Satish Kumar Pandey (Curriculum Vitae)

Assistant Professor   Office: A-206 (R&D Building)
Department of Mathematics and   Phone: 011-26907369
Center for Quantum Technologies   e-mail: satish@iiitd.ac.in
Indraprastha Institute of Information Technology Delhi   Web profile: https://www.iiitd.ac.in/satish
New Delhi, Delhi - 110020, India   Personal webpage: http://noncommutative.space/

Academic Positions	Assistant Professor Indraprastha Institute of Information Technology Delhi (IIIT - Delhi), Delhi, India (Jul. 2021 - Present)
	PBC Postdoctoral research fellow Technion - Israel Institute of Technology, Haifa, Israel Host: **Orr M. Shalit** (Oct. 2018 - Jun. 2021)
Education	Ph.D. in Pure Mathematics University of Waterloo, Ontario, Canada Thesis title: Symmetrically-normed ideals and characterizations of absolutely norming operators Advisor: **Vern I. Paulsen** (Aug. 2015 - Jul. 2018)
	Ph.D. studies in Mathematics University of Houston, Texas, USA Advisor: **Vern I. Paulsen** (Aug. 2012 - Jul. 2015).
	M.S. in Applied Mathematics University of Houston, Texas, USA (Aug. 2011 - Jul. 2012)
	B.Sc.(Honours) in Mathematics Banaras Hindu University, Varanasi, India (Aug. 2006 - Jul. 2009)
	I.Sc. (Class XII) A. N. College, Patna, India (Apr. 2002 - Feb. 2004)
	I.C.S.E (Class X) St. Paul's High School, Patna, India (Mar. 2002)
Research Interests	Operator theory (univariate and multivariate), operator algebras, reproducing kernel Hilbert spaces, and quantum information theory
Publications	**Accepted or Published**

[7] *Universally symmetric norming operators are compact*
S. K. Pandey
Operators and Matrices (2022)
Preprint available at arXiv:1705.08297.

[6] *Distance between reproducing kernel Hilbert spaces*
and geometry of finite sets in the unit ball
D. Ofek, S. K. Pandey, O. M. Shalit
Journal of Mathematical Analysis and Applications (2021)
Preprint available at arXiv:2011.06578.

[5] *Dilations of unitary tuples*
M. Gerhold, S. K. Pandey, O. M. Shalit, B. Solel
Journal of the London Mathematical Society (2021)
Preprint available at arXiv:2006.01869.

[4] *Quantum majorization on semifinite von Neumann algebras*
P. Ganesan, L. Gao, S. K. Pandey, S. Plosker
Journal of Functional Analysis **279**(2020), no. 7, 108650, 49
Preprint available at arXiv:1909.10038.

[3] *Entanglement breaking rank and the existence of SIC POVMs*
S. K. Pandey, V. I. Paulsen, J. Prakash, M. Rahaman
Journal of Mathematical Physics **61** (2020), no. 4, 042203, 14
Preprint available at arXiv:1805.04583.

[2] *A spectral characterization of absolutely norming operators on s.n.ideals*
S. K. Pandey
Operators and Matrices **11** (2017), no. 3, 845–873
Preprint available at arXiv:1610.02095.

[1] *A spectral characterization of $\mathcal{AN}$ operators*
S. K. Pandey, V. I. Paulsen
Journal of the Australian Mathematical Society **102** (2017), no. 3, 369–391
Preprint available at arXiv:1501.05869.

Awards and Honours		
	The 2022 Mahony-Neumann-Room Prize (with Vern I. Paulsen), The Australian Mathematical Society(AustMS)	Dec. 2022
	PBC Fellowship of the Israel Council for Higher Education, Technion - Israel Institute of Technology	Sept. 2019 - Jun. 2021
	Postdoctoral Fellowship, Department of Mathematics, Technion - Israel Institute of Technology	Oct. 2018 - Jun. 2021
	International Doctoral Student Award, Faculty of Mathematics, University of Waterloo	Sept. 2015 - Jul. 2018
	Doctoral Thesis Completion Award, Faculty of Mathematics, University of Waterloo	May 2018 - Aug. 2018
	Mathematics Faculty Graduate Award, Faculty of Mathematics, University of Waterloo	Jun. 2017
	Graduate Research Studentship, Faculty of Mathematics, University of Waterloo	Sept. 2015 - April 2017
	Math Graduate Experience Award, Faculty of Mathematics, University of Waterloo	Sept. 2015 - Dec. 2015
	Doctoral Student Tuition Fellowship, Department of Mathematics, University of Houston	Aug. 2011 - Jul. 2015
	2015 Graduate Student Paper Presentation Award,	May 2015

Graduate student chapters of AMS and SIAM,
Department of Mathematics, University of Houston

2014 Graduate Student Paper Presentation Award,   Apr. 2014
Graduate student chapters of AMS and SIAM,
Department of Mathematics, University of Houston

Lecture Series	Operator Algebras/Operator Theory Seminar,	Oct. 2018 - Nov. 2018

Technion - Israel Institute of Technology, Haifa, Israel
- "A brief introduction to quantum information theory aimed at studying entanglement breaking rank" - 5 lectures

Operator Algebras/Operator Theory Seminar,   Apr. 2019 - May. 2019
Technion - Israel Institute of Technology, Haifa, Israel
- "A review of the rudiments of the theory of reproducing kernel Hilbert spaces" - 5 lectures

Teaching Experience

Indraprastha Institute of Information Technology Delhi (IIIT-Delhi), Delhi, India
1. *Course Instructor*

    (a) MTH 542 - Introduction to Functional Analysis (Winter 2023)

    (b) MTH 203 - Multivariate Calculus (Monsoon 2022)

    (c) MTH 542 - Introduction to Functional Analysis (Winter 2022)

    (d) MTH 340/540 - Real Analysis - II (Monsoon 2021)

2. *Organisor of Graduate Student Learning Seminars*

    (a) A review of the spectral theory of operators on normed linear spaces (Summer 2023)

    (b) An introduction to reproducing kernel Hilbert spaces aimed at studying machine learning (Monsoon 2022)

University of Waterloo, Ontario, Canada
1. *Course Instructor*

    (a) PMATH/AMATH 332 - Applied Complex Analysis (Winter 2017)

2. *Recitation Instructor, Teaching Assistant, and Marker*

    (a) MATH 235 - Linear Algebra II for Honours Math (Fall 2016, Fall 2017)

    (b) MATH 119 - Calculus II for Engineering (Spring 2017)

    (c) MATH 648 - Foundations of Calculus II (online) (Spring 2016)

    (d) PMATH/AMATH 331 - Applied Real Analysis (Fall 2015)

    (e) MATH 127 - Calculus I for the Sciences (Fall 2015)

3. *Marker*

    (a) PMATH 333 - Introduction to Real Analysis (Winter 2018)

    (b) MATH 138 - Calculus II for Honours Mathematics (Winter 2018)

    (c) PMATH 351 - Real Analysis (Fall 2017)

    (d) PMATH 450 - Lebesgue Integration and Fourier Analysis (Winter 2016)

University of Houston, Texas, USA
1. *Course Instructor*

    (a) Math 1432 - Calculus II (online) (Summer 2015)

2. *Recitation Instructor and Teaching Assistant*

   (a) Math 1431 - Calculus I (Fall 2011, Spring 2012)

   (b) Math 1432 - Calculus II (Fall 2012, Spring 2014, Fall 2014)

   (c) Math 2433 - Calculus III (Spring 2013, Fall 2013)

3. *Course Coordinator*

   (a) Calculus-II coordinator, University of Houston   Jan. 2013 - Dec. 2014

4. *Grader*

   (a) Math 4331 - Introduction to Real Analysis (Fall 2014)

   (b) Math 3338 - Probability (Spring 2014)

   (c) Math 3336 - Discrete Mathematics (Fall 2013, Spring 2012)

   (d) Math 3330 - Abstract Algebra (Fall 2013, Spring 2012)

   (e) Math 3321 - Engineering Math (Fall 2012, Spring 2013)

   (f) Math 4377 - Linear Algebra (Summer 2012)

   (g) Math 1330 - Pre-Calculus (Summer 2012)

   (h) Math 1314 - Calculus for Business and Life Sciences (Fall 2011)

5. *Math Lab Tutor (Advanced)*

   (a) 4 hours per week - CASA Tutoring Center, UH   Sept. 2011 - Aug. 2013

CHAMP, Houston, Texas, USA
1. *Instructor* (Selected Lectures)   Sept. 2013 - Apr. 2015

   (a) Trailing Zeros in a Factorial - 1 lecture (Spring 2015)

   (b) Number Magic and Divisibility - 1 lecture (Fall 2014)

2. *Facilitator*   Sept. 2013 - Apr. 2015

SPMPS (now known as BEAM), New York, USA
1. *Instructor* (Selected Lectures)   Jul. 2014

   (a) Fibonacci numbers

   (b) Square divisible numbers

   (c) The product of all positive divisors

   (d) The pigeonhole principle

Teaching Programs	Teaching Techniques for Mathematicians, Graduate Student Teaching Seminar, Department of Pure Mathematics, University of Waterloo	Winter 2018
	Fundamentals of University Teaching Program, Centre for Teaching Excellence, University of Waterloo	Spring 2016
	Teaching Training Program, Teaching Mentor - Dr.Mikhail Perepelitsa Department of Mathematics, University of Houston	Spring 2014

Undergraduate supervision	Summer project week 2020 - 2 students **Hilbert function spaces of analytic functions in a complex variable** (joint with Orr M. Shalit and Ran Kiri)	September 6–11, 2020

- Danny Ofek
- Gilad Sofer

	Math research week 2019 - 2 students **Numercial exlorations of open problems in operator theory** (joint with Orr M. Shalit and Malte Gerhold)	September 22–26, 2019

- Matan Gibson
- Ofer Israelov

Outreach Services	Mentor, Mathematics Training and Talent Search (MTTS), Department of Mathematics, IIT Madras, Chennai, India	May 22 - June 17, 2023
	President, Graduate Student Chapter of AMS, Department of Mathematics, University of Houston	Sept. 2014 - Aug. 2015
	Vice-President, Graduate Student Chapter of AMS, Department of Mathematics, University of Houston	Sept. 2014 - Aug. 2015
	Instructor, SPMPS (now known as BEAM), SPMPS, Siena College, Albany, New York, USA	Jul. 2014
	Instructor and Facilitator, CHAMP, Houston, Texas, USA	Sept. 2013 - Apr. 2015

Referee	Houston Journal of Mathematics (HJM)	Jan. 2021 - Present
	Advances in Operator Theory (AOT)	Nov. 2018 - Present
	Operators and Matrices (OaM)	Sept. 2017 - Present

Conferences Attended	COSy 2021: The 49th Canadian Operator Symposium (online), University of Guelph, Guelph, Ontario, May 31–June 4, 2021
	SEAM 2021 by 2TART (online; via Zoom), University of Florida, Gainesville, Florida, March 13–14, 2021
	2TART presents OTWIA (online; 10 am - 4:30 pm EDT, via Zoom), University of Florida, Gainesville, Florida, August 10–13, 2020
	Functions and Operators, 10 years after (FaO 2020) (online), Jagiellonian University, Kraków, Poland, July 15–17, 2020
	The Online Operator Theory and Related Topics (2TART) Conference, University of Florida, Gainesville, Florida, June 16–17, 2020
	COSy 2020: The 48th Canadian Operator Symposium (online), The Fields Institute, Toronto, May 25–29, 2020
	YMC*A 2019, University of Copenhagen, Copenhagen, Denmark, August 5–10, 2019
	COSy 2018: The 46th Canadian Operator Symposium, University of Manitoba, Winnipeg, Manitoba, June 4–8, 2018
	2018 CMS Summer Meeting, University of New Brunswick, Fredericton, New Brunswick, June 1–4, 2018
	Southern Ontario Operator Algebra Seminar, University of Waterloo, Waterloo, On-

tario, February 17–18, 2018

2017 CMS Winter Meeting, University of Waterloo, Waterloo, Ontario, December 8–11, 2017

Workshop on Operators Systems in Quantum Information, University of Guelph, Guelph, Ontario, August 14–17, 2017

COSy 2017, Lakehead University, Thunderbay, Ontario, May 29–June 2, 2017

Workshop on Representation Theory in Quantum Information, University of Guelph, Guelph, Ontario, August 22–25, 2016

COSy 2016, Université de Montréal, Montreal, Quebec, June 13,2016–June 17, 2016

Quantum Key Distribution (QKD) Summer School, Institute for Quantum Computing, University of Waterloo, Waterloo, Ontario, August 17–21, 2015

GPOTS 2015, Purdue University, West Lafayette, May 26–30, 2015.

Workshop in Analysis and Probability: From Commutators to BCP Operators, Texas A&M University, College Station, Texas, July 27–31, 2015

GPOTS 2014, Kansas State University, Manhattan, Kansas, May 27–31, 2014

Noncommutative Geometry Festival, Texas A&M University, College Station, Texas, April 30–May 3, 2014

GPOTS 2013, University of California, Berkeley, California, May 21–25, 2013

Frame Theory and Maps Between Operator Algebras, Texas A&M University, College Station, Texas, July 16–19, 2012

Larsonfest, Texas A&M University, College Station, Texas, July 20–22, 2012

GPOTS 2012, University of Houston, Houston, Texas, May 30–June 3, 2012

Invited Research Presentations	Department Seminar Talk, IISER Berhampur, Odisha • "Symmetrically-normed ideals and characterizations of absolutely norming operators"	Jan 9, 2023
	Operator Algebra/ Operator Theory Seminar, Technion - Israel Institute of Technology, Haifa • "Distance between reproducing kernel Hilbert spaces and geometry of finite sets in the unit ball"	May 6, 2021
	Department Seminar Talk, IISER Bhopal, Bhopal • "Symmetrically-normed ideals and characterizations of absolutely norming operators"	Jun. 26, 2019
	Department Seminar Talk, IIT Kanpur, Kanpur • "Entanglement breaking rank"	Jun. 18, 2019
	Department Seminar Talk, IIT Kanpur, Kanpur • "Symmetrically-normed ideals and characterizations of absolutely norming operators"	Sept. 4, 2018
	Department Seminar Talk, NISER, Bhubaneshwar • "Characterizations of absolutely norming operators via symmetrically-normed ideals"	Sept. 7, 2018
	Department Seminar Talk, IIT Mandi, Kamand • "Characterization of absolutely norming operators on symmetrically-normed ideals"	Sept. 13, 2018
	Department Seminar Talk, IIIT Delhi, Delhi • "Symmetrically-normed ideals and characterizations of absolutely norming operators"	Oct. 9, 2018

Contributed Research Presentations

COSy 2021 (online), University of Guelph, Guelph
- "Distance between reproducing kernel Hilbert spaces and geometry of finite sets in the unit ball"   Jun 3, 2021

SEAM 2021 by 2TART (online), University of Florida, Gainesville
- "Distance between reproducing kernel Hilbert spaces and geometry of finite sets in the unit ball"   Mar 14, 2021

COSy 2020 (online), The Fields Institute, Toronto
- "Quantum majorization on semifinite von Neumann algebras"   May 28, 2020

The Fields Institute, University of Toronto, Toronto
- "Entanglement breaking rank"   Jun. 12, 2018

COSy 2018, University of Manitoba, Winnipeg
- "Entanglement breaking rank"   Jun. 5, 2018

COSy 2017, Lakehead University, Thunderbay
- "Universally symmetric norming operators are compact"   May 29, 2017

Operator theory seminar, University of Waterloo, Waterloo
- "Bounded weak topology and Arveson's extension theorem"   Nov. 30, 2016
- "Positive Maps"   Aug. 2, 2016

Pure math student colloquium, University of Waterloo, Waterloo
- "The Dinitz problem and five-colouring plane graphs"   Nov. 23, 2016

Analysis seminar, University of Waterloo, Waterloo
- "Characterization of absolutely norming operators on symmetrically-normed ideals"   Jul. 7, 2016

von Neumann algebra seminar, University of Waterloo, Waterloo
- "Projections in von Neumann algebras"   Mar. 30, 2016
- "Projections in von Neumann algebras-II"   Apr. 6, 2016

Connes' embedding problem seminar,
University of Waterloo, Waterloo
- "Connes' embedding conjecture and its equivalent statements"   Feb. 2, 2016
- "Connes' embedding conjecture and its equivalent statements-II"   Feb. 9, 2016

Workshop in analysis and probability: from commutators to BCP operators, Texas A& M University, College Station
- "A spectral characterization of $\mathcal{AN}$ operators"   Aug 2015

GPOTS 2015, Purdue University, West Lafayette
- "A spectral characterization of $\mathcal{AN}$ operators"   May 2015

2015 Graduate student paper presentation,
University of Houston, Houston
- "A spectral characterization of $\mathcal{AN}$ operators"   May 1, 2015

2014 Graduate student paper presentation,
University of Houston, Houston
- "Characterization of absolutely norming operators"   Apr. 4, 2014