

Dr. Sonica



Designation- Assistant Professor

Department name- Mathematics

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h- Index-0

i10- Index-0

Areas of Interest

- Algebraic Geometry; Algebraic and Combinatorial invariants encoded in minimal graded free resolution of homogenous ideals in a polynomial ring, namely, Hilbert Function, Graded Betti numbers, projective dimension, regularity, etc.

Educational details

Degree	Year	University	Percentage	Medals/ Positions
PhD	2016	Indian Institute of Science Education and Research Mohali	10 CGPA	
MSc Mathematics	2010	Indian Institute of Technology Delhi	8.788 CGPA	
BSc (Non-Medical)	2008	Govt. Mohindra College, Punjabi University, Patiala (Punjab)	86.7%	Gold medalist/ 1st rank holder in University for three consecutive years

Professional Details

Designation	From	To	Organization
Senior lecturer Mathematics	July, 2010	Dec, 2010	Lovely Professional University, Jalandhar
Asst. Prof. in Mathematics	September 08, 2016	May 31, 2017	Central University of Jammu, Jammu
Asst. Prof. in Mathematics	July 22, 2017	Present	MCM DAV College for Women, Chandigarh

Awards & Recognitions

Award	Institute	Year
NET- JRF	UGC	June, 2010
GATE	IIT	Feb, 2010
Fellowship for university rank holders for post graduation	UGC	2008-2010
Gold Medal (First in three consecutive years of graduation)	Panjabi University, Patiala	2005-2008
College colour	Govt. Mohindra College, Patiala	2005 -2006, 2006-2007
P C Ray silver Medal	Govt. Mohindra College, Patiala	2006
Nishant Memorial Medal	Govt. Mohindra College, Patiala	2006
Travel Grant for International Conference	DST	2015

Research Publications

Title	Journal	Refereed	Date and Year of Publication	Online Link
On a Conjecture on Linear Systems	Proc. Indian Acad. Sci. (Math Sci.)	Yes	June 03, 2017	https://doi.org/10.1007/s12044-017-0335-6
Finite Groups, Monomial Ideals and a subdivision of a Simplex	GANITA, Proceeding of NCMRT	Yes	November, 2018	http://bharataganitaparisad.com/wp-content/uploads/2019/04/ch5-68-3.pdf
Skelton Ideals of certain graphs, Standard Monomials and Spherical Parking Functions	The Electronic Journal of Combinatorics	Yes	March, 2021	https://doi.org/10.37236/9874
Graded Betti numbers of some families of circulant graph	Rocky Mountain Journal of Mathematics	Yes	December, 2021	https://doi.org/10.1216/rmj.2021.51.1919

Miscellaneous

- Deputy Superintendent of Examination held in December 2016, March 2017 and May 2017 at Central University of Jammu.
- Organizer of Light Vocal Solo(Cultural event) in UDAAN fest held in February, 2017 at Central University of Jammu.
- Organizer in `Science Academies' Lecture Workshop on Algebra and Geometry" organized by Department of Mathematics, Central University of Jammu, Funded by IASc. Bangalore, INSA New Delhi, NASI Allahabad held on March 24-25, 2017.

- **Organizer in National Seminar on “Emerging Trends and Innovation in Mathematics, organized by PG Department of Mathematics, MCM DAV College for Women, Chandigarh, Funded by DCDC Panjab University, Chandigarh held on February 09, 2019.**
- **Contributory talk in ‘Student Tropical Algebraic Geometry Symposium’, Brown University, Providence, Rhode Island, USA (April 17-19, 2015).**
- **Invited talk in the symposium on ‘Commutative Algebra and Algebraic Geometry’ in 30th Annual conference of Ramanujan Mathematical Society, IISER Mohali (May 15-17, 2015).**
- **Invited talk in seminar session at Jawaharlal Nehru University, New Delhi. (August 21, 2015).**
- **Poster presentation in ‘Young Women in Algebraic Geometry’ workshop at University at Bonn, Bonn, Germany (October 5-7, 2015).**