



# SCIENTIFIC REPORT

## Symposium on Biomathematics

Harris Residence dan Riverview, Kuta, Bali

August 25-28, 2019

*Mathematics in the role of understanding  
natural phenomena*

**Organized by:**



**Institut Teknologi Bandung  
Indonesian Biomathematics Society  
Center for Mathematical Modeling and Simulation**

## **Introduction**

Symposium on Biomathematics (SYMOMATH) 2019 is the 7<sup>th</sup> international symposium of Biomathematics, which was organized by Center of Mathematical Modeling and Simulation of Institut Teknologi Bandung, and Indonesian Biomathematical Society. It is a multidisciplinary forum for promoting and fostering interactions between mathematical, biological and related industrial communities in studying various phenomena in biology, ecology, infectious diseases, medicine, bioengineering, environmental sciences, etc. The 1st, 3rd and 5th SYMOMATH were hosted by Institut Teknologi Bandung. The 2nd, 4th and 6th SYMOMATH were organized by Universitas Brawijaya, Universitas Hasanuddin and Universitas Indonesia, respectively.

This symposium is attended by approximately 100 presenters and participants comprising of mathematicians, molecular biologist, climatologist and other scientists. This indicates the broad spectrum of biomathematics as a multidisciplinary research, which also increase the possibility of enriching mathematics as the results of these interactions.

## **Committee**

### Scientific Committee

1. Prof. Dr. Edy Soewono (Institut Teknologi Bandung, Indonesia)
2. Prof. Dr. Asep K. Supriatna (Padjajaran University, Indonesia)
3. Prof. Dr. Agus Suryanto (Universitas Brawijaya, Indonesia)
4. Prof. Dr. Thomas Götz (Mathematical Institute, Campus Koblenz, University Koblenz-Landau, Germany)
5. Prof. Mick Roberts (Massey University, New Zealand)
6. Prof. David Greenhalg (University of Strathclyde, Scotland)
7. Prof. Dr. Hadi Susanto (Essex University, Chelchester, UK)
8. Prof. Vitalii Akimenko (University of Kyiv, Ukraine)
9. Dr. Aprillya Lanz (Grand Canyon University, USA)
10. Dr. Hengki Tasman (Universitas Indonesia, Indonesia)
11. Dr. Nuning Nuraini (Institut Teknologi Bandung, Indonesia)
12. Dr. Fajar Adi Kusumo (Universitas Gadjah Mada, Indonesia)
13. Dr. Windarto (Universitas Airlangga, Indonesia)
14. Dr. Mochamad Apri (Institut Teknologi Bandung, Indonesia)

### Organizing Committee

1. Nuning Nuraini (Institut Teknologi Bandung, Indonesia)
2. Mochamad Apri (Institut Teknologi Bandung, Indonesia)
3. Dipo Aldila (University of Indonesia)
4. Dewi Handayani (Institut Teknologi Bandung, Indonesia)
5. Prama Setia Putra (Institut Teknologi Bandung, Indonesia)
6. Muhammad Ridwan Reza Nugraha (Institut Teknologi Bandung, Indonesia)
7. Rudy Kusdiantara (Institut Teknologi Bandung, Indonesia)
8. Muhammad Fakhruddin (Institut Teknologi Bandung, Indonesia)
9. Fiska Rahmania (Institut Teknologi Bandung, Indonesia)

## Conference Program

The conference took place at HARRIS Hotel and Residences Riverview Kuta, Bali, on August 25-28, 2019.

The program of the conference was as follows:

### Day 1 : Sunday, August 25<sup>th</sup>, 2019

14.00-18.00	Bandung Tour on the Bus
19.00-21.00	Welcoming Dinner

### Day 2 : Monday, August 26<sup>th</sup>, 2019

08.00-08.30	Registration
<b>08.30 - 09.20</b> <b>KEYNOTE</b>	Mick Roberts (Massey University, New Zealand) <i>"Mathematical eco-epidemiology and the dilution effect"</i>
<b>09.20-10.10</b> <b>KEYNOTE</b>	David Greenhalg (University of Strathclyde, Scotland) <i>"Optimal Vaccination Age for Dengue in Brazil with a Tetravalent Dengue Vaccine"</i>
<b>10.10-10.30</b>	Coffee Break
<b>10.30-11.10</b> <b>PLENARY</b>	Vitalii Akimenko (University of Kyiv, Ukraine) <i>"Continuous Age-Structured Models Population Dynamics and Its Applications"</i>
<b>11.10-11.50</b> <b>PLENARY</b>	Hadi Susanto (Essex University, Chelchester, UK) <i>"Pattern on Lattices"</i>
<b>12.00-12.40</b>	Parallel Session 1
13.30-14.00	Invited Talks
14.00-16.00	Parallel Session 2
16.00-16.20	Coffee Break
16.20-16.50	Invited Talks
16.50-18.50	Parallel Session 3

### Day 3: Tuesday, August 27<sup>th</sup>, 2019

08.00-08.30	Invited Talks
08.30-09.30	Parallel Session 4
09.30-10.10 <b>PLENARY</b>	Thomas Goetz (University of Koblenz, Germany) <i>"PDE Models in Epidemiology"</i>
10.10-10.50 <b>PLENARY</b>	Edy Soewono (Institut Teknologi Bandung, Indonesia) <i>"An Analysis of the Type Reproductive Number of Dengue Infection in the City of Bandung, Indonesia"</i>
10.50-11.00	Coffee Break
11.00-12.40	Parallel Session 5
12.40-13.30	Lunch Break
13.30--	City Tour

### Day 4: Wednesday, August 28<sup>th</sup>, 2019

08.00-09.00	Indonesian Biomathematical Society Meeting
09.00-10.00	Closing and Coffee Break

## Participants and Invited Speakers

Around 100 people from different countries joined the conference. Among them, 2 people were keynote speakers, 4 were plenary speakers, 8 were invited speakers, and 62 people were contributed speakers. The contributed speakers were distributed in 4 parallel sessions.

The keynote speakers were

1. Prof. Dr. Mick Roberts, Massey University, New Zealand
2. Prof. Dr. David Greenhalgh, University of Strathclyde, Scotland

The plenary speakers were:

1. Prof. Dr. Edy Soewono, Institut Teknologi Bandung, Indonesia
2. Prof. Dr. Thomas Goetz, University of Koblenz, Germany
3. Prof. Dr. Hadi Susanto, University of Essex, UK
4. Prof. Dr. Vitalii Akimenko, University of Kyiv, Ukraine

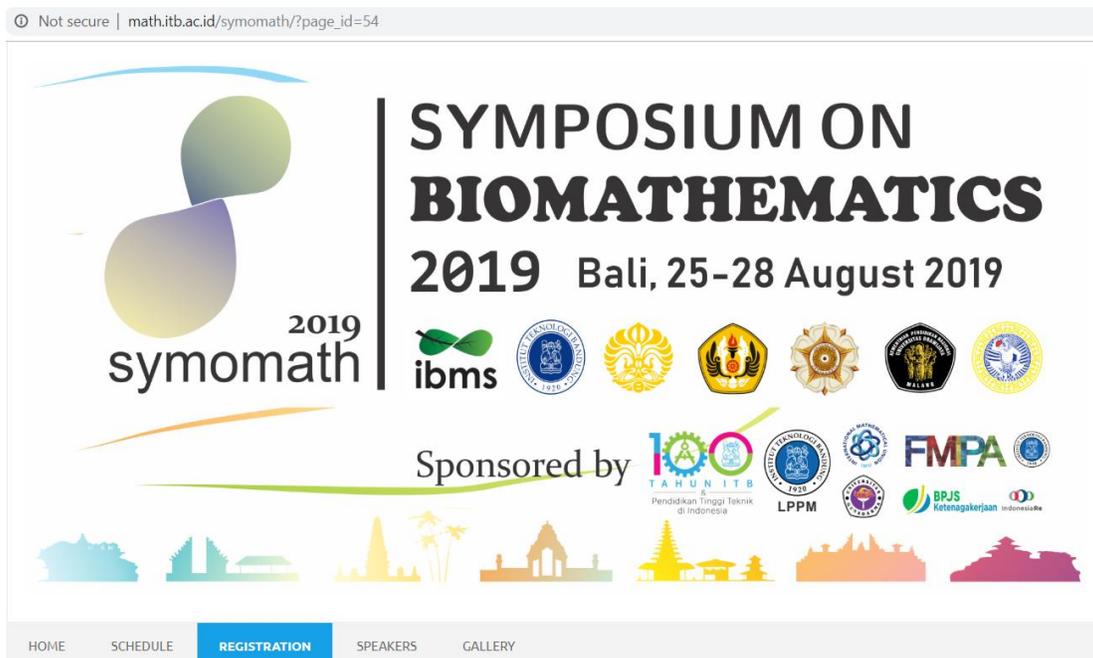
The invited speakers were:

1. Prof. Dr. Asep K. Supriatna (Universitas Padjadjaran, Indonesia)
2. Prof. Dr. Agus Suryanto (Universitas Brawijaya, Indonesia)
3. Dr. Fajar Adi Kusumo (Universitas Gadjah Mada, Indonesia)
4. Dr. Windarto (Universitas Airlangga, Indonesia)
5. Dr. Dipo Aldila (Universitas Indonesia, Indonesia)
6. Dr. Karunia Putra Wijaya (University of Koblenz, Germany)
7. Dr. Aprillya Lanz (University of Grand Canyon, US)
8. Ardhasena Sopaheluwakan (Badan Meteorologi, Klimatologi, dan Geofisika, Jakarta, Indonesia)

Overseas participants, are from Germany (1), UK (1), USA (1), Scotland (1), New Zealand (1), Ukraine (1), Malaysia (1), and Philippines (2).

## Conference Publication by Web

Website address about Symomath 2019 is [www.math.itb.ac.id/symomath](http://www.math.itb.ac.id/symomath).



## Backdrop, Banner and X-Banner



Backdrop

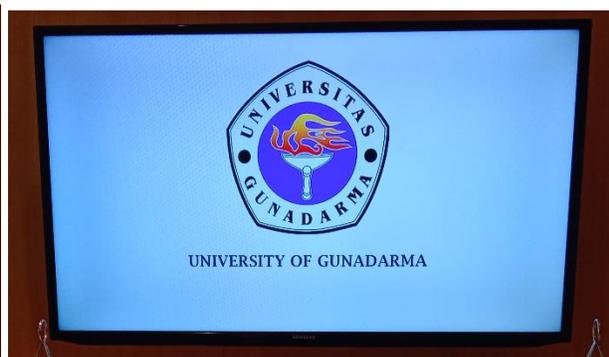
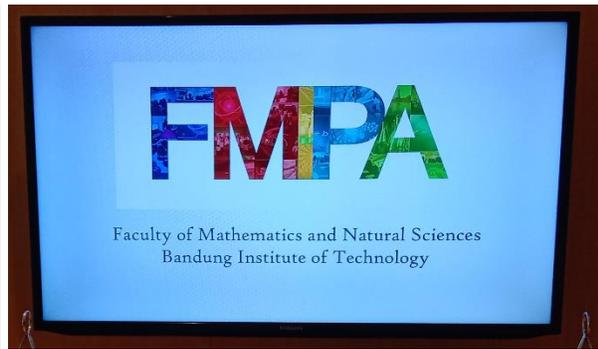


Banner



X-banner

## Running Screen



## Conference Package

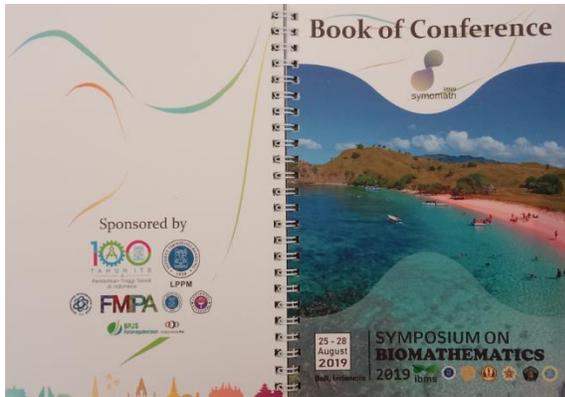


Photo Session all participants of Symomath 2019



During the conference



Coffee Break