

PAPER • OPEN ACCESS

## Preface

To cite this article: 2020 *J. Phys.: Conf. Ser.* **1524** 011001

View the [article online](#) for updates and enhancements.

You may also like

- [Novel insecticides and acaricides](#)  
Artur F Grapov
- [List of sponsors](#)
- [Preface](#)



**ECS**

**Connect with decision-makers at ECS**

Accelerate sales with ECS exhibits, sponsorships, and advertising!

▶ Learn more and engage at the 244th ECS Meeting!

# **The 9th International Seminar on New Paradigm and Innovation on Natural Science and Its Application**

**October 22, 2019**

**Semarang, Indonesia**



## PREFACE

The 9th International Seminar on New Paradigm and Innovation on Natural Sciences and Its Application (ISNPINSA-9) is annual seminars organized by Faculty of Sciences and Mathematics (FSM) Diponegoro University and has been successfully conducted since 2011. The ISNPINSA-9 was held in Semarang, Indonesia on October 22th 2019. The aims of ISNPINSA are to facilitate brain storming and state of the art information in field of sciences and mathematics; to increase innovation of technology that can be applied in industries; to contribute in formulating strategy to increase the role of science for community; and to stimulate collaboration between industries, researchers and government to increase community welfare. The theme of 9th ISNPINSA in 2019 is “CONTRIBUTION OF SCIENCE TOWARD INDUSTRY 4.0 ERA”.

The number of participants of the seminar were 210 including keynote speakers, invited speakers, oral presenters, poster presenters, and non-presenters coming from various institutions of various countries, including France, Malaysia, Indonesia and those who come from all parts of Indonesia consist of researchers, lecturers, postgraduate and undergraduate students from various universities. There are 169 papers were presented in this seminar, consist of 4 keynote speakers, 6 invited speakers, oral presentations, and 9 poster presentations. After the selection process, there are 149 articles selected papers to be published in the present conference proceeding. The scope of the field of participants comes from various fields including biology, physics, chemistry, statistics, mathematics, informatics, environment, public health, and relevant fields that contribute to sustainable development.

The Chief of Editor

Dr. Suryono. S.Si., M.Si.

## CONFERENCE PHOTOGRAPHS



Welcoming speech of The 9<sup>TH</sup> ISNPINSA by Chairman



Opening speech of The 9<sup>TH</sup> ISNPINSA by Dean of FSM Undip



The opening ceremony of the 9<sup>th</sup> ISNPINSA through hitting the Gong by Vice Rector of Diponegoro University



Photo Session included Keynote speakers, Vice Rector of Undip, Dean, and Vice Dean of FSM Undip



Plenary Session by Prof. Dr. Baba Musta (Fac. Science, Universiti Malaysia Sabah, Malaysia)



Plenary Session by Prof. Dr. Emmanuel Cornillot (Universite de' Montpellier, France)



Plenary Session by Prof. Dr. Ir. Rokhmin Dahuri, MS. (Former minister of Fisheries and Maritime Affairs, President of Indonesian Aquaculture Society; Proffesor in Marine Resource and Environmental Studies)



Plenary Session by Sapto P Putro, M.Si., Ph.D. (Diponegoro University, Semarang)



The chairman of the 9<sup>th</sup> ISNPINSA extend his gratitude to the one of keynote speaker Prof. Dr. Ir. Rokhmin Dahuri, MS.



## STATEMENT

“All papers published in this volume of Journal of Physics: Conference Series have been peer reviewed through processes administered by the Editors. Reviewers were conducted by expert reviewers and referees to the professional and scientific standards expected of a proceedings journal published by IOP Publishing

## LIST OF REFEREES AND EDITORS

### I. Team of Reviewers and Referees

Prof. Dr. Widowati, S.Si., M.Si. (Diponegoro University)  
Dr. Eng. Adi Wibowo, S.Si., M.Kom. (Diponegoro University)  
Dr. Drs. Sutimin, M.Si. (Diponegoro University)  
Prof. Drs. Mustafid, M.Eng., Ph.D. (Diponegoro University)  
Dr. Tarno, M.Si. (Diponegoro University)  
Dr. Budi Warsito, M.Si. (Diponegoro University)  
Dr. Di Asih I Maruddani, M.Si. (Diponegoro University)  
Dr. Drs. Rukun Santoso, M.Si. (Diponegoro University)  
Dr. Redemtus Heru Tjahjana, S.Si., M.Si. (Diponegoro University)  
Dinar M.K.N., S.T., M.InfoTech.(Comp)., Ph.D. (Diponegoro University)  
Dr. Dra. Tatik Widiharih, M.Si. (Diponegoro University)  
Farikhin, M.Sc., Ph.D. (Diponegoro University)  
Drs. Sapto P. Putro, M.Si., Ph.D. (Diponegoro University)  
Dr. Jafron W. Hidayat, M.Sc. (Diponegoro University)  
Dr. Munifatul Izzati, M.Sc. (Diponegoro University)  
Dr.rer.nat. Anto Budiharjo, M.Biotech., Ph.D. (Diponegoro University)  
Dr. Tri Retnaningsih Soeprbowati, M.Si. (Diponegoro University)  
Dr. Endang Kusdiyantini, DEA. (Diponegoro University)  
Dr. Hermin Pancasakti K., M.Si. (Diponegoro University)  
Rully Rahadian, M.Si., PhD. (Diponegoro University)  
Dr. Agung Janika Sitasawi, M.Si. (Diponegoro University)  
Dr. Erma Prihastanti, M.Si. (Diponegoro University)  
Prof. Dr. Wahyu Setia Budi, MS. (Diponegoro University)  
Dr. Muhammad Nur, DEA. (Diponegoro University)  
Dr. Kusworo Adi, MT. (Diponegoro University)  
Dr. Heri Sutanto, M.Si. (Diponegoro University)  
Dr. Suryono, M.Si. (Diponegoro University)  
Dr. Eng. Ali Khumaeni, M.E. (Diponegoro University)  
Dr. Udi Harmoko, S.Si., M.Si. (Diponegoro University)  
Dr. Rahmat Gernowo, M.Si. (Diponegoro University)  
Ismiyarto, M.Si., Ph.D. (Diponegoro University)  
Dr. Retno Ariadi Lusiana, M.Si. (Diponegoro University)  
Nor Basid Adiwibawa P., S.Si., M.Sc., Ph.D (Diponegoro University)

### II. Team of Technical Editors

Dr. Suryono, S.Si., M.Si. (Diponegoro University)  
Nor Basid Adiwibawa P., S.Si., M.Sc., Ph.D (Diponegoro University)  
Heri Sugito, S.Si., M.Sc. (Diponegoro University)  
Alik Maulidiyah, S.Si., M.Sc. (Diponegoro University)

## LIST OF SPEAKER

### I. Keynote Speaker

No.	Name	Research Field	Institution	Country
1.	Prof. Emmanuel Cornillot	Biotechnology	Universite de Montpellier	Perancis
2.	Prof. Dr. Baba Musta	Geochemistry	Faculty of Science, UMS	Malaysia
3.	Prof. Dr. Ir. Rokhmin Dahuri, MS.	Marine Resource and Environmental Studies	President of Indonesian Aquaculture Society; Proffesor in Marine Resource and Environmental Studies	Indonesia
4.	Sapto P. Putro, M.Si., Ph.D.	Marine Ecology and Aquaculture	Faculty of Science and Mathematics, Diponegoro University	Indonesia

### II. Invited Speaker

No.	Name	Department	Institution	Country
1.	Dinar Mutiara Kusumo Nugraheni, S.T., M.InfoTech.(Comp).	Computer Science	FSM UNDIP	Indonesia
2.	Dr. Eng. Ali Khumaeni, S.Si., MS	Physics	FSM UNDIP	Indonesia
3.	Dr. M. Cholid Djunaidi, M.Si.	Chemistry	FSM UNDIP	Indonesia
4.	Dr. Lilih Khotimperwati, S.Si., M.Si.	Biology	FSM UNDIP	Indonesia
5.	Dr. Tarno, M.Si.	Chemistry	FSM UNDIP	Indonesia
6.	Farikhin, M.Sc. Ph.D.	Mathematics	FSM UNDIP	Indonesia

## LIST OF COMMITTEE

### I. Steering committee

Prof. Dr. Widowati, M.Si.

Farikhin, S.Si., M.Si., Ph.D.

Dr. Kusworo Adi, S.Si., MT.

Sapto P. Putro, M.Si., Ph.D.

### II. Organizing Committee

1. Dr. Suryono, M.Si.
2. Nor Basid Adiwibawa Prasetya, S.Si., M.Sc., Ph.D.
3. Dinar Mutiara Kusumo Nugraheni, S.T., M.InfoTech.(Comp).
4. Nurdin Bahtiar, S.Si., M.Kom.
5. Dr. Eng. Ali Khumaeni, ME.
6. Dr. Di Asih I Maruddani, S.Si., M.Si.
7. Dra. Sri Harumaningsih, .S.Si., M.IP.
8. Lilik Maryuni, S.E., M.Si
9. Novita Sulistyana, S.E., M.Si.
10. Susilo Wanto, SH
11. Herman Aprianto, S.Kom.
12. Iys Syabilla Rusda, S.IP.
13. Choiriyah, SE
14. Nur Azizah, SE
15. Alik Maulidiyah, S.Si. M.Sc.
16. Rahmawan Bagus Trianto, S.Kom.
17. Deby Yuniarto
18. Siswoyo