

MOCHAMMAD ZULFIKAR ADITYA

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Github ◊ LinkedIn

EDUCATION

Bandung Institute of Technology (ITB)

Aug 2019 – Oct 2020

M.Sc. in Mathematics

GPA: 3.63/4.0

Related courses: Group Theory, Module Theory, Matrix Analysis, Galois Theory, Graph Theory, Association Scheme, Algebraic Graph Theory, Graph on Algebraic Structures, Functional Analysis.

Bandung Institute of Technology (ITB)

Aug 2015 – Jul 2019

B.Sc. in Mathematics (Cumlaude)

GPA: 3.65/4.0

Related courses: Linear Algebra, Modern Algebra, Real Analysis, Complex Analysis, Introduction to Graph Theory, Cryptography, Coding Theory, Elementary Number Theory, Numerical Mathematics.

RESEARCH INTERESTS

I am interested in Algebraic Number Theory, Elliptic Curves, and Representation Theory.

RESEARCH EXPERIENCE

Quadratic Number Fields Reading Project

Jul 2023 – Jan 2024

Supervisor: Gaurish Korpai

Arizona University

- Reading project aimed to learn and explore properties of quadratic number fields as an extension of the rational number in order to answer some forms of Diophantine equation.
- Keywords: Quadratic Number Fields, Diophantine Equation
- Related links: [Report](#)

On the Topological Indices of Zero Divisor Graphs of Some Commutative Rings [1]

Mar 2021 – Feb 2022

Supervisors: Intan Muchtadi-Alamsyah, Erma Suwastika, Nor Haniza Sarmin

Joint ITB and UTM

- Research project aimed to find the topological index in a zero divisor graph over commutative rings, especially multiplication ring that involves \mathbb{Z}_n for a prime power n . The research also serves as Fariz Maulana's master thesis.
- Keywords: Zero Divisor Graph, Wiener Indices, Harary Index, Zagreb Indices.
- Related links: [Paper](#)

Exploration of Mutually Unbiased Biangular Regular Set over Butson-Type $BH(n, 3)$ on Constructing Association Scheme

Sep 2019 – Oct 2020

Supervisors: Djoko Suprijanto and Pritta Etriana Putri

ITB

- Master thesis aimed to explore properties of mutually unbiased regular set over Hadamard matrix and extend the cases into Butson-Type $BH(n, 3)$ matrix.
- Keywords: Hadamard Matrix, Butson-Type $BH(n, 3)$, Mutually Unbiased Biangular Regular, Association Scheme.
- Related link: [Thesis](#).

Jacobson Graph over \mathbb{Z}_n [2]

Feb 2019 – Jan 2021

Supervisor: Intan Muchtadi-Alamsyah

ITB

- Undergraduate thesis aimed to find characteristics of a Jacobson graph over commutative rings, with the case of \mathbb{Z}_n .
- Keywords: Jacobson Graph, Ring \mathbb{Z}_n , Jacobson Radical.
- Related links: [Thesis](#), [Paper](#).

PUBLICATIONS

- [1] F. Maulana, **Aditya, Muhammad Zulfikar**, E. Suwastika, I. Muchtadi-Alamsyah, N. I. Alimon, and N. H. Sarmin, “On the topological indices of zero divisor graphs of some commutative rings,” *Journal of applied mathematics & informatics*, vol. 42, no. 3, pp. 663–680, 2024.
- [2] **Aditya, Mochammad Zulfikar** and I. Muchtadi-Alamsyah, “Jacobson graph over \mathbb{Z}_n ,” *Journal of Physics: Conference Series*, vol. 1722, p. 012027, Jan. 2021. DOI: 10.1088/1742-6596/1722/1/012027.

TEACHING EXPERIENCE

Freelance Math Olympiad Tutor

Mar 2023 – Present

Freelance

Hybrid (Online and Offline)

- **Teaching:** Teaching math olympiad for middle and high school students.
- **Math Olympiad Camp:** Train students in a math camp consisting of 20 to 30 teaching hours in 3 to 5 days.
- **National Science Olympiad:** Prepare students for regional and national rounds.
- **Schools Taught:** MAN IC Padang Pariaman (National, bronze medal), MAN IC OKI (National), SMAN 2 Cirebon (Regional), SMA Darul Ulum 2 Jombang (Province), SMAN 1 Tambun Selatan (Province), MAN IC Paser (Province), SMAN 3 Painan (Province).

Math Olympiad Teacher

Aug 2024 – Dec 2024

Part-Time

Star Generation

- **Teaching:** Taught math olympiad for middle and high school students once a week.
- **Math Competition Camp:** Held and taught math camps consisting of 10 to 20 students preparing for math competition. Each camp lasts for 3 to 4 weeks, twice weekly on the weekend.

Content Quality Control

Nov 2020 – Jun 2022

Full-Time

Pahamify

- **Math Reviewer:** Reviewed and checked at least 45 to 50 mathematics problems per week.
- **Analytical Research:** Conducted analysis based on cognitive and learning dimensions aligned with the current curriculum.
- **Teaching Consultant:** Communicated and encouraged teachers to improve their skill for writing good problems.

Teaching Assistant and Grader

Jan 2018 – Dec 2021

Part-Time, Contract

Math Department, Bandung Institute of Technology

- **Tutorial:** Conducted tutorial sessions for students in Basic Calculus and Calculus for Engineering/Biology.
- **Lab Assistant:** Handled sessions of computational lab for courses such as Numerical Mathematics, Introduction to Computational Mathematics, and Introduction to Programming.
- **Grading:** Graded assignments in Linear Algebra and Calculus.
- **Consulting:** Provided math consulting for undergraduate students twice weekly.

ACHIEVEMENTS

Awardee of Fast Track Bachelor-Magister Program by Graduate School of ITB	Aug 2019
Honorable Mention at International Mathematics Competition for Undergraduate	<i>Jul 2018</i>
Bronze Medal for Mathematics at National Science Olympiad for Undergraduate	<i>May 2018</i>
First Prize at Calculus Cup by Jakarta National University	<i>Sep 2017</i>
Bronze Medal for Mathematics at National Science Olympiad for High School	<i>Sep 2014</i>

SKILLS/HOBBIES

Languages	English (Fluent), Indonesian (Native)
Programming Languages	Python, Java, MATLAB, HTML, LaTeX
Hobbies	Gym, Swimming, Traveling