

Satish Kumar Pandey (Curriculum Vitae)

PBC Postdoctoral research fellow
Faculty of Mathematics
Technion - Israel Institute of Technology
Haifa, Israel

Office: 810(Amado Mathematics Building)
Phone: (+972) 04-829-3005
Email: satishpandey@campus.technion.ac.il
Webpage: <http://noncommutative.space/>

Academic Position PBC Postdoctoral research fellow
[Technion - Israel Institute of Technology](#), Haifa, Israel
Host: **Orr M. Shalit** (Oct. 2018 - Present)

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 **Papers Submitted**

- [7] *Distance between reproducing kernel Hilbert spaces and geometry of finite sets in the unit ball*
D. Ofek, S. K. Pandey, O. M. Shalit
Preprint available at [arXiv:2011.06578](https://arxiv.org/abs/2011.06578).
- [6] *Dilations of unitary tuples*
M. Gerhold, S. K. Pandey, O. M. Shalit, B. Solel
Preprint available at [arXiv:2006.01869](https://arxiv.org/abs/2006.01869).
- [5] *Universally symmetric norming operators are compact*
S. K. Pandey
Preprint available at [arXiv:1705.08297](https://arxiv.org/abs/1705.08297).

Accepted or Published

- [4] [Quantum majorization on semifinite von Neumann algebras](#)
P. Ganesan, L. Gao, S. K. Pandey, S. Plosker
Journal of Functional Analysis (2020)
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 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

PBC Fellowship of the Israel Council for Higher Education, Technion - Israel Institute of Technology	Sept. 2019 - Present
Postdoctoral Fellowship, Department of Mathematics, Technion - Israel Institute of Technology	Oct. 2018 - Present
International Doctoral Student Award, Faculty of Mathematics, University of Waterloo	Sept. 2015 - July 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, Graduate student chapters of AMS and SIAM, Department of Mathematics, University of Houston	May 2015
2014 Graduate Student Paper Presentation Award, Graduate student chapters of AMS and SIAM, Department of Mathematics, University of Houston	Apr. 2014

Lecture Series

Operator Algebras/Operator Theory Seminar, Technion - Israel Institute of Technology, Haifa, Israel	Oct. 2018 - Nov. 2018
<ul style="list-style-type: none">• “A brief introduction to quantum information theory aimed at studying entanglement breaking rank” - 5 lectures	
Operator Algebras/Operator Theory Seminar, Technion - Israel Institute of Technology, Haifa, Israel	Apr. 2019 - May. 2019
<ul style="list-style-type: none">• “A review of the rudiments of the theory of	

reproducing kernel Hilbert spaces” - 5 lectures

**Teaching
Experience**

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. <i>Facilitator</i>	Sept. 2013 - Apr. 2015
	SPMPS (now known as BEAM), New York, USA	
	1. <i>Instructor</i> (Selected Lectures)	Jul. 2014
	(a) Fibonacci numbers	
	(b) Square divisible numbers	
	(c) The product of all positive divisors	
	(d) The pigeonhole principle	
	Mastermind Classes, Varanasi, UP, India	
	1. <i>Course Instructor</i> (List of courses I taught)	Aug. 2007 - Sept. 2009
	(a) Calculus	
	(b) Analytic Geometry (<i>2D&3D</i>)	
	(c) Elementary Algebra	
	(d) Higher Algebra	
	(e) Probability and Statistics	
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 Perpelitsa 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) <ul style="list-style-type: none"> • Danny Ofek • Gilad Sofer 	September 6–11, 2020
	Math research week 2019 - 2 students Numerical explorations of open problems in operator theory (joint with Orr M. Shalit and Malte Gerhold) <ul style="list-style-type: none"> • Matan Gibson • Ofer Israelov 	September 22–26, 2019
Outreach Services	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	Operators and Matrices (OaM)	Sept. 2017 - Present
	Advances in Operator Theory (AOT)	Nov. 2018 - Present
Conferences Attended	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, Ontario, 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 Bhopal, Bhopal	
	<ul style="list-style-type: none"> • “Symmetrically-normed ideals and characterizations of absolutely norming operators” 	Jun. 26, 2019
	Department Seminar Talk, IIT Kanpur, Kanpur	
	<ul style="list-style-type: none"> • “Entanglement breaking rank” 	Jun. 18, 2019

**Contributed
Research
Presentations**

- Department Seminar Talk, IIT Kanpur, Kanpur
- “Symmetrically-normed ideals and characterizations of absolutely norming operators” Sept. 4, 2018
- Department Seminar Talk, NISER, Bhubaneswar
- “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
- 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

References

[Dr. Orr Shalit](#), Associate Professor

Faculty of Mathematics, Technion - Israel Institute of Technology

Email: oshalit@technion.ac.il, Phone: (+972) 04-829-4072

[Dr. Vern Paulsen](#), Professor

Department of Pure Mathematics and Institute for Quantum Computing

University of Waterloo

Email: vpaulsen@uwaterloo.ca, Phone: (519) 888 4567 ext. 30305

[Dr. Laurent Marcoux](#), Professor

Department of Pure Mathematics, University of Waterloo

Email: lwmarcoux@uwaterloo.ca, Phone: (519) 888 4567 ext. 35568

[Dr. Mark Tomforde](#), Associate Professor

Department of Mathematics, University of Colorado Colorado Springs

Email: mtomford@uccs.edu

[Dr. Alexandru Nica](#), Professor

Department of Pure Mathematics, University of Waterloo

Email: anica@uwaterloo.ca, Phone: (519) 888 4567 ext. 35570

[Daniel Zaharopol](#)

BEAM Founder and AOPS Foundation Executive Director

Email: dan.zaharopol@artofproblemsolving.org, Phone: (888) 264-2793