anal. 71 \(2009\), no. 12](#), e2577–e2591.
46. [Pathak, H. K., Singh, Prachi](#), Generalization of a fixed point theorem for weakly compatible mapping, [Math. Sci. Res. J. 13 \(2009\), no. 12](#), 286–291.
47. [Pathak, H. K., Verma, R. K.](#), Common fixed point theorems for weakly compatible mappings on Menger space and application, [Int. J. Math. Anal. \(Ruse\) 3 \(2009\), no. 21-24](#), 1199–1206.
48. [Pathak, H. K., Verma, R. K.](#), An integral type implicit relation for converse commuting mappings, [Int. J. Math. Anal. \(Ruse\) 3 \(2009\), no. 21-24](#), 1191–1198.
49. [Pathak, H. K., Verma, R. K.](#), Integral type contractive condition for converse commuting mappings, [Int. J. Math. Anal. \(Ruse\) 3 \(2009\), no. 21-24](#), 1183–1190.
50. [Pathak, H. K., Shahzad, N.](#), Fixed point results for generalized quasicontraction mappings in abstract metric spaces, [Nonlinear Anal. 71 \(2009\), no. 12](#), 6068–6076.
51. [Jha, K., Pant, R. P., Pathak, H. K.](#), A common fixed point theorem for generalized contractive type mappings, [Uzbek. Mat. Zh. 2009, no. 2](#), 85–91.
52. [Pathak, H. K., Rodríguez-López, Rosana, Singh, Prachi](#), A common fixed point theorem for weakly compatible mappings and its application, [J. Fuzzy Math. 17 \(2009\), no. 3](#), 699–710.
53. [Fisher, B., Pathak, H. K., Tiwari, R.](#), Common fixed point theorems, [Thai J. Math. 7 \(2009\), no. 1](#), 137–150.
54. [Pathak, H. K., Verma, R. K., Fisher, B.](#), Fixed point and coincidence point theorems on Banach spaces over topological semifields and their applications, [Thai J. Math. 7\(2009\), no. 1](#), 115–127.
55. [Pathak, H. K., Khan, M. S.](#), Common fixed point results and its applications to best approximation in ordered semi-convex structure, [Bull. Math. Anal. Appl. 1 \(2009\), no. 1](#), 30–48.
56. [Pathak, Hemant Kumar, Shahzad, Naseer](#), Gregus type fixed point results for tangential mappings satisfying contractive conditions of integral type, [Bull. Belg. Math. Soc. Simon Stevin 16 \(2009\), no. 2](#), 277–288.
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Certified that all the information given above by me is correct to my knowledge and understanding. Moreover, these data can be used only for the purpose of academic excellence only.

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