




# ANURADHA GUPTA

Associate Professor

Delhi College of Arts & Commerce (University of Delhi)

Netaji Nagar, New Delhi - 110023

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## ADDITIONAL SKILLS

Problem Solving

Collaboration

Adaptability

Critical Thinking

Strong Work Ethic

Leadership

Time Management

Handling Pressure

Hard-working

Focused

## RESEARCH PUBLICATIONS:

Total Research 67 Publications and 114 Citations

### 2022

- Complex symmetric weighted composition operators on the weighted Hardy space, *Advances in Pure and Applied Mathematics*, 13(2022), no. 1, 39-49. (Online ISSN: 1869-6090) (UGC, SCOPUS, Emerging SCI).
- NECESSARY CONDITIONS FOR HYPONORMALITY OF TOEPLITZ OPERATORS ON THE BERGMAN SPACE, *Maths For Application*, 11(2022) 1-7, DOI: 10.13164/ma.2022.xx (ISSN : 1805-3629)
- Isometries of the product of Composition Operators on Weighted Bergman space, *Asian European Journal of Mathematics*, Accepted (ISSN 1793-7183) (UGC, SCOPUS, Emerging SCI)
- Complex symmetry and normality of Toeplitz composition operators on the Hardy space, *Filomat*, 36(2022), no. 7, 2281-2291. (ISSN 2406-0933) (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.988).
- BOUNDED AND COMPACT HANKEL OPERATORS ON THE FOCK-SOBOLEV SPACES, *Filomat*(Accepted SCIE) ISSN: 2406-0933 Impact factor: 0.789

### 2021

- H-Toeplitz operators on the Bergman space, *Bulletin of Korean Mathematical Society*, 58(2021), no. 2, 327-347. (Online ISSN: 2234-3016) (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.45).
- Complex Symmetry of generalized weighted composition operators on Fock space, *Journal of Mathematical Analysis and Applications*, 495 (2021), no. 2, 124740, 12pp. (Online ISSN: 0022-247X) (UGC, SCOPUS, SCI, Impact Factor: 1.22).

- Fixed point theorems of  $(\alpha, \psi)$  G-contractive mappings in quasi-partial b-metric-like spaces endowed with a graph, Asian European Journal of Mathematics, 14 (2021), no. 2, 2150014. (Online ISSN: 1793-7183) (UGC, SCOPUS, Emerging SCI)

#### 2020:

- On k-composition and k-Hankel composition operators on the derivative Hardy Space, Banach Journal of Mathematical Analysis, 14(2020) 855-866 (ISSN: 1225-1763) (UGC, SCOPUS, SCI Expanded, Impact factor: 0.969)
- Properties (BR) and (BgR) for bounded linear operators, Rendiconti Circolo Matematico Di Palermo, 69(2020), 601-611 (ISSN: 1973-4409) (UGC, SCOPUS, SCI Expanded)
- Complex symmetry of weighted composition operators on the space  $H_1(\alpha, \beta)^2(D)$ , Bulletin of Belgian Mathematical Society-Simon Stevin, , 27 (2020), no. 4, 595–607. (ISSN: 1370-1444) (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.50).
- Inexact infinite products of weak quasi-contraction mappings in b-metric spaces, Numerical Functional Analysis and Optimization, 41 (2020), no. 12, 1528–1547 (Online ISSN: 1532-2467) (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.822).
- Quasi Fredholm spectrum and compact perturbations, Complex analysis and operator theory, 14 (2020), no 1, paper no 19 (UGC, Scopus, SCIE) ISSN 1661-8254; Impact factor: 0.711.
- On coupled best proximity points and Ulam - Hyers stability, Journal of Fixed Point Theory and Applications, 22(2020) no. 2, Paper No.22-28, ISSN 1661-7738: Impact factor : 1.253 (UGC, SCOPUS, SCIE)
- Properties of kth order (slant Toeplitz + slant Hankel) operators on  $H^2(T)$ , Communications Korean Mathematical Society, 35 (2020), No. 3, pp. 855-866, ISSN: 1225-1763.
- Complex symmetric weighted composition operators on the space  $H_1^2(D)$ , Complex Variables and Elliptic Equations, 65(2020), no. 9, 1488-1500. (Online ISSN: 1747-6941) (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.765).

#### 2019:

- A new characterization of generalized Browder's Theorem and a Cline's formula for generalized Drazin meromorphic inverses, Filomat 33(2019) no 19, 6335-6345 (SCIE) ISSN: 2406-0933 Impact factor: 0.789
- Asymptotic and partial asymptotic Hankel operators on  $H^2(D^n)$ , Acta Math Sin (Engl Ser.) 35(2019), no 11, 1729-1740 (SCIE) , ISSN: 1439-8516: Impact factor 0.644
- Complex symmetric weighted composition operators on the space  $H_2^1(D)$ , COMPLEX VARIABLES AND ELLIPTIC EQUATIONS, <https://doi.org/10.1080/17476933.2019.1664483>, ISSN: 1747-6933.
- kth - order essentially slant weighted Toeplitz operators, Commun. Korean Math. Soc., 34(2019) (4), 1229-1243. DOI: 10.4134/CKMS.c180447 ISSN: 1225-1763
- Toeplitz type operator on the derivative Hardy space  $S^2(D)$ , Acta Sci. Math. (Szeged), 85:3-4(2019), 473-493, ISSN : 0001-6969

- Commutativity and spectral properties of  $k$ th-order slant little Hankel operators on the Bergman spaces, operators and Matrices, 13(1) (2019), 209-220. (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.521) (ISSN : 1848-9974)
- Coincidence point results in  $b$ -metric spaces via  $C_F$ - $s$ -simulation function, Miskolc Mathematical Notes, 20(2019), 911-924. (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.468) ISSN: 1787-2405.
- Property  $(UW_\pi)$  and perturbations, Mediterranean Journal of Mathematics, 16(2019), no 5, Art. 124, 12pp. (UGC, SCOPUS, SCI Expanded, Impact Factor: 1.181) ISSN: 1660-5446
- Properties  $(BR)$  and  $(BgR)$  for bounded linear operators, Rendiconti del Circolo Matematico di Palermo, <https://doi.org/10.1007/s12215-019-00422-3> (UGC, SCOPUS, Emerging SCI)ISSN: 0009-725X
- Weighted composition operators on weighted Hardy spaces, Computational Methods and Function Theory, 19(2019)1-22 <https://doi.org/10.1007/s40315-019-00278-9>. (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.692), ISSN: 1617-9447
- Slant  $H$ -Toeplitz operators on the Hardy spaces, J. of Korean Math. Soc, 56(2019), 703-721, DOI: 10.4134/CKMS.c180447 (UGC, SCOPUS, Expanded, Impact Factor: 0.584) ISSN: 0304-9914
- Common spectral properties of operators  $A$  and  $B$  satisfying  $A^k B^k A^k = A^{k+1}$  and  $B^k A^k B^k = B^{k+1}$ , Asian European J of Math, 12(2019) ,no 5,1950084,18pp (ISSN 1793-7183) (UGC, SCOPUS, Emerging SCI)

#### 2018:

- $k$  - quasi -  $A(n)$  and  $k$  - quasi -  $A(n)$  composition and weighted composition operators on  $L_2(\mu)$ , Acta Sci Math(Szeged), 84(2018) 629-641, ISSN : 0001-6969
- $a$ Toeplitz composition operators on the Fock space, Complex Variable Elliptic Equations, 63(2018), no 9, 1077-1092, DOI: 10.1080/17476933.2018.1501035 (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.806) ISSN : 1747- 6933

#### 2017:

- Variants of Weyl's Theorem for direct sums of closed linear operators, Advances in operator theory, 2 (2017),no 4, 409-418,(UGC, scopus, emerging SCI)(ISSN: 2538-225X)
- Necessary conditions for hypo- normality of Toeplitz operators on the Fock space, Math Appl(Brno)6(2017),no2,151-159(ISSN : 1805-3629)
- Weighted fractional differentiation composition operators from mixed-norm spaces to Zygmund spaces, Asian-European Journal of Mathematics 10(4)(2017)no 4, 1750082,12pp (ISSN 1793-7183) (UGC, SCOPUS, Emerging SCI)
- Isometric composition operators on Fock Spaces, operators and Matrices 11(2017), 587-592 (ISSN: 1848-9974), (UGC, SCOPUS, SCI Expanded, Impact Factor: (0.521)
- Weyl type theorems for unbounded class  $A$  operators, Afrika Mathematica, 28 (2017), 745-754(ISSN 2190-7668) (UGC, SCOPUS, Emerging SCI)
- $k$ th order slant Toeplitz operators on the Fock Space, Advances in Operator Theory, 2 (2017), no. 3, 318–333(ISSN No 2538-225X) (UGC, SCOPUS, Emerging SCI)

- Weyl type Theorems for Unbounded Posinormal operators, J of Contemp. Math Anal, 52(2017) 161-167 (ISSN 1068-3623) (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.391)

#### 2016:

- Skew n-normal composition and weighted composition operators on  $L^2(\mu)$ , Int. J of Pure & Applied Math 107(no.3) 2016, 625-634.(ISSN 1311-8080-Print) (ISSN 1314-3395-Online)
- Weyl type theorems for adjoints of unbounded operators with ascent 0 or 1, J advanced Mathematical studies 9(3)(2016),420-428(ISSN: 2065-5851)

#### 2015:

- Composition operators on Lorentz - Karamata - Bochner Spaces, American J of Mathematical Analysis (3) (2015) 21 – 25 (ISSN 2333 - 8490) (co-authored).
- Quasi partial b-metric space and some related fixed point Theorems, Fixed point Theory and applications (2015)1-12 (Impact factor 2.49) (online) (co-authored). (ISSN 1687-1812)
- Some coupled fixed point Theorems on Quasi partial b-metric space, International J of Math. Analysis, (9) (2015)293-306(ISSN 1312-8876) (co-authored).
- Composition operators on double sequence spaces defined by modulus, Acta Scientiarum Mathematica (Szeged), Vol 81, No1 (2015) 167-178(ISSN 0001- 6969) (co-authored).
- Weighted composition operators on Lorentz – Karamata - Bochner Spaces, J of Advances research in pure Mathematics, Vol(7)(2)(2015) 76-88(ISSN 1943-2380) (co-authored).
- $(\alpha, \beta)$  - Normal composition operators, Thai J. of Mathematics,14,2016, 83-92(ISSN-1686-0209) (Online) (co-authored). (UGC, SCOPUS, Emerging SCI)
- A version of coupled fixed point Theorems on Quasi-Partial b-Metric Space, Advances in fixed point theory ,Vol 5 (2015) (407-419) (ISSN 1927-6303) (co-authored).
- Some coupled fixed point theorems in two quasi-partial b-metric spaces with different coefficients, Advances in fixed point theory, Vol 5(2015) (448-466) (ISSN 1927-6303) (co-authored).
- Weyl type Theorems for Unbounded Hyponormal operators, Kyungpoog Math J 55(2015) 531-540( ISSN: 1225-6951) (UGC, SCOPUS, Emerging SCI)
- Weyl Type Theorems for Restrictions of closed Linear Operators, Acta Univ. Math Belli23(2015) 87-94(ISSN 1338-7111)
- $p$  - quasiposinormal composition and weighted composition operators on  $L^2(\mu)$ , *Ann. Funct. Anal.* 6 (2015), no. 1, 109 - 115 ( ISSN NO-2639-7390) (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.577)

#### 2014:

- Composition and weighted composition operators on generalized Lorentz – Zygmund spaces, J of Mathematical Analysis, Vol 4 (2014)1-13(ISSN 2217-3412) (co-authored) (Emerging SCI)
- On  $(n, k)$  - quasinormal weighted composition operators, International J. pure and applied Mathematics (2014) Vol 91, 23 - 32 (ISSN 1311-8080) (co-authored). (UGC, SCOPUS)

- $n$  - Normal and  $n$ -Quasinormal composition operators, *Mathematicki Vesnik* 66(4)(2014), 1-7 (ISSN 0025-5165) (co-authored). (UGC, SCOPUS, Emerging SCI)
- On the property (Baw), *International Journal of Pure and Applied Mathematics*, 76(5) (2014), 625-632 (ISSN -1314-3395) (co-authored).
- Multiplication operators on Lorentz-Karamata Spaces, *J. of the Calcutta Mathematical Society*, 10(2) (2014)83-92 (ISSN 0973-0176) (co-authored).

#### 2013

- Variations of Weyl type Theorems, *International J of Contemporary Math.* (2013) Vol 9, 189-198 (ISSN No:1314-7544) (co-authored).
- $k^*$  - paranormal composition operators published in *International Mathematical Forum*, Vol 8(2013) no9, 433-441 (ISSN 1312-7549) (co-authored).
- Multiplication operators on Orlicz - Lorentz Sequence space, *International J. Math Analysis* (2013) Vol 7, 1461-1469 (ISSN 1312-8876) (co-authored).
- Weyl type theorems for class  $A(k)$  operators, *International J of Math Archives* (2013) 1099-1104 (ISSN 2229-5046) (co-authored)

#### 2012:

- Weyl Type Theorem for  $a$  – Polaroid operator, *International Journal of mathematical archives* 3(9)2012, 1-7 (ISSN 2229-5046) (authored).

#### 2011:

- Property (BW) and Weyl type theorem, *Bulletin of Mathematical Analysis and applications*, 3(1) (2011), 1-7 (ISSN 1821-1291) (co-authored).

#### 2010:

- Generalized  $a$  – Weyl's Theorem for Direct Sums, *Mathematicki Vesnik*, Vol. 65(4) (2010), 265-270 (ISSN 0025-5165) (co-authored). (UGC, SCOPUS, Emerging SCI)
- On weighted  $B$  – Weyl Spectrum, accepted for publication in *JMI International Journal of Mathematical Sciences* 1(2) (2010), 8-13 (ISSN 0976-5913) (co-authored).

#### 1994:

- Modulus of quasideag, *Glasnik Mathematicki*, 29, No. 49(1994), 101-108 (ISSN-0017- 098X). (UGC, SCOPUS, SCI Expanded, Impact Factor: 0.554)

#### 1992:

- $m$  - quasitriangular weighted shift, *Bull. Cal.Math Soc.*84 (1992), 255-264 (ISSN 0973-0176)

#### BOOKS PUBLISHED

1. Business mathematics, published by Pearsons Ltd.
2. Complex Analysis, published by Ane Books Ltd.
3. Multivariable calculus, published by Ane Books Ltd.
4. An Introduction to abstract algebra, Sultan Chand & Sons

## M.PHIL – PH.D GUIDANCE

Name of Degree	No of students registered till date	Degree awarded	Thesis submitted
MPhil	1	1	0
PhD	16	10	0

## PROFESSIONAL EXPERIENCE

- **Total Teaching Experience:** 32 Years (Under Graduate), 17 Years (Post Graduate)
- **Subjects:** Complex Analysis, Calculus, Algebra, Real Analysis, Business Mathematics, Differential Equations
- **Classes:** M.Sc(Maths), B.Com (Hons.), B.A.(Hons)(Eco), B.A(Prog)

## ADMINISTRATIVE EXPERIENCE

1. Acting Principal of Delhi College of Arts & Commerce from 25<sup>th</sup> May, 2020 to 7<sup>th</sup> May,2021.
2. Placement cell: As a convener of this cell, I contacted various companies who hire undergraduate students and make necessary arrangements for recruitment process. In 2014-15, more than 150 students got selected in various reputed companies. This cell also provides internship opportunities for 1<sup>st</sup> year and 2<sup>nd</sup> year students.
3. Leave committee - member  
Leave rules: A permanent teacher of the college can avail (1) Duty leave (30 days in an academic year), (2) Study leave granted to entry level appointees as assistant Professor after 3 years of continuous service to pursue a special line of study or research directly related to his/her work. Study leave shall not be granted for more than three years in one spell and not more than five year in all), (3) Sabbatical leave(It can be granted to a permanent college teacher who has completed seven years of service as Associate professor for academic pursuit and shall not exceed one year at a time and two years in the entire career of a teacher), (4) Casual leave (8 days in an academic year), (5) Earned leave (1/30 of actual service including vacations), (5) Child care leave (730 days to women employees for taking care of minor children), (6) Paternity leave (15 days leave may be granted to male employees during the confinement of their wives, up to two children.
4. Girls common room committee: Worked as convener of this committee and tried to give better facilities to girl students of the college.
5. Workload committee: worked as a member of this committee to see the workload of various departments (seeing student –teacher ratio, no of permanent teachers, no of papers taught by various departments)
6. Time table Committee: worked as convener of this committee to set time table of all departments in the years 2011-13.

7. Provident fund committee: As a member I saw that the provident fund of employees is properly invested so that employees get interest on their money and those who retire get their dues in time.
8. Admission committee: As a member of this committee, I make sure that the students are admitted in the college as per University rules.
9. Deputy Superintendent Examination: Smoothly conducted examinations in the college for DCAC students in the year 2012 and for school of open learning in the year 2013.
10. Alumni Committee: As a convener of this committee, I organized 6<sup>th</sup> and 7<sup>th</sup> meet of the college.
11. Pay Fixation Committee: As a convener of this committee, I look into the fixation in 7<sup>th</sup> pay commission of teaching faculty members.

#### **CONFERENCE & WORKSHOPS:**

1. Attended a workshop on Fractal Geometry and non – linear Dynamical system organized by the Department of Mathematics from Oct. 4 – 8, 2004.
2. Attended a national workshop on Analysis held at the Department of Mathematics from Sep. 27 - 28, 2007.
3. Attended International Conference on operator Theory and Related area held at the Department of Mathematics, University of Delhi, from Jan 9 – 12, 2008.
4. Attended International Conference on recent trends in Mathematics and its applications held at Jamia Millia Islamia University, New Delhi from March 30 – 31, 2009.
5. Presented a paper entitled 'Vedic Mathematics in higher education' in a UGC sponsored National Seminar on restructuring higher education: constraints and possibilities held at Delhi College of Arts and Commerce in March 2010.
6. Presented a paper entitled 'BW property and Weyl type theorem' at the 23 International Conference on Operator Theory held at West University Timisoara, Romania from June 28 to July 04, 2010.
7. Presented a paper entitled 'Relevance of Vedic Mathematics in the present era' at an International Conference on Science Spirituality and Humanity: 'Transcending Discipline Barriers' held in February 2011 at New Delhi.
8. Presented a paper entitled 'Variants of Weyl type theorems for direct sums' in the IJAS international conference for Academic disciplines, held in Vienna, Austria from April 1-5, 2012.
9. Attended an international conference on the Legacy of Srinivasan Ramanujan from 17-22 Dec. 2012, held in University of Delhi.
10. Participated in ICT Workshop on ICT held during 21-22, March 2014 at Institute of Life Long Learning.
11. Presented a paper entitled 'Weyl Type Theorems for unbounded operators' in the international conference on recent advances in Pure and Applied Mathematics held on 6-9 Nov 2014 in Antalya, Turkey.
12. Attended International conference on Algebra, Geometry, Analysis and their applications held on 27-29 Nov 2014 in Jamia Milia Islamia.
13. Invited lecture on 'Weyl type Theorems for unbounded operators' 'Workshop on women Mathematicians, south campus, University of Delhi, 3<sup>rd</sup> - 4<sup>th</sup> July, 2015.
14. Attended workshop on Latex in Hans Raj College on 9<sup>th</sup> April, 2016

15. Presented a paper entitled 'Weyl type Theorems for non-normal closed linear operators' in international workshop on operator theory held on 18<sup>th</sup> July -22<sup>nd</sup> July 2016 in Washington University, St Louise, USA.
16. Invited talk on 'Fixed point theorems on 'Quasi partial b-metric spaces', in National seminar on recent developments in Mathematics, Kalindi College, University of Delhi on 13<sup>th</sup> Jan 2017.
17. Invited talk on 'Weyl type theorems on unbounded and bounded operators- A comparative Study in National conference on algebra, analysis, coding and cryptography, Department of Mathematics.
18. Invited Talk on Slant Toeplitz operators in international workshop on recent Advances in operator Theory, Department of Mathematics, University of Delhi, 18 - 21 Dec, 2017.
19. Invited talk on common spectral properties of linear operators A and B satisfying  $A^k B^k A^k = A^{k+1}$  and  $B^k A^k B^k + B^{k+1}$  in international conference on Recent Advances in Pure and Applied Mathematics, Department of Applied Mathematics, Delhi Technological University, 23 - 25 Oct, 2018.
20. Invited talk on complex symmetries of composition operators on derivative Hardy space in International Conference on Mathematical Analysis and its Applications, South Asian University, New Delhi December 14 - 16, 2019.
21. Conducted Vedic Mathematics workshops for teachers and students in Shyam Lal College, Hans Raj College, Swami Shardhanand College (University of Delhi), J C Bose University of technical Education Faridabad, Manav Rachana International University, Faridabad, Indira Gandhi University, Bhiwani.

#### **TRAINING PROGRAM**

1. Participated in professional Development Programme entitled 'Computer Awareness and Application' in 1994.
2. Participated in a 3- week professional Development Programme entitled Applied Mathematics in 1998.
3. Attended 3- week Refresher Course in Mathematics entitled Inter Disciplinary Mathematics.
4. Participated in 3-week Refresher Course in Mathematics conducted by center for professional Development in higher Education in 2001.
5. Attended a training course in MS – Word, PPT, internet organized by Computer Centre, University of Delhi from May 1 – 5, 2006.
6. Attended a training course in MS – Excel organized by Computer Centre, University of Delhi from June 19 – 30, 2006.
7. Attended a training course in Web page designing organized by Computer Centre, University of Delhi from May 14 – 18, 2007.
8. Participated in Partners in Learning Teacher Training Program conducted by Microsoft and Institute of Life Long Learning from SEP 14, 2009 to SEP 25, 2009.
9. Attended one – day workshop on 'Mathematica – a software used in Mathematics teaching' on 23<sup>th</sup> Feb 2011, held in South Delhi Campus, University of Delhi.
10. Participated in Supported Blended Learning Workshop organized by ILLL under UKAIRI project, from 16-18 April, 2012.
11. Attended one day author's workshop on 23<sup>rd</sup> August 2012 conducted by Springer with Delhi University Library Systems.

#### **UGC PROJECT**



Successfully completed UGC minor project On Variants of Weyl Type Theorems in April 2012. Two research articles published as an outcome.

**EDUCATION: MA, MPhil, Ph.D (Mathematics)**

DEGREE	YEAR	SUBJECT	UNIVERSITY/INSTITUTION	% OF MARKS
BA (HONS)	1986	Mathematics	JDMC, University of Delhi	71
MA	1988	Mathematics	Hans Raj College, University of Delhi	89.5
M PHIL	1989	Mathematics	Dept. Of Mathematics, University of Delhi	77
PH.D	1999	Mathematics	Dept. Of Mathematics, University of Delhi	

**PERSONAL DETAILS**

**Spouse's name:** Late Sh. Sanjay Gupta

**Date of Birth:** 2<sup>nd</sup> June 1966