CHAKRABORTY Dipayan

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Research interests: identification problems in graphs, domination numbers, graph colorings, graph homomorphisms, radio labeling, graph modification problems

Current position

January, 2022–till date — **Ph.D in Computer Science — Algorithmique et structure des problèmes d'identification (Algorithmics and structures of identifications problems)**, *Laboratoire d'Informatique, de Modélisation et d'Optimisation des Systèmes (LIMOS), Université Clermont Auvergne*, France

Director — **Annegret WAGLER**, *LIMOS, Université Clermont Auvergne*, France

Co-supervisor — **Florent FOUCAUD**, *LIMOS, Université Clermont Auvergne*, France

Previous positions

January – December, 2021 — **Junior Research Fellow (JRF)**, *under SERB-SRG funded project titled "Complexity dichotomies of graph modification problems", Department of Computer Science and Engineering, Indian Institute of Technology Dharwad*, Karnataka, India

2016–2020 — **Teaching Faculty (Mathematics)**, *Department of Basic Science & Humanities, Gargi Memorial Institute of Technology, Maulana Abul Kalam Azad University of Technology*, Baruipur, Kolkata, India

2015–2016 — **Visiting faculty (Engineering Mathematics)**, *Department of Mathematics, Government College of Engineering and Ceramic Technology, Maulana Abul Kalam Azad University of Technology*, Kolkata, India

Educational trainings

2009–2012 — **Master in Mathematics (ALGANT Erasmus Mundus)**, *University of Bordeaux,* France (first year) – *University of Padova,* Italy (second year)

2004–2007 — **Bachelor of Science (Hons. in Mathematics)**, *St. Xavier's College, Kolkata, University of Calcutta*, Kolkata, India

Publications

Published — **On clique numbers of colored mixed graphs**, DC, Sandip Das, Soumen Nandi, Debdeep Roy and Sagnik Sen, *Discrete Applied Mathematics 324: 29-40 (2023)*
https://doi.org/10.1016/j.dam.2022.08.013

Submitted — **Progress towards the two-thirds conjecture on locating-total-dominating sets**, DC, Florent Foucaud, Anni Hakanen, Michael Henning and Annegret Wagler
Manuscript, 2022

Submitted **On three domination-based identification problems in block graphs**, DC, Florent Foucaud, Aline Parreau and Annegret Wagler
Manuscript, 2023

Conference proceedings

February, 2023 **On three domination-based identification problems in block graphs**, DC, Florent Foucaud, Aline Parreau and Annegret Wagler, *9th International Conference on Algorithms and Discrete Applied Mathematics (CALDAM 2023), Feb 2023, Gandhinagar, India. pp.271-283*
https://doi.org/10.1007/978-3-031-25211-2_21

February, 2023 **New bounds and constructions for neighbor-locating colorings of graphs**, DC, Florent Foucaud, Soumen Nandi, Sagnik Sen and DK Supraja, *9th International Conference on Algorithms and Discrete Applied Mathematics (CALDAM 2023), Feb 2023, Gandhinagar, India. pp.121-133*
https://doi.org/10.1007/978-3-031-25211-2_21

Ongoing research

- **Identifying codes in bipartite graphs of given maximum degree**, *with* Florent Foucaud, Tuomo Lehtilä
- **Contracting edges to destroy a pattern: A complexity study**, *with* Sandeep R.B
- **A linear algorithm for radio k-coloring powers of paths having small diameter**, *with* Soumen Nandi, Sagnik Sen and DK Supraja

Talks, Conferences Presentations & Summer Schools

February, 2023 **9th International Conference on Algorithms and Discrete Applied Mathematics**, (CALDAM 2023)
Hosted by: Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, India

September, 2022 **Maribor Graph Theory Conference**, (MGTC 2022)
Hosted by: Faculty of Natural Sciences and Mathematics, University of Maribor, Slovenia

July, 2022 **11th International Colloquium on Graph Theory and Combinatorics**, (ICGT 2022)
Hosted by: LIRMM–Laboratoire d'informatique, de robotique et de microélectronique de Montpellier, France

June, 2022 **School on Graph Theory**, *Murol, France*, (SGT 2022)
Organized by: LIMOS, Université Clermont Auvergne, France

May, 2021 **Annual Meeting of Homomorphisms of Signed Graphs**, (HOSIGRA 2021)
Hosted by: University of Bordeaux, University of Montpellier and University of Paris Diderot, France

Theses

Master thesis, 2012 **Mordell-Weil theorems & the Birch and Swinnerton-Dyer conjecture**, *Universita degli Studi di Padova*, Italy

Supervisor **Matteo LONGO**, *Universita degli Studi di Padova*, Italy

Courses Taught

2022 **IUT Clermont Auvergne, Aubière, France**

- **Methodes d'Optimisation**
  le Bachelor Universitaire de Technologie (BUT) Informatique – 2nd year

2016–2020 **Gargi Memorial Institute of Technology (GMIT) under Maulana Abul Kalam Azad University of Technology (MAKAUT), Kolkata, India**

- **Mathematics-I A & B** (Single & Multivariate Calculus || Linear algebra)
  Bachelor of Technology. (B. Tech) – 1st year
- **Mathematics-II A & B** (Probability & Statistics || Multivariate Calculus || Differential Equations || Complex Analysis)
  Bachelor of Technology (B. Tech) – 1st year
- **Mathematics-III** (Differential Calculus || Differential Equations || Partial Differential Equations || Integral Transforms || Probability & Statistics)
  Bachelor of Technology (B. Tech) – 2nd year
- **Mathematics-IV** (Numerical Methods || Abstract Algebra || Basics of Graph Theory)
  Bachelor of Technology (B. Tech) – 2nd year

2015–2016 **Government College of Engineering & Ceramic Technology (GCECT) under Maulana Abul Kalam Azad University of Technology (MAKAUT), Kolkata, India**

- **Engineering Mathematics** (Probability || Fourier Analysis || Integral Transforms || Ordinary & Partial Differential Equations)
  Bachelor of Technology (B. Tech) – 2nd year

References

- **Florent FOUCAUD**, *LIMOS, Université Clermont Auvergne, France*
  florent.foucaud@uca.fr
- **Annegret WAGLER**, *LIMOS, Université Clermont Auvergne, France*
  annegret.wagler@limos.fr
- **Sagnik SEN**, *Indian Institute of Technology Dharwad, Karnataka, India*
  sagnik@iitdh.ac.in