

# PURBITA JANA

# Personal Information

Surname : JANAFirst name : PURBITA

o Born on August 16th, 1984, at Burdwan, India;

Nationality : Indian. Cast : General.

#### Current Affiliation

Assistant Professor, Madras School of Economics, Chennai, India.

#### Research Interest

Mathematical logic, Artificial intelligence, Order algebraic structure, Model theory, Category theory, Topology, Frame theory, Topos theory, MV algebra, Analysis, Game theory, Topological Data Analysis.

# Publication List

#### Published Papers (in journals)

- P. Jana and M. K. Chakraborty, Categorical Accommodation of Graded Fuzzy Topological System, Graded Frame and Fuzzy Topological Space with Graded inclusion, Journal of Applied Non-Classical Logic, **32**(1), 2022, pp. 11–27.
- A. Di Nola, R. Grigolia and P. Jana, Heyting Algebra and Gödel Algebra vs. various Topological Systems and Esakia Space: a Category Theoretic Study, Azerbijan Journal of Mathematics, 11(1), 2021, pp. 120–137.
- P. Jana and M. K. Chakraborty, Fuzzy  $\alpha$ -cut and related mathematical structures, Soft Computing, **25**(1), 2021, pp. 207–213.
- M. K. Chakraborty and P. Jana, Fuzzy topology via fuzzy geometric logic with graded consequence, International Journal of Approximate Reasoning, 80, 2017, pp. 334–347.
- P. Jana and M. K. Chakraborty, Categorical relationships of fuzzy topological systems with fuzzy topological spaces and underlying algebras-II, Ann. of Fuzzy Math. and Inform., **10**(1), 2015, pp. 123–137.
- P. Jana and M. K. Chakraborty, Categorical relationships of fuzzy topological systems with fuzzy topological spaces and underlying algebras, Ann. of Fuzzy Math. and Inform., 8(5), 2014, pp. 705–727.

#### Published Papers (in books)

• P. Jana, Fuzzy α-Cut in Rough Sets and Its Application, In: Peters, J.F., Skowron, A., Bhaumik, R.N., Ramanna, S. (eds) Transactions on Rough Sets XXIII, Lecture Notes in Computer Science,

Springer, Berlin, Heidelberg, **13610**, 2022, pp. 12–22.

#### Published Abstract (in journal)

• P. Jana, A Study of the Interrelation between Fuzzy Topological Systems and Logics, Logic Thesis Abstracts, Bulletin of Symbolic Logic, 25(4), 2019, pp. 453-454.

#### Published Papers (in conference proceedings)

- P. Jana and M.K. Chakraborty, On Categorical Relationship among various Fuzzy Topological Systems, Fuzzy Topological Spaces and related Algebraic Structures, Proceedings of the 13th Asian Logic Conference, World Scientific, 2015, pp. 124–135.
- P. Jana, Fuzzy  $\alpha$ -cut in Probabilistic Rough Set Theory, In: Prof. Rabi Nanda Bhaumik (Ed.), Proceedings of 96th Birthday of Prof. Z. I. Pawlak & 41st year of Rough Set, 2022, pp. 85–90.

#### Extended Abstracts (in peer reviewed conference)

- P. Jana, Fuzzy  $\alpha$ -cut in Rough Sets, An International Conference on Rough Sets Generalizations & Applications, November 11-13, 2021.
- P. Jana, *L-Topology via Generalised Geometric Logic*, In: Sujata Ghosh and R. Ramanujam (Eds.), ICLA 2021 Proceedings 9th Indian Conference on Logic and its Applications March 4-7, 2021, pp. 67–72.
- P. Jana and M. K. Chakraborty, Fuzzy topology via fuzzy geometric logic with graded consequence, In: B. De Baets, R. Mesiar, S. Saminger-Platz and E. P. Klement (Eds.), Abstracts of the 36th Linz seminar on fuzzy set theory, Johannes Kepler Universitat, Linz, 2016, pp.46–50.

# Accepted work

- P. Jana, Anisotropic p-Laplace equations on long cylindrical domain, Opuscula Mathematica (accepted).
- N. Hwang, P. Jana and R. Parikh, *Ethical agents*, 34th Stony Brook International Conference on Game Theory, 2023.
- P. Jana, O. Koshelevab and V. Kreinovichcand, Fuzzy Mathematics under Non-Minimal "And"-Operations (t-Norms): Equivalence leads to Metric, Order Leads to Kinematic Metric, Topology Leads to Area or Volume, The 20th World Congress of the International Fuzzy Systems Association (IFSA 2023).

# Submitted work

- R. Das and P. Jana, Generalised Geometric Logic: A Logic for expressing a Neural Network Architecture.
- A. Adimurthi, P. Jana and P. Roy, Boundary fractional Hardy's inequality in dimension one: the critical case.
- P. Jana, Generalised Geometric Logic.

# Ongoing work

- ullet with A. Di Nola and R. Grigolia, Notion of MV system: a step towards topological characterisation of MV algebra.
- with A. Di Nola, S. Lapenta and M.A. Moshier, Action on MV-algebra and flow.
- with M. K. Chakraborty, Graded frame and related topics.
- Modal Geometric Logic.

#### Education

- 2001 **Madhyamik**, West Bengal Board of Secondary Education, West Bengal, Salkia K.B.R. Girls' H.S. School, India.
- 2001–2003 **Higher Secondary**, West Bengal Council of Higher Secondary Education, West Bengal, Salkia K.B.R. Girls' H.S. School, India.
- 2003–2006 B. Sc. (Hons.) in Mathematics, Presidency College, University of Calcutta, Kolkata.
- 2006–2008 Masters in Mathematics, Lady Brabourne College, University of Calcutta, Kolkata.
- 2009–2010 Logic Year, ILLC, University of Amsterdam, Amsterdam, Netherland.
- 2012–2015 **Ph.D.(Degree awarded on 5th September 2016)**, Department of Pure Mathematics, University of Calcutta, Kolkata, India.
- 2015–2018 Scientist, Department of Pure Mathematics, University of Calcutta, Kolkata, India.
- 2018–2019 **Post Doctoral Fellow**, Theoretical Computer Science, The Institute of Mathematical Sciences (IMSc.), Chennai, India.
- 2019–2022 **Scientist**, Department of Mathematics and Statistics, Indian Institute of Technology Kanpur, IITK, India.
  - 2023 Visiting Scientist, Computer Science Unit, Indian Statistical Institute, Chennai Center, ISI, India.
  - 2023 Visiting Scientist, Artificial Intelligence Research Institute (IIIA), of the Spanish National Research Council (CSIC), Spain.

## Thesis

#### Doctoral Thesis

Title A Study of the Interrelation between Fuzzy Topological Systems and Logics.

Supervisor Prof. Mihir K. Chakraborty.

# Post Doctoral Experience

Scientist Prof. Mihir K. Chakraborty (2016–2018).

Mentor

Scientist Prof. R. Ramanujam (2018–2019).

Mentor

Scientist Prof. Mohua Banerjee (2019–2022).

Mentor

Scientist Prof. Sujata Ghosh (2023).

Mentor

## Academic Visits

- o VSRP 2012 (Visiting Summer Research Program) at TIFR, Mumbai, India, under Prof. N. Raja.
- o Visiting PhD student (March-April, 2013) at ISI, Chennai, India, under Prof. Sujata Ghosh.
- o Research Visit (February 2016) to Prof. Andrzej Skowron, at University of Warsaw, Poland.
- o Research Visit (September-October, 2016) to Prof. Antonio Di Nola , at University of Salerno, Italy.
- o Research Visit (May, 2017) at CECAT, Chapman University, Orange, California, U.S.A.
- o Research Visit (28th May- 6th July, 2018) to Prof. Antonio Di Nola , at University of Salerno, Italy.
- o Research Visit (13th-15th June, 2018) to Prof. Davide Ciucci, at University of Milan, Italy.
- o Research Visit (18th-31st March, 2019) to Prof. Amit Kuber, at IIT Kanpur, India.
- o Research Visit (9th-25th May, 2019) to Prof. M. Andrew Moshier, at Chapman University, Orange, California, U.S.A.
- o Research Visit (27th July-22nd September, 2022) to Prof. Rohit Parikh, at Graduate Centre, City University of New York, New York, U.S.A.
- o Research visit (1st April, 2023-12th May, 2023) to Prof. Prakash Saivasan and Prof. R. Ramanujam, at The Institute of Mathematical Sciences, Chennai, India.

#### Academic Visitors

#### 1. Prof. Frederick Knowles Dashiell, Jr.

- o Affiliation: University of California, Los Angeles
- o Place of Visit: University of Calcutta
- o Date of Visit: 12th December, 2016.

#### 2. Prof. Inderasan Naidoo

- o Affiliation: University of South Africa, South Africa
- o Place of Visit: The Institute of Mathematical Sciences, Chennai (IMSc.)
- o Date of Visit: 3rd December, 2018.

#### 3. Prof. Antonio Di Nola

- o Affiliation: University of Salerno, Italy
- o Place of Visit: The Institute of Mathematical Sciences, Chennai (IMSc.)
- o Date of Visit: 21st December, 2018.

# Employment and Teaching

J.D. Birla Institute, Assistant Professor: March, 2011 to July, 2011

Courses Taught: Business Mathematics (Set Theory, Probability Theory, Statistics).

Supreme Knowledge Foundation Group of Institution, Assistant Professor: July, 2011 to May, 2012

Courses Taught: Infinite Series, Calculus of Functions of One Variable, Vector Calculus, Graph Theory, Numerical Methods and Programming.

Presidency University, Guest Lecturer: January, 2014 to July, 2015

Courses Taught: Mathematical Logic, Ordered Algebraic Systems, Linear Algebra, Axiomatic Set Theory.

Lady Brabourne College, Guest Lecturer: September, 2016 to July, 2018

Courses Taught: Soft Computing (Fuzzy set theory, Fuzzy logic and Fuzzy topology).

Jadavpur University, Guest Lecturer: September, 2016 to March 2017

Courses Taught: Basics of Abstract Algebra, Lattice Theory.

Indian Institute of Technology, Kanpur (IITK), Tutor: February, 2021

Courses Taught: MTH101: Mathematics I (Analysis).

House no. 352, Indian Institute of Technology, Kanpur (IITK.)

Kalyanpur-208016, Uttar Pradesh, India

□ purbita\_presi@yahoo.co.in & purbita@iitk.ac.in

Indian Institute of Technology, Kanpur (IITK), Tutor: March, 2021

Courses Taught: MTH102: Linear Algebra and ODE.

Indian Institute of Technology, Kanpur (IITK), Tutor: December, 2021

Courses Taught: MTH101: Mathematics I (Analysis).

Indian Institute of Technology, Kanpur (IITK), Tutor: March, 2022

Courses Taught: MTH102: Linear Algebra and ODE.

Madras School of Economics, Assistant Professor: August, 2023

Courses Taught: Quantitative Method.

# Projects Undertaken as PI

1. Women Scientist Scheme-A (SR/WOS-A/PM-1010/2014),

o Title: A study of the interrelation between fuzzy topological systems and logics.

o Sponsoring Agency: Department of Science and Technology (DST)

Amount: Rs. 12,89,000/Start Date: 01/06/2015
End Date: 31/05/2018

2. Women Scientist Scheme-A (SR/WOS-A/PM-52/2018),

o Title: Categorical accommodation of logic, algebra, topology and topological system.

o Sponsoring Agency: Department of Science and Technology (DST)

Amount: Rs. 27,01,800/Start Date: 20/12/2019
End Date: 19/12/2022

# Master's Thesis Supervision

o Mr. Nitish Dubey, Department of Mathematics and Humanities, Sardar Vallabhbhai National Institute of Technology Surat (together with Dr. Sujata Ghosh of ISI Chennai and Dr. Shailesh Kumar Shrivastava of Sardar Vallabhbhai National Institute of Technology Surat).

# Informal Project Supervision

- o Mr. Pronobesh Maity, Department of Physics, Presidency University.
- o Ms. Tejas Jain, Indian Institute of Technology Kanpur (IITK).
- o Ms. Romasha Guin, National Institute of Technology Durgapur.

# Projects Undertaken

- o Dynamic Epistemic Logic Project(Winter Project) at University of Amsterdam under Prof. Dr. Johan van Benthem and Dr. Davide Grossi
- o Philosophical Logic Project on Moore's Paradox and Update Semantics with Peter Fritz at ILLC, University of Amsterdam under Prof. Frank Veltman.
- o Summer project on Models of Set Theory(mainly a reading course) at University of Amsterdam under Prof. Benedikt Loewe and Dr. Yurii Khomskii.
- o Philosophical Logic Final Project Paper- "A Note on Epistemic Modals and Contradictions" at ILLC, University van Amsterdam under Prof. Frank Veltman.
- Duality via Logic-using aspects of Category Theory, at ILLC, University van Amsterdam under Dr. Raul Leal Rodingen.
- Reasoning about authentication protocols in distributed systems using modal logic at TIFR, Mumbai under Prof. N. Raja.

## Talks in Conferences and Seminars

- 1. Topology Via logic, Calcutta Logic Circle, Monday Seminar.
- 2. Second periodicity Theorem, Seminar on Mathematical Logic, University of Amsterdam.
- 3. Fuzzy Topological Spaces and related Algebraic Structures, BLAST 2013, Chapman University, Orange, Southern California, August 5-9, 2013.
- 4. Categories of Fuzzy Topological Systems and Algebras representing some logics, The 13th Asian Logic Conference 2013, Guangzhou, China, September 16-20, 2013.
- Categories of Fuzzy Topological systems and algebras representing some logics, International Conference on Facets of Uncertainties and Applications (ICFUA 2013), Kolkata, India, December 5-7, 2013
- 6. Category Theory, Calcutta Logic Circle, Monday Seminar.
- 7. Categorical relationships of fuzzy topological systems on fuzzy sets with fuzzy topological spaces on fuzzy sets and underlying algebras: A step towards many valued geometric logic, The 14th Asian Logic Conference 2015, IIT Bombay, Mumbai, India, January 5-8, 2015.
- 8. Fuzzy Topology via Fuzzy Geometric Logic with Graded Consequence, 36th Linz Seminar on Fuzzy Set Theory, February 2-6, 2016, Linz, Austria.
- 9. L-topology via generalised geometric logic, 9th Indian Conference on Logic and its Applications (ICLA 2021), A virtual conference, March 4 7, 2021 (poster presentation).
- 10. Ethical Agents, 34th Stony Brook International Conference on Game Theory, July 24 27, 2023.

#### Invited Talks

- 1. On categorical relationship between structures and spaces, Indian Statistical Institute (ISI), Chennai, April, 2012.
- 2. On Categorical Relationship among various Fuzzy Topological Systems, Fuzzy Topological Spaces and related Algebraic Structures, Seminar on Logic and Cognition (SLC 2013), Kolkata, India, October 30- November 1, 2013.
- 3. Various Fuzzy Topological Systems, Fuzzy Topological Spaces, related Algebraic Structures and their Categorical Relationships, International Seminar on History and Philosophy on Mathematics, Kolkata, India, February 20-22, 2014.
- 4. Fuzzy Topological Space via Fuzzy Geometric Logic with Graded Consequence, Annual Workshop on Logic and its Applications, IBRAD, Kolkata, India, November 6-8, 2015.
- 5. Fuzzy Topological Space via Fuzzy Geometric Logic with Graded Consequence, International Seminar on History and Philosophy of Mathematics II: Pluralism in Mathematics, Golpark, Kolkata, December 10-12, 2015.
- 6. Fuzzy Topology via Fuzzy Geometric Logic and some Generalization using Graded Consequence, University of Warsaw, Poland, February, 2016.
- 7. Graded frame and Logic, 6th Indian School on Logic and its Applications (ISLA) part II, Jadavpur University, Kolkata, India, August 22-27, 2016.
- 8. Fuzzy Topology via Fuzzy Geometric Logic with Graded Consequence, University of Salerno, Italy, September, 2016.
- 9. Generalised Topology via Generalised Geometric Logic, International Conference of The Indian Mathematics Consortium (TIMC), Varanasi, India, 2016.
- 10. Fuzzy Topological System, Fuzzy Topology and related Logic, Indian Institute of Technology Roorkey, Roorkey, India, April 26, 2017.
- 11. Graded Frame and related Mathematical structures, CECAT, Chapman University, Orange, California, U.S.A, May 10, 2017.
- 12. Graded Frame vs Generalised Geometric Logic, OAL 2017 Baton Rouge, Louisiana, USA, May 15-17, 2017.

- 13. Frame vs. Topological space, Indian Institute of Technology, Delhi, Delhi, India, June 7, 2017.
- 14. Categorical accommodation of algebra, topology, topological system and logic, Università degli Studi di Milano, Italy, June 14, 2018.
- 15. Category Theory, 7th Indian School on Logic and its Applications (ISLA), VIT, Vellore September 29-October 3-November, 2018.
- Heyting Algebra and Gödel Algebra vs. various Topological Systems and Esakia Space, Order, Algebra, Logic, and Real Algebraic Geometry (OAL-RAG 2019), Baton Rouge, Louisiana, USA, May 6-8, 2019.
- 17. Intuitionistic topological systems and their connections with Heyting algebra and Gödel algebra, Mathematics, Physics, and Computation Seminars (MPC Seminar), Chapman University, Orange, California, U.S.A, May 16, 2019.
- 18. Introduction to Category Theory, Department of Pure Mathematics, University of Calcutta (virtual meet), August 15, 2020.
- 19. Logic, Algebra, Topology, Topological System and their interconnections, Logic webinar @ IITK, February 12, 2021.
- 20. Lecture series on Topology via logic and its generalizations, Calcutta Logic Circle Weekly Seminar, May 4 July 13, 2021.
- 21. Fuzzy  $\alpha$ -cut in Rough Sets, An International Conference on Rough Sets Generalizations & Applications, November 11-13, 2021.
- 22. Generalizations of topological system: the unifying framework of logic, topology and algebra, Seminar in Philosophy, Logic and Games (Philog Seminar), City University of New York (CUNY), August 31, 2022 (virtual).
- 23. L-valued frame and related structures, Special Session for the Central Sectional Meeting of the AMS, session on "Ordered Structures", The University of Texas at El Paso, September 17-18, 2022.
- 24. Fuzzy  $\alpha$ -cut in probabilistic rough set theory, Rough Set Day, November 10, 2022 (virtual).
- 25. Role of multi valued logic to model ethical agent, 22nd Annual Conference of the Calcutta Logic Circle August 12 14, 2023.
- 26. L-valued frame and related mathematical structures, Fuzzy Sets and Fuzzy Logic Generalizations & Applications, September 6 8, 2023.

# Some of the Conference/Seminar/School Attended

- 1. Calcutta Logic Circle(regular member)
- 2. Second Indian Winter School on Logic, IIT Kanpur, January 14-26, 2008.
- 3. Third Indian Conference on logic and its application, IMSc Chennai, January, 7-11, 2009.
- 4. Logic and Interactive Rationality Seminar and working sessions (weekly meeting), University of Amsterdam.
- 5. Set theory, Classical and constructive, University of Amsterdam, May 6-7, 2010.
- 6. An intensive course on model theory by Jouko Vaeaenaenen, University of Amsterdam, May11-17, 2010.
- 7. Logic Colloquium 2010, Paris, July 25-31.
- 8. Mathematical Logic and Set Theory, IMSc Chennai, August 13-15, 2010.
- 9. International Congress of Mathematicians, Hyderabad, India, August 19-27, 2010.
- 10. Fourth Indian Conference on logic and its application, Delhi University, January 5-11, 2011.
- 11. Fourth Indian School on Logic and its applications, Manipal University, January 9-20, 2012.
- 12. TARK 2013, Institute of Mathematical Sciences, Chennai, January 7-9, 2013.
- 13. Fifth Indian Conference on logic and its application, Institute of Mathematical Sciences, Chennai, January 10-12, 2013.
- 14. Topology, Algebra, and Categories in Logic (TACL) 2013, Department of Mathematics, Vanderbilt University, Nashville, U.S.A, July 24-August 1, 2013.

- 15. Diagram, Logic and Cognition 2013, Kolkata, India, October 28-29, 2013.
- 16. Fifth Indian School on Logic and its applications, Tezpur University, January 6-17, 2014.
- 17. 5th World Congress on Paraconsistency, Kolkata, India, February 13-17, 2014.
- 18. International Congress of Mathematicians, Seoul, Korea, August 13-21, 2014.
- 19. 6th Indian Conference on logic and its application, IIT Bombay, Mumbai, India, January 8-10, 2015.
- 20. Topology, Algebra, and Categories in Logic (TACL) 2015, Campus of Salerno and Ischia, Italy, June 15-26, 2015.
- 21. Complexity, Algorithms, Automata and Logic Meet (CAALM) Chennai Mathematical Institute, India, January 21-25, 2019.
- 22. Eighth Indian Conference on Logic and its Applications 2019 (ICLA 2019), Indian Institute of Technology Delhi, India, March 1–5, 2019.
- 23. Fourth Symposium on Compositional Structures (SYCO 4), Chapman University, California, USA, May 22-23, 2019.

# ——— Awards and Scholarships

- Appreciation letter from Director, IIT Kanpur for excellence in teaching, as tutor, for the course MTH102.
- o Bimal Krishna Matilal Logic Prize 2021, Runner-up candidate.
- Women Scientist Scheme-A, Department of Science and Technology (DST), 2019.
- o Institute Travel Grant, The Institute of Mathematical Sciences, 2019.
- o Post Doctoral Fellowship, The Institute of Mathematical Sciences, 2018.
- o Post Doctoral Fellowship, University of South Africa, 2018 (Declined).
- o Post Doctoral Fellowship, Sun Yat Sen University, 2017 (Declined).
- o **IERTNiL Research Travel Grant**, Indo-European Research and Training Network in Logic, 2016
- o **IERTNiL Research Travel Grant**, Indo-European Research and Training Network in Logic, 2015.
- o ASL Travel Grant Award, Association for Symbolic Logic, 2015.
- Women Scientist Scheme-A, Department of Science and Technology (DST), 2014.
- o University Research Fellowship, University of Calcutta, University Grant Commission, 2014.
- o Visiting PhD student (March-April, 2013) at ISI, Chennai, with stipend.
- o University Travel Grant, University of Calcutta, University Grant Commission, 2013.
- o ASL Travel Grant Award, Association for Symbolic Logic, 2013.
- o NBHM Travel Award, National Board of Higher Mathematics, 2013.
- Won 2nd prize for giving the Best Final Presentation among the participants of the Indian Academy of Sciences Summer Fellowship Programme 2012 at TIFR, Mumbai.
- VSRP 2012 at TIFR, Mumbai, India through IAS with Science Academies' Summer Research Fellowship 2012.
- o GATE 2012.
- Erasmus Mundus External Cooperation Window Lot 15 (EM ECW15) Scholarship, 2009-2010.
- o 32 hour (2001) course of General English from British council Training Centre.
- Won Gold medals in Mathematical Science talent test organized by the "Centre for Pedagogical Studies in Mathematics".

# Professional Activities

• Executive Committee member of Association for Logic in India.

- o Program Committee member of FedCSIS 2023.
- Organiser and Program Committee member of Indian School of Logic and its Applications(ISLA Part I) 2022, at Indian Institute of Technology Kanpur (IITK).
- o Convener of 21st Annual Meet of Calcutta Logic Circle 2022 https://sites.google.com/view/clc-annual-meet-2022/home?authuser=0
- Co-organiser of Logic Webinar @ IITK https://sites.google.com/view/logic-webinar-iitk/home?authuser=0
- o Instructor of the short course on Universal Algebra https://sites.google.com/view/logic-webinar-iitk/short-coursesreading-groups/universal-algebra?authuser=0
- o Member of Calcutta Logic Circle http://home.iitk.ac.in/~mohua/CLC.html.
- Member of American Mathematical Society (AMS)
- Member of The Association for Symbolic Logic (ASL).
- Member of Association for Logic in India (ALI).
- o Member of Working group on mathematical fuzzy logic (MathFuzzLog).
- o Member of Organizing Committee of Annual meet of Calcutta Logic Circle.
- Member of Organizing Committee of International Seminar on History and Philosophy of Mathematics II: Pluralism in Mathematics, 2015.
- o Member of Organizing Committee of ISLA (part-II), 2016.
- o Project supervision: Pronobesh Maity, B.Sc. (Hons) in Physics, Presidency University.
- Reviewer of Indian Journal of Pure and Applied Math.
- o Reviewer of Soft Computing.
- Math reviewer of AMS.
- Reviewer of the journal Annals of Fuzzy Mathematics and Informatics (AFMI).
- Reviewer of the journal Iranian Journal of Fuzzy Systems.
- o Reviewer of Transactions on Rough Sets.
- o Reviewer of International Joint Conference on Rough Sets 2017 (IJCRS 2017).
- o Chair of 1st Symposium on Formal Approaches to Vagueness in Relation to Mereology (FVRM'20), Sofia, Bulgaria, 6 9 September, 2020.

# Languages

Bengali Fluent

Mother tongue

Hindi Fluent English Fluent

#### Extra Curricular Achievements

- o Painting (Sarba Bharatiya Sangeet O Sanskriti Parisad)
- Music (Sanrba Bharatiya Sangeet O Sanskriti Parisad)

#### References

o Prof. Revaz Grigolia

Department of Mathematics Ivane Javakhishvili Tbilisi State University, Georgia

Phone: +99532307055revaz.grigolia@tsu.ge

o Prof. Frank Veltman

Professor Emeritus of Logic and Cognitive Science

Institute for Logic, Language and Computation

University of Amsterdam

Distinguished Professor of Linguistics

College of Foreign Languages

Hunan University, Changsha

f.j.m.m.veltman@uva.nl

o Prof. Frederick K. Dashiell, Jr.

Department of Mathematics

University of California, LA (UCLA)

Phone: +13105087362 dashiell@math.ucla.edu

o Prof. R Ramanujam

Theoretical Computer Science

The Institute of Mathematical Sciences (IMSc.)

 $\begin{array}{ll} {\rm Phone:} \ 04422543269 \\ jam@imsc.res.in \end{array}$ 

o Prof. Antonio Di Nola

Department of Mathematics

University of Salerno, Italy

Phone: +393396514575 adinola@unisa.it

• Prof. Sujata Ghosh

Computer Science Unit

Indian Statistical Institute, Chennai

110 Nelson Manickam Road, Aminjikarai, Chennai - 600 029, India

Phone: +917550086280 sujata@isichennai.res.in

o Prof. N. Raja

School of Technology & Computer Science Tata Institute of Fundamental Research

Mumbai 400 005, India Phone: +91-22-22782312

Fax: +91-22-22804610 / 22804611

raja@tifr.res.in