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Certificate

This is to certify that

A. C. Prihandoko

has presented a paper with entitled

“Constructions of encryption key by using a super H -antimagic total graph”

in

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THE ASIAN MATHEMATICAL CONFERENCE



on

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at

**Bali Nusa Dua Convention Center
Bali - Indonesia**

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Prof. Dr. Edy Tri Baskoro
Chair of AMC 2016



Prof. Dr. Budi Nurani Ruchjana
President of IndoMS



AMC 2016

The Asian Mathematical Conference
www.amc2016.org, e-mail: chair@amc2016.org.



INVITATION LETTER

Bandung, Indonesia, April 19th, 2016

Full Name : Antonius Cahya Prihandoko
Affiliation : University of Jember
Address : Jl. Kawi 16 Sumbersari

Dear Dr. Antonius Cahya Prihandoko,

Thank you for registering for the Asian Mathematical Conference 2016 to be held in Bali Nusa Dua Convention Center (BNDCC), Bali, Indonesia, from July 25th through July 29th this year. It is my great pleasure to invite you to the Conference, which is the most prestigious gathering of mathematicians in Asia. The Conference is being co-hosted by the Southeast Asian Mathematical Society and the Indonesian Mathematical Society.

This letter is to formally invite you to attend the Conference.

For any clarifications, please contact the Conference secretariat through email chair@amc2016.org.

We look forward to welcoming you at the Conference.

Your Sincerely,

A handwritten signature in black ink, appearing to be "Edy Tri Baskoro".

Edy Tri Baskoro
Chair of AMC 2016

The construction of encryption key by using a super H -antimagic total graph

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Abstract

The strength of cryptosystem relays on the management of encryption key. The key should be managed such that it is hard for any intruder to analyze the key. Thus, the main issue is how to make the relation between plaintext, ciphertext and the key is hidden. This paper will study the use of super (a, d) - H antimagic total graph in developing an encryption key to achieve the security. Let H be a simple, connected and undirected graph. A graph $G = (V, E)$ is said to be a super (a, d) - H -antimagic total graph if there exist a one-to-one map $f : V(G) \cup E(G) \rightarrow \{1, 2, \dots, |V(G)| + |E(G)|\}$ such that for all subgraphs isomorphic to H , the total H -weights $w(H) = \sum_{v \in V(H)} f(v) + \sum_{e \in E(H)} f(e)$ form an arithmetic sequence $\{a, a + d, a + 2d, \dots, a + (s - 1)d\}$, where a and d are positive integers and s is the number of all subgraphs isomorphic to H , and $f : V(G) \rightarrow \{1, 2, \dots, |V(G)|\}$. The resulting super (a, d) - H antimagic total graph can potentially generates a complex key, thus by using such graph we can get a secure cryptosystem.

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Keywords: Super H -antimagic total graph, Cryptosystem, Encryption

Section: SS-08

1 Introduction

Encryption is a popular approach for secure information or digital content distributed over the Internet. Some encryption implementation scenarios for such security purposes can be cited in [6, 7, 8]. The strength of these security systems relays on the management of the encryption key. The key must be secret and inaccessible to unauthorized users, as finding the key would allow someone to decrypt and access the content or information