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Contact Indian institute of science education and research, Information Tirupati

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# Research Background

#### Algebraic Geometry

More specifically, I am studying parabolic bundles on real algebraic curves and d-holomorphic bundles on Klein surfaces. I have described certain gauge theoretic quotients of certain space of connections for parabolic bundles on real algebraic curve as embedded in real points of moduli of parabolic bundles on compact Riemann surface along with criteria for existence of d-holomorphic connection for dholomorphic bundle on Klein surface. Presently, I am studying some algebro geometric properties associated to some moduli spaces.

Education	2023(ongoing)	Indian institute of science education and research, Tirupati(IISER T), India  • Postdoc in Department of Mathematics
	2017–2023	Indian Institute of Technology, Gandhinagar(IITGn), India
		• Ph.D. in Discipline of Mathematics, CPI: <b>7.94</b> – via 44 credits.
		• Thesis: On d-holomorphic connections and gauge theoretic aspects of parabolic bundles over Klein surface
		Advisor: Prof. Sanjaykumar Amrutiya.
	2013–2015	Indian Institute of Technology, Kanpur(IITK), India.

### **Technical** Skills

- Programming Languages: C, Python
- Technical Softwares: MATLAB, Git-hub, Latex

### Research Interests

### Algebraic Geometry

- Parabolic bundles
- *d*-holomorphic bundles

## Selected Publications/Preprints

Sanjay Amrutiya, Ayush Jaiswal, "On d-holomorphic connections", Proceedings-Mathematical Sciences 133, no. 2 (2023): 21.

• M.Sc., Mathematics. CPI: 7.2 - via 80 credits

🗷 Sanjay Amrutiya, Ayush Jaiswal, "A gauge theoretic aspects of parabolic bundles over Klein surfaces", arXiv preprint arXiv: 2202:06210; 2022 (to be appear in Rocky mountain journal of mathematics)

Professional	2010-2011	Secured 2nd position(merit based) in during B.Sc.(IInd year)
Achieve- ments/Awards/ Scholarships	2013	Joint Admission Test for Masters(JAM) organised by Indian Institute of Technology, Delhi(IITD)
	2015	Graduate Aptitude Test for Engineering(GATE) organised by Indian Institute of Technology, Kanpur(IITK)
	2016	Graduate Aptitude Test for Engineering(GATE) organised by Indian Institute of Science, Bangalore(IISC)

	2015,2016	
Workshops/ Conferences attended	10 Feb – 14 Feb, 2020	Moduli of bundles and related structures ICTS, Bangalore, India.
	4 Mar – 15 Mar, 2019	Workshop Characteristic classes and cobordism IIT Bombay, Powai, Maharashtra, India.
	24 June–13 July 2019	AIS(Advanced Instructional School)  Linear Algebraic Groups  IIT Bombay, Powai, Maharashtra, India.
	2 January – 2 May, 2021	AIC(Advanced Instructioncal Course)  Commutative Algebra online mode.
Delivered Talks/Poster Presentations	25 June – 14 July, 2018	AIS(Advanced Instructional School)  Basic Algebraic Geometry  IISER Pune, Pune, Maharashtra, India.
	12 Dec – 16 Dec, 2022	On d-holomorphic connections (Talk)  Conference on Algebraic Geometry  Harish Chandra Research Institute, Prayagraj, India.
	6 Feb – 11 Feb, 2023	On d-holomorphic connections (Poster)  Vector bundles in Chennai  Department of mathematics, IIT Madras, Chennai, India.
	16 Aug – 18 Aug, 2023	Orientability and Poincare duality theorem (Poster)  Occassion of Pi-Day  Department of mathematics, IIT Gandhinagar, Gujarat, India.
	16 Aug – 18 Aug, 2023	On d-holomorphic connections (Talk)  Discussion meeting on algebra and geometry  Department of mathematics, IISER Bhopal, Madhya Pradesh, India.
Teaching Experience	Autumn 2017 – 2018	Teaching Fellow MA 101, Mathematics I(Real Analysis and Several Variable Calculus) at IIT Gandhinagar, Gujarat, India
	Spring 2018 – 2019	Graduate Teaching Fellow MA 102, Mathematics II(Linear Algebra and Differential Equations) at IIT Gandhinagar, Gujarat, India
	Autumn 2019 – 2020	Graduate Teaching Fellow MA 504, Linear Algebra at IIT Gandhinagar, Gujarat, India
	Spring 2019 – 2020	Graduate Teaching Fellow MA 102, Mathematics II(Several Variable Calculus and Complex Analysis) at IIT Gandhinagar, Gujarat, India
	Spring 2022–2023	Teaching assitant MTH 121, Linear algebra and applications at IISER Tirupati, Tirupati, Andhra Pradesh, India
	Summer 2022–2023	Instructor MTH 122, Linear algebra and applications at HSER Tirupati, Tirupati, Andhra Pradesh, India
	Summer 2022–2023	Instructor MTH 211, Multivariable Calculus at IISER Tirupati, Tirupati, Andhra Pradesh, India
	Autumn 2023–2024	Teaching assitant MTH 211, Probability theory and statistics at IISER Tirupati, Tirupati, Andhra Pradesh, India