RAMAKRISHNA NANDURI

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PRESENT POSITION(Since June 2022)

Associate Professor
Department of Mathematics
Indian Institute of Technology Kharagpur
West Bengal, INDIA

AREAS OF INTEREST

Commutative Algebra
Combinatorial Commutative Algebra

Ph.D STUDENTS

- Rimpa Nandi (finished (2020))
- Manohar Kumar (on going)
- Tapas Kumar Roy (on going)

M.Sc PROJECT STUDENTS

- 12 (finished)
- 2 (on going)

ACADEMIC QUALIFICATIONS

Ph.D Mathematics	2011	Indian Institute of Technology Madras Chennai, INDIA Title of the thesis: **On certain homological properties of fiber cone** Thesis Advisor: Prof. A. V. Jayanthan
M.Sc. (Pure Mathematics)	2005	Hyderabad Central University Hyderabad, INDIA
B.Sc. (Mathematics, Statistics & Computer Science)	2003	SRR & CVR Govt. Degree college Aacharaya Nagarjuna University Vijayawada, INDIA

RESEARCH EXPERIENCE

November 2014 to May 2022	Assistant Professor	IIT Kharagpur, INDIA
19/11/2012 to 11/2014 (2 years)	INdAM-COFUND Marie Curie Fellow	Dipartimento di Matematica, Universitá degli Studi di Genova, Genova, ITALY
17/06/11 to 15/11/12 (1 year 5 months)	Post Doctoral Fellow	The Institute of Mathematical Sciences, Chennai, INDIA
02/2008 to 05/2011	Senior Research Fellow Department of Mathematics	Indian Institute of Technology Madras Chennai, INDIA
01/2006 to 01/2008	Junior Research Fellow Department of Mathematics	Indian Institute of Technology Madras Chennai, INDIA

TEACHING EXPERIENCE

Academic year	Autumn	Spring
$2021-22$	Advanced Calculus(MA10001)(B.Tech)	Measure Theory & Integration(MA51002)(M.Sc)
$2020-21$	Matrix Algebra(MA20107)(B.Tech)	Mathematics-II(MA10002)(B.Tech)
$2019-20$	Mathematics-I(MA10001)(B.Tech)	Mathematics-II(MA10002)(B.Tech)
$2018-19$	Matrix Algebra(MA20107)(B.Tech) Galois Theory (MA71003)(M.Sc)	Mathematics-II(MA10002)(B.Tech) Measure Theory & Integration(MA51002)(M.Sc)
$2017-18$	Matrix Algebra(MA20107)(B.Tech) Galois Theory (MA71003)(M.Sc)	Mathematics-II(MA10002)(B.Tech) Commutative Algebra(MA71002)(M.Sc)
$2016-17$	Matrix Algebra(MA20107)(B.Tech) Galois Theory (MA71003)(M.Sc)	Mathematics-II(MA10002)(B.Tech) Modern Algebra(MA41002)(M.Sc)
$2015-16$	Matrix Algebra(MA20107)(B.Tech)	Mathematics-II(MA10002)(B.Tech)
$2014-15$		Mathematics-II(MA10002)(B.Tech) Modern Algebra(MA41002)(M.Sc)

FELLOWSHIPS/AWARDS/PRIZES

[1] Awarded INdAM-COFUND Marie Curie Fellowship in Mathematics and/or Applications for experienced researchers cofunded by Marie Curie Actions, 2012, jointly given by Italy Government and Europian Union, for the period 2012-2014.

[2] 3rd ranker for the INdAM-COFUND Marie Curie Fellowship in Mathematics and/or Applications for experienced researchers cofunded by Marie Curie Actions, 2012.

[3] Selected for National Board of Higher Mathematics (NBHM) Post Doctoral Fellowship in the year 2011.

[4] Institute Post Doctoral Fellowship, The Institute of Mathematical Sciences (IMSc), Chennai, INDIA.

[5] Qualified the National Eligibility Test (NET) conducted by UGC/CSIR for Lectureship in June 2005.

[6] Council of Scientific and Industrial Research(CSIR) JRF and SRF fellowships for doing Ph.D 2006 to 2011, at the Department of Mathematics, IIT Madras.

[7] Received a medal for "Mathematics First" for getting highest marks in Mathematics in B. Sc in 2003 at SRR & CVR Govt. Degree College, Vijayawada, Andhra Pradesh.

[8] School first in X^{th} standard in 1998 at M K Baig MCH School, Vijayawada, Andhra Pradesh.

PUBLISHED/COMMUNICATED RESEARCH PAPERS

[1] **Manohar Kumar** and **Ramakrishna Nanduri**; *Regularity of powers of edge ideals of Cohen-Macaulay weighted oriented forests*; (preprint) (2022).

[2] **Ramakrishna Nanduri**; *On regularity of symbolic Rees algebras and symbolic powers of vertex cover ideals of graphs*; **Proceedings of the American Mathematical Society**, **150** (2022), no.5, 1955-1965.

[3] **Rimpa Nandi** and **Ramakrishna Nanduri**; *Upper bounds for the regularity of gap-free graphs in terms of minimal triangulation*, **Int. J. Appl. Comput. Math.** 7 (2021), no. 6, Paper No. 236, 9 pp.

[4] **Rimpa Nandi** and **Ramakrishna Nanduri**; *On regularity of Rees algebras of edge ideals of cone graphs*; **Indian J. Pure. Appl. Math.**(Accepted/In press)(2021).

[5] **Rimpa Nandi** and **Ramakrishna Nanduri**; *On regularity bounds and linear resolutions of toric algebras of graphs*; **Journal of Commutative Algebra** (Accepted/In press)(2019).

[6] **Mousumi Mandal** and **Ramakrishna Nanduri**; *Regularity comparison of fiber cone and associated graded ring*; **Beiträge zur Algebra und Geometrie. Contributions to Algebra and Geometry**, **61** (2020), no. 2, 219–229.

[7] **Rimpa Nandi** and **Ramakrishna Nanduri**; *Betti numbers of toric algebras of certain bipartite graphs*; **J. Algebra Appl.** 18 (2019), no. 12, 1950231, 18 pp.

[8] **Ramakrishna Nanduri**; *On bigraded regularities of Rees algebra*; **Proc. Indian Acad. Sci. Math. Sci.** 127 (2017), no. 4, 599–614.

[9] **A. V. Jayanthan** and **Ramakrishna Nanduri**; *On the relation type of fiber cone*; **Acta Math. Vietnam**, 40 (2015), no.3, 535–544.

[10] **Ramakrishna Nanduri**; *A family of irreducible free divisors in* $\mathbb{P}^2$; **J. Algebra Appl.** 14, (2015), no.7, 11pp.

[11] **Ramakrishna Nanduri**; *Hilbert coefficients of Schubert varieties in Grassmannians*; **J. Algebra Appl.** 14 (2015), no.3, 16pp.

[12] **A. V. Jayanthan** and **Ramakrishna Nanduri**; *On the depth of fiber cones of stretched* $\mathfrak{m}$-*primary ideals*; **Indian J. Pure. Appl. Math.** 46 (2014), no.6, 925–942.

[13] **A. V. Jayanthan** and **Ramakrishna Nanduri**; *Castelnuovo-Mumford regularity and Gorensteinness of fiber cone*; **Comm. Algebra**, 40 (2012), no.4, 1338–1351.

CONFERENCE/WORKSHOP PROCEEDINGS

[1] **A. V. Jayanthan** and **Ramakrishna Nanduri**; *Depths and Hilbert coefficients of fiber cones of stretched* $\mathfrak{m}$-*primary ideals*, Proceedings of the 7th **Japan-Vietnam Joint Seminar on Commutative Algebra**, held at Quy Nhon University, **VIETNAM**, during $12 - 16$ December 2011.

PROJECTS

1. Title: On regularity of symbolic Rees algebras of edge and vertex cover ideals of graphs
   Sponsor: SERB
   Period: 2022-2025

2. Title: Syzygies, deformations of Koszul algebras and regularity of modules over them
   Sponsor: National Board for Higher Mathematics (NBHM)
   Period: $2017 - 2020$

3. Title: Koszul algebras
   Sponsor: ISIRD-SRIC, IIT Kharagpur
   Period: 2015-2018

INVITED TALKS IN CONFERENCES/WORKSHOPS/COLLOQUIUM

[1] Title:*Regularity of symbolic and ordinary powers of certain ideals associated to the graphs*; Seminar Series, The University of the West Indies, (30 September 2021).

[2] Title:*On regularity of Rees algebras of edge ideals of graphs*, **Workshop on Commutative Algebra**, Ramakrishna Mission Vivekananda Educational & Research Institute, Belur Math., Howrah. (2nd November 2019).

[3] Title:*Betti numbers of toric algebras of certain bipartite graphs*, **National Conference on Commutative Algebra and Algebraic Geometry(CAAG) 2019**, IISER, Bhopal,2-6 July 2019.

[4] Title: *On the relation type of fiber cone*, **EACA's second international school on computer algebra and applications**, Valladolid, SPAIN, 24–28 June 2013.

[5] Title: Castelnuovo-Mumford regularity and Gorensteinness of fiber cone, **CoCoA School 2013**(Poster), Universität Osnabrück, GERMANY, 10–14 June 2013.

[6] Title: *Castelnuovo-Mumford regularity and Gorensteinness of fiber cone*, **INdAM Post Doctoral Seminar**, DIMA, University of Genova, ITALY, on 27th March 2013.

[7] Title: *Free divisors*, **INdAM Post Doctoral Seminar**, DIMA, University of Genova, ITALY, on 6th February 2013.

[8] Title: *Combinatorial formulas for the Hilbert coefficients of Schubert varieties in Grassmannians*, in the 20th **National School on Algebra on "Discrete Invariants in Commutative Algebra and in Algebraic Geometry"**, held at Mangalia, ROMANIA, during 2–8 September 2012.

[9] Title: *Hilbert coefficients of Schubert varieties in Grassmannians*, in the **"Institute Colloquium"**, The Institute of Mathematical Sciences (IMSc), Chennai, INDIA.

[10] Title: *Depths and Hilbert coefficients of fiber cones of stretched $\mathfrak{m}$-primary ideals*, at the 7th **Japan-Vietnam Joint Conference/Seminar on Commutative Algebra**, held at Quy Nhon, VIETNAM, during 12 – 16 December 2011.

[11] Title: *On the lengths of quotients of ideals and depths of fiber cones*: at **National conference on Commutative Algebra and Algebraic Geometry (CAAG 2009)**, held at Indian Institute of Technology Madras and Chennai Mathematical Institute, Chennai, INDIA, during 6 – 10 July 2009.

CONFERENCES/WORKSHOPS ORGANIZED

[1] **Advanced Instructional School on Advanced Commutative Algebra(AIS)**, IIT Kharagpur, 2-14 December 2019 (Supported by the National Center for Mathematics(NCM)).

CONFERENCES/WORKSHOPS ATTENDED

[1] Genova-Torino-Milano Seminar: some topics in Commutative Algebra and Algebraic Geometry, held at Milano, 28–29 January 2014.

[2] Meeting "Giornata di Geometria Algebrica Genova-Nizza", held at DIMA, University of Genova, ITALY, on 8th November 2013.

[3] The 20th National School on Algebra on "Discrete Invariants in Commutative Algebra and in Algebraic Geometry", held at Mangalia, **ROMANIA**, during 2–8 September 2012.

[4] **Workshop on Computational Commutative Algebra and Algebraic Geometry**, held at NIIT Neemrana, Rajastan, during 16–28 January 2012.

[5] The 7th **Japan-Vietnam Joint Conference/Seminar on Commutative Algebra**, held at Quy Nhon University, Quy Nhon City, **Vietnam**, during 12 December 2011 – 16 December 2011.

[6] Advanced Training in Mathematics School, **Workshop and Conference in Commutative Algebra,** held at Indian Institute of Technology Bombay, Mumbai, during 1 st July 2011 – 12 th July 2011.

[7] **International Conference on Commutative Algebra and Algebraic Geometry (CAAG 2010),** held at Indian Institute of Science (**IISc**), Bangalore, India during 6 December 2010–10 December 2010.

[8] **International congress of Mathematicians (ICM), 2010** held at Hyderabad, INDIA, during 19 August– 27 August 2010.

[9] **School and Workshop on local rings and local study of algebraic varieties,** held at the International Centre for Theoretical Physics (**ICTP**), Trieste, **Italy**, during 31 May 2010 – 11 June 2010.

[10] **National conference on Commutative Algebra and Algebraic Geometry (CAAG),** held at Indian Institute of Technology Madras and Chennai Mathematical Institute, Chennai, India, during 6 July 2009 – 10 July 2009.

[11] **Golden Jubilee Workshop on Multiplicity Conjectures, Resolution of Singularities and Toric Geometry**, held at Indian Institute of Technology Madras, Chennai, India, during 22 December 2008 – 3 January 2009.

[12] **CIMPA School on Commutative Algebra** , held at Indian Institute of Technology Bombay, Mumbai, India during 2 January 2008 – 6 January 2008.

[13] **Workshop in Commutative Algebra and Algebraic Geometry,** held at ATM Workshop, Indian Institute of Technology Madras, Chennai, India, during 10 June 2007 – 23 June 2007.

[14] **Advanced Training in Mathematics Schools**, Third Annual Foundation School(Part-1), held at The Institute of Mathematical Sciences(IMSc), Chennai, India. during 4 December 2006 – 30 December 2006.

MEMBERSHIP DETAILS

[1] A life member of the Indian Mathematical Society (IMS)(since 2019).

REVIEWER

[1] A reviewer for the **Zentralblatt MATH** (since 2013).

[2] A reviewer for the American Mathematical Society(since 2019).