INTRODUCTION: This contribution involves the development of a new frequency tuning method for reducing noise enhancement. A mathematical derivation has been developed to predict the size and position of the unwanted images. The signal image can be removed by pre-distorting the input signal. The above improvements will enhance the use of all-digital ΣΔ based transmitters in future wireless communication system.

The management of distortion and noise is a key design challenge as is the requirement for tunability. ΣΔ techniques can shape the noise away from the carrier band for a subsequent removal in a band-pass filter, but tunability remains a problem. The proposed scheme needs to have two distortion function units: pre-distortion for image cancellation (it is put at the input to the ΣΔ) and post-distortion for noise cancellation.

Table comparison between the simulation results and the calculation of relative image, relative ±3rd harmonics:

<table>
<thead>
<tr>
<th>Harmonic size (dB)</th>
<th>Odd quantisation</th>
<th>Even quantisation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Simulation</td>
<td>Calculation</td>
</tr>
<tr>
<td>Image</td>
<td>29.6553</td>
<td>30.3703</td>
</tr>
<tr>
<td>±3rd harmonic</td>
<td>30.1255</td>
<td>30.5955</td>
</tr>
</tbody>
</table>

- Table comparison between the simulation results and the calculation of relative image, relative ±3rd harmonics.
- The pulse width, α, which gives the expected pulse width for a given input signal amplitude.
- Agreement between simulation and calculation degrades as OSR_{\text{ref}} is reduced. 
- The focus was on a concept design for a low-power transmitter with good linearity and high efficiency. 
- The work concentrated on the digital upconversion of modulated signals such as required for LTE and WLAN standards. 
- Table: Harmonic Distortion Location: an analysis

RESULTS

- Figure 1 (Left): The figure on the left shows that the image still appears on the spectrum (before image cancellation) whereas the figure on the right shows that the image no longer appears after image cancellation.
- Figure 2 (Right): The original spectrum in which the noise floor is high near the signal before and after with noise cancellation. It is evident that the noise floor is reduced and the signal band is in the ΣΔ noise null.

CONCLUSION:
- This section has identified the phenomenon of distortion problems that are generated by the Polar to PWM/PPM block. These distortions reduce the dynamic range of the operating band, therefore, image and noise cancellation by using pre-distortion technique is proposed so all the operating bands can meet the spectrum mask requirements.
- The focus was on a concept design for a low-power transmitter with good linearity and high efficiency. 
- The work concentrated on the digital upconversion of modulated signals such as required for LTE and WLAN standards. 
- The proposed scheme is potentially an all-digital and therefore low-cost solution for multi-standard software defined radio.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>3-4</td>
</tr>
<tr>
<td>Agenda</td>
<td>5-7</td>
</tr>
<tr>
<td>USAID Workshop</td>
<td>8-9</td>
</tr>
<tr>
<td>Symposium Hotels – General Information and Map</td>
<td>10</td>
</tr>
<tr>
<td>Session Abstracts</td>
<td>11-44</td>
</tr>
<tr>
<td>- Big Data and Marine Conservation</td>
<td>11-16</td>
</tr>
<tr>
<td>- From Nature’s Machines to Synthetic Biology</td>
<td>17-20</td>
</tr>
<tr>
<td>- Mass Extinction and Citizen Science</td>
<td>21-26</td>
</tr>
<tr>
<td>- Non-communicable Disease and Aging</td>
<td>27-32</td>
</tr>
<tr>
<td>- Robotics and Information Systems / Innovation</td>
<td>33-38</td>
</tr>
<tr>
<td>- Social Decision Making / Behavioral Economics</td>
<td>39-44</td>
</tr>
<tr>
<td>List of Poster Presenters</td>
<td>45-48</td>
</tr>
<tr>
<td>Poster Abstracts</td>
<td>49-92</td>
</tr>
<tr>
<td>Roster of Attendees</td>
<td>93-114</td>
</tr>
</tbody>
</table>
2016 Indonesian-American Kavli Frontiers of Science
Indonesian Academy of Sciences – U.S. National Academy of Sciences

Malang, Indonesia – August 1-4, 2016

Program - sessions listed in Alphabetic Order

**Big Data and Marine Conservation**
Organizers: Fenny Dwivany and Monica Medina

**INTRODUCTORY SPEAKER:**
*Big Data and Marine Conservation*
Manuel Gonzalez, University of Queensland

**SPEAKERS:**
*Metabolomics: A Data Driven and Multidisciplinary Approach for Various Applications in Food Science and Technology*
Sastia Prama Putri, Institut Teknologi Bandung

*We Punch Nature and It Will Punch Us Back: Human Impacts on Biodiversity and Their Feedbacks*
Camilo Mora, University of Hawaii

**From Nature’s Machines to Synthetic Biomimicry**
Organizers: Ari Winasti Satyagraha and Nathan Gianneschi

**INTRODUCTORY SPEAKER:**
Cyrille Boyer, University of New South Wales

**SPEAKERS:**
*Biological Blueprint for the Design of Novel Solar Energy Harvesting Technology*
Tatas Brotosudarmo, Ma’Chung Research University

*The Molecular Mechanisms of Spider Silk Assembly*
Greg Holland, San Diego State University

**Mass Extinction and Citizen Science**
Organizers: William Gilhooly and Topik Hidayat

**INTRODUCTORY SPEAKER:**
*Global Identification of Eruption Magnitude Based On Topographical Reconstruction of Ancient Volcanoes*
Asep Saepuloh, Bandung Institute of Technology

**SPEAKERS:**
*Biodiversity Inventory in the Underway Sixth Mass Extinction: The Role of Citizen Science in Documenting Plant Diversity in Indonesia*
Teguh Triono, The Indonesian Biodiversity Foundation

*Biodiversity Inventory in the Underway Sixth Mass Extinction: Mass extinctions and Earth system perturbations*
Ryan McKenzie, Yale University

The Indonesian-American Kavli Frontiers of Science symposium is sponsored by the U.S. Agency for International Development (USAID). Major support is provided by the Kavli Foundation with additional support from the U.S. National Academy of Sciences and the Indonesian Academy of Sciences.
Non-communicable Disease and Aging
Organizers: Jajah Fachiroh and Natalie Ebner

INTRODUCTORY SPEAKER:
Non-communicable diseases – The salient killer of the 21st century and beyond
Leanne Redman, Pennington Biomedical Research Center,
Louisiana State University

SPEAKERS:
Intervening the Cardiovascular Disease Continuum to Combat Non Communicable Disease
Budi Anggoro, Universitas Gadjah Mada

The Obesity Pandemic: Causes, Consequences and Containment
Leonie Heilbronn, University of Adelaide

Robotics and Information Systems / Innovation
Organizers: Enid Montague and Rajesri Govindaraju

INTRODUCTORY SPEAKER:
Information & Communication Technology for Collaborative Scientific Endeavour
Ary Setijadi Prihatmanto, Institute Technology of Bandung

SPEAKERS:
Landscape of the Digital Economy in Indonesia
Yudho Giri Sucahyo, University of Indonesia

How can robots get along with people?
Ross Knepper, Cornell University

Social Decision Making / Behavioral Economics
Organizers Natalie Ebner and Teguh Dartanto

INTRODUCTORY SPEAKER:
Social Decision Making / Behavioral Economics
Steven Chang, Yale University

SPEAKERS:
The Foundation of Human Cooperative Behaviors
Felix Warneken, Harvard University

Eliminating the Fuel Subsidy in Indonesia:
Using Behavioral Insights to Design Alternative Policies and Assessing Households Preferences among Them
Rimawan Pradiptyo, Universitas Gadjah Mada
2016 Indonesian-American
Kavli Frontiers of Science Symposium

Indonesian Academy of Sciences - U.S. National Academy of Sciences

Agenda

Saturday, July 30, 2016
Indonesian attendees arrive in Surabaya and check into Novotel
Surabaya - Meeting point at Ibis Hotel, Juanda Airport

Sunday, July 31, 2016
AUS, Indonesian and US attendees arrive at Surabaya airport
Meeting point at Ibis Hotel, Juanda Airport
7:00 – 9:00 a.m. Breakfast at Novotel Hotel restaurant
8:30 a.m. USAID Workshop: Proposal Writing: Understanding the Process
10:30 a.m. USAID Workshop: Career Launch: Making the most of your talents
12:15 p.m. Lunch at Novotel Hotel Restaurant
1:00 p.m. USAID Workshop: Publishing in Peer Reviewed Journals
3:00 p.m. USAID Workshop: Career Launch: The Art of Effective Negotiation
4:30 p.m. USAID Workshop adjourns
6:00 p.m. Organizers, Chairs, Speakers meeting – symposium meeting room
7:00 p.m. Dinner – Novotel Hotel Restaurant
7:00 p.m. Dinner Lecture – “History of Science in Netherlands Indie and Indonesia”

Monday, August 1, 2016
6:00 – 7:00 a.m. Breakfast at Novotel Hotel restaurant
7:00 a.m. City tour Surabaya City and depart for Malang
12:00 a.m. Visit to Asylum and Mental Health Museum, Malang
1:00 p.m. Depart and lunch at Tea Plantation - Wonosari, Malang
1:00 - 4:00 p.m. Field trip at Tea Plantation - Wonosari, Malang
5:00 p.m. Arrive at Atria Hotel, Malang City
5:00 - 6:00 p.m. Registration and put up posters
7:00 - 9:30 p.m. Opening dinner at Royal Tugu Dome, Tugu Hotel, Malang City – Reog dance
Tuesday, August 2, 2016
6:00 – 9:00 a.m. Breakfast at Atria Hotel restaurant / Put up posters
9:00 a.m. Welcome remarks
9:00 a.m. Introduction to Kavli Program
9:45 a.m. Session I
12:00 p.m. Lunch at Atria Hotel Restaurant
1:30 p.m. Session II
4:00 p.m. Coffee Break
4:15 - 6:00 p.m. Flash Talks and Poster Session I
6:30 p.m. Dinner – Atria Hotel Restaurant

Wednesday, August 3, 2016
6:00 – 9:00 a.m. Breakfast – Atria Hotel Restaurant
9:00 a.m. Session III
11:45 a.m. Lunch - Atria Hotel Restaurant
1:15 p.m. Session IV
3:45 p.m. Coffee Break
4:00 p.m. Flash Talks and Poster Session II
6:30 p.m. Dinner – Tirta Gangga Restaurant and tour at Tugu Hotel, Malang City

Thursday, August 4, 2016
6:00 – 9 a.m. Breakfast – Atria Hotel Restaurant
9:00 a.m. Session V
11:45 a.m. Lunch - Atria Hotel Restaurant
1:15 p.m. Session VI
3:45 p.m. PEER / USAID Presentation
4:30 p.m. Presentation – Indonesian Young Academy of Science
Presentation from Study Committee of SAINS45
Presentation from DIPI
(Dana Ilmu Pengetahuan Indonesia/Indonesian Science Fund)
5:00 p.m. Discussion – future direction and closing
6:30 p.m. BBQ Pool Side Party – Atria Hotel Malang

Friday, August 5, 2016
6:00 – 9:00 a.m. Breakfast at Atria Hotel restaurant
-11:00 a.m. Check out of attendees not attending Kapoposang tour
**Optional trip to Mt. Bromo**

**Thursday, August 4, 2016**
10:30 p.m. Meet in Atria Hotel-Malang Lobby  
11:15 p.m. Depart for Mt. Bromo

**Friday, August 5, 2016**
2:00 a.m. Arrive at Sukapura area, move to jeeps  
3:00 a.m. Arrive at sunrise view point  
5:30 a.m. Arrive at the crater  
8:30 a.m. Breakfast at local restaurant  
10:00 a.m.–3:00 pm. Transfer to Surabaya Juanda Airport (late afternoon/evening flights) or Hotel

**Saturday, August 6**
Everyone departs Surabaya Hotel for Juanda Airport
Workshop Description

8:30 – 10:15
Selling Your Science: The Art of Effective Proposal Writing
This workshop provides training in effective techniques for writing proposals to gain research support for a scientific or engineering project. Participants may bring an example of a proposal that they have recently completed or have in-progress. Topics include identifying the priorities of the agency or program solicitation, determining criteria for assessment and writing to the criteria, developing a format for the proposal following known guidelines, identifying the objectives of the research project and why anyone should care, discussing examples of successful proposal formats, developing a budget and cost assessment, interacting with program officers and agencies, and developing research partnerships.

10:30 – 12:00
Career Launch: Making the Most of Your Talents
The first years as a researcher in science can be exhilarating, exhausting, stressful and rewarding. This workshop provides techniques necessary for an effective career launch in STEM fields. Participants may bring a current CV for review and critique. Topics include common mistakes of new graduate students/faculty/researcher and ways to avoid them, effective in-person and cyber interviews, effective communication methods for research and teaching presentations, importance of network building and finding a mentor, building a strong CV and developing a strong internet presence.

13:00 – 14:45
Publishing in Peer Reviewed Journals
This workshop provides advice and training on publishing scientific and technical results in peer-reviewed English language journals. Participants may bring an example of a paper or outline for an article they are considering for submission to a journal. Topics include publication and review process for many journals, organizing a paper, determining when and where to publish results, identifying data to include in the publication and organizing the material, working with editors and on-line submissions, and responding to reviews.

15:00 – 16:30
The Art of Effective Negotiation
In this workshop, successful techniques for increasing communication and negotiation skills in the technical workplace will be discussed. The ground rules, and what comprises good and bad negotiation techniques will be presented in an interactive manner.
Grant Writing Workshop, USAID/Indonesia
Indonesian-American Kavli Frontiers of Science
Surabaya, Indonesia – July 31, 2016

Workshop Description

8:30 - 9:00 a.m. Introductory Remarks; Introductions - Description of Activities for the day

9:00 - 9:30 a.m. 1. Getting Started: (~15 minutes)

   a) Identify potential funding sources and specific areas that overlap with your interests (Open discussion of where to find potential sources)

   b) Understand the goals and objectives of the funder

   c) Determine how your project will help them fund their priorities

   Participant Exercise:
   - Each individual should identify 1-2 very specific projects that they would like to get funded
   - Break into groups of ~5 with each person to have 5 minutes to describe their project

9:30 - 10:30 am. 2. Proposal Assessment

3. Structuring the Proposal

4. Elements of a Good Proposal

5. Common mistakes of proposal writers
   The Review Process

6. Summary remarks

10:30 - 12:00 Career Launch: Making the Most of your talents

12:00 - 1:00 p.m. Lunch

1:00 - 2:45 p.m. Publishing in Peer Reviewed Journals
   (For scientists)

3:00 - 4:30 p.m. The Art of Effective Negotiation
Novotel Surabaya Hotel & Suites
Jalan Ngagel 173-175
60246 Surabaya
Indonesia
Tel (+62) 31/501-8900
Fax (+62) 31/501-9175
Email reservation@novotelsurabaya.com

Directions
From the Juanda Airport highway head towards Ahmad Yani Road. Continue straight on to Wonokromo train station and Ngagel Road where you will find the Novotel Surabaya Hotel and Suites on your right, opposite the Kali Mas river.

Atria Hotel Malang
Jl. Letjen S. Parman No. 87 – 89
Malang, Indonesia
Tel: +62-341-409-999

The Atria Hotel Malang is located on Jl. Letjen S Parman, the main avenue of Malang city. The hotel is centrally located and within easy access to a variety of locations including the Maskid Jam’i Sabilliah Mosque (5 minutes), the Central Culiner Malang (10 minutes), Abdul RahmanSaleh Airport, Brawijava University / downtown Malang (15 minutes), Mall Olympic Garden (30 minutes), Batu Spectacular Night (45 minutes) and Mount Bromo (2,5 hours).

The Atria Hotel offers 4-star services, including 24-hour reception, massage service, private parking, bars and restaurants, left-luggage office, laundry, heated outdoor swimming pool and high-speed wireless.
List of Poster Presenters

Biology and Medicine
1 - Diversity of Bryophytes in Jayagiri Forest, Tangkuban Perahu Mountain, West Java
Dwi Surya Artie, Indonesian University of Education

2 - Effect of edible coatings on banana fruit ripening
Fenny Dwivany, Institut Teknologi Bandung

3 - Carcinoma nasopharynx studies to identify “high-risk” population in Yogyakarta Indonesia
Jajah Fachiroh, Faculty of Medicine Universitas Gadjah Mada (UGM) Yogyakarta Indonesia

4 - Ciplukan is Ashwaganda from Indonesia
Topik Hidayat, Universitas Pendidikan Indonesia (UPI)

5 - The new technology to manage and culture seaweed in Indonesia
Ma’ruf Kasim, Halu Oleo University

6 - Potential of plasma medicine as therapeutic tools for non-communicable disease in Indonesia
Nasruddin Nasruddin, Muhammadiyah University of Magelang, Magelang, Central Java, Indonesia

7 - Omics : Dissecting The Molecular Complexity in The Jungle of Big Data
Husna Nugrahapraja, Institut Teknologi Bandung

8 - Exploring the value of natural product for targeting metabolism in cancer therapy
Agustina Nurcahyanti, Faculty of Medicine, Atma Jaya Catholic University of Indonesia

9 - Resistance of Banana and Chilli Peppers against Diverse Pathogen Attack
Aksarani Pratiwi, Institut Teknologi Bandung

10 - Genetic Population Structure for Assisting Sustainable Management and Conservation of Sumatran orangutans (Pongo abelii)
Puji Rianti, Bogor Agricultural University

11 - Parasite genotypes in relation to invasion phenotypes from falciparum malaria individual in Timika, Papua
Leily Trianty, Eijkman Institute for Molecular Biology

2 Odd numbered posters will present on Tuesday, August 2, 2016 from 4:15-6:00 p.m.; even numbered posters will present on Wednesday, August 3, 2016 from 4:00-5:45 p.m.
Biology and Medicine
12 - Development of Kaffir Lime Leaves as A Traditional Medicine For Cancer
Woro Anindito Sri Tunjung, Faculty of Biology Universitas Gadjah Mada

Chemistry, Biochemistry and Materials
13 - Antifungal and antitermite activities of essential oil of Toona sinensis stem and its composition
Morina Adfa, University of Bengkulu

14 - Accumulation of bioactive compounds in elicited Phaseoleae seedlings
Siti Aisyah, Universitas Pendidikan Indonesia

15 - Cancer Carbohydrate Nanotechnology: Understanding and Targeting Cell Surface Glycosylation in Disease Therapy and Diagnosis
Adam Braunschweig, University of Miami

16 - Responsive Nanomaterials from In Situ TEM to In Vivo Delivery
Nathan Gianneschi, University of California, San Diego

17 - Bioleaching using Local Bacteria and Fungi as Innovative and Sustainable Technology for Lithium Extraction from Lithium Ion Batteries (LIB) Waste
Wisnu Murti, Universitas Gadjah Mada

18 - Biodegradation of Persistent Organic Pollutants (POPs) by White-rot Fungus Pleurotus ostreatus
Adi Setyo Purnomo, Institut Teknologi Sepuluh Nopember

19 - Nanoparticles for Solar Cell and Energy Storage Application
Agus Purwanto, Sebelas Maret University

20 - Toward a Mechanistic Understanding of Land-Atmosphere Exchange of Reactive Nitrogen
Jonathan Raff, Indiana University

21 - A Novel Green Isolation Method of Naturally Occurring GLI-associated oncogene Inhibitors
Yusnita Rifai, Hasanuddin University

22 - The utilization of semiconductor photocatalys materials for advance oxidation process of organic pollutant degradation
Hendri Widyandari, Diponegoro University

23 - Highly Selective Bio-Oil Conversion Over Cu-modified H-Beta-zeolite catalyst
Wahyu Bambang Widayatno, Indonesian Institute of Sciences

Earth and Environmental Sciences
24 - The importance of species characteristics to understanding disease dynamics among diverse coral communities
Marilyn Brandt, University of the Virgin Islands

25 - Using modern environments to interpret the history of life in the geologic record
William Gilhooly, Indiana University Purdue University Indianapolis

2016 Indonesian-American Kavli Frontiers of Science
Earth and Environmental Sciences
26 - Land use planning in complex landscapes
Elizabeth Law, The University of Queensland

27 - Ocean anoxia and the biological pump during the end-Permian mass extinction
Katja Meyer, Willamette University

28 - Can differences in pollinator communities and consequent crop pollination deficits be detected?
Akhmad Rizali, University of Brawijaya

29 - Coral reef conservation through insights in physiology and photosynthesis
Melissa Roth, University of California Berkeley

30 - Exploration of Marine Biota Bacterial Symbiont for Bioactive Compounds in Ecologically-Friendly Fashion
Venny Santosa, Satya Wacana Christian University

Mathematics, Applied Mathematics and Computer Science
31 - Imaging Technique for Fish Identification
Esa Prakasa, Indonesian Institute of Sciences (LIPI)

32 - Application of High Performance Computing for Data Compression and Reconstruction at the ALICE-CERN TPC Detector
Rifki Sadikin, Indonesian Institute of Sciences

33 - Predicting Hospital Length of Stay of Dengue Patients using Decision Tree C4.5 Algorithm
Siti Yaumi Salamah, Institut Teknologi Bandung

33A - Green RF-Transmitter with Cartesian Delta Sigma (DS) Upconverters
Sirmayanti Sirmayanti, The State Polytechnic of Ujung Pandang

34 - Smart Environment Monitoring and Analytics in Real-time System (SEMAR)
Srirustra Sukaridhoto, Politeknik Elektronika Negeri Surabaya

Neuroscience and Psychology
35 - The Role of the Neuropeptide Oxytocin in Cognitive, Social, and Affective Aging
Natalie Ebner, University of Florida

36 - Cross-cultural dynamics of Indonesian and U.S. students’ career decision making
Dian Sawitri, Diponegoro University

37 - Brain Plasticity after long term loss of central vision
Kristina Visscher, University of Alabama, Birmingham

Social Science, Economics and Public Policy
38 - The role of attitudes and norms on individual decisions: Case study of students’ car purchase intentions
Prawira Belgiawan, Kyoto University
Social Science, Economics and Public Policy

39 - Enhancing Public Engagement in Environmental Sustainability: Insights from Behavioural Sciences
Navjot Bhullar, University of New England, Australia

40 - Trouble In Paradise:
How Women’s Intra-Household Bargaining Power Affects Marital Stability
Miryana Vinka Dayanti, Faculty of Economics and Business, Universitas Indonesia

41 - Big data, trust and collaboration: exploring the socio-technical enablers of big data in the grains industry
Aysha Fleming, CSIRO

42 - Who Gets Paid Better: A Study On Inter-Industry Wage Differentials In Indonesian Manufacturing Sector
Putri Faradina Iskandar, Universitas Indonesia, pf.iskandar@gmail.com

43 - QEERI’s Science Majlis
Yulianto (Anto) Mohsin, Northwestern University in Qatar

44 - Development of Greenpreneurship Schooling for College Student as the Strategy to Build High Global Competitiveness of Indonesia
Ai Nurlaelasari Rusmana, Indonesia University of Education
Green RF-Transmitter with Cartesian Delta Sigma (ΔΣ) Upconverters
Sirmayanti Sirmayanti, The State Polytechnic of Ujung Pandang

Abstract
The development of a new frequency tuning method for reducing noise enhancement is introduced. A mathematical derivation has been developed to predict the size and position of the unwanted images. The signal image can be removed by pre-distorting the input signal. The above improvements will enhance the use of all-digital ΣΔ based transmitters in future wireless communication system.

The management of distortion and noise is a key design challenge as is the requirement for tunability. ΣΔ techniques can shape the noise away from the carrier band for subsequent removal in a band-pass filter, but tunability remains a problem. The proposed scheme needs to have two distortion function units: pre-distortion for image cancellation (it is put at the input to the ΣΔ) and post-distortion for noise cancellation.
2016 Indonesian-American Kavli Frontiers of Science Symposium
Indonesian Academy of Sciences - U.S. National Academy of Sciences
Malang, Indonesia – August 1-4, 2016
Attendee Roster

Morina Adfa
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Associate Professor
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Fax: +62-736-20919
E-mail: morinaadfa@yahoo.com
Web: https://scholar.google.com/citations?user=cBjrpJAAAAAJ&hl=en
Research: Natural Product Chemistry; biopesticides; pharmacology
Within the scope of our research group ongoing program aimed at the systematic chemical study of Indonesia plants with a biologically interesting profile, we investigating the chemical constituents of some Indonesian plants and their antileukemic activity, antioxidant, antibacterial, anti-wood rooting fungi and antitermite activities. In this symposium I would like to present and share my research with the title Antifungal and antitermite activities of essential oil of Toona sinensis stem and its composition

Siti Aisyah
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E-mail: siti.aisyah@upi.edu
Research: Natural product, Food Chemistry
The demand for food products with health-promoting activities, the so-called functional food, is increasing. As legume species have the potential to produce an array of secondary metabolites that offer such activities, it seems attractive to employ these species for this purpose. The research will be focus on the creation of legumes-based functional foods that are enriched with phytoalexins. These phytoalexins-enriched functional foods would benefit consumer by offering the healthy food choices.

Adrianus Amheka
State Polytechnic of Kupang
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Research: Energy and Environmental system, Social-Economic Energy, Environmental Sciences
Social Evaluation of economic structure development of Kupang City, NTT Province to meet national emission policy target. This assessment becomes a pilot model for cities in Indonesia. The study also tries to integrate energy structure transformation policies in the perspective of behavioral economics aspects. Taking into account needs of the PNK and local government in the field as mentioned above, therefore all my research focused under that themes.
**Prawira Belgiawan**  
Kyoto University  
Postdoctoral Researcher  
Department of Urban Management  
C1-2-433, Kyoto daigaku-katsura, Nishikyo-ku  
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Web: https://www.linkedin.com/in/prawira-fajarindra-belgiawan-1a656583  
*Research: Travel Behavior Analysis*  
My research interest is travel behavior, specifically about changing one’s attitudes (perceptions) toward more sustainable transport modes. I have found during my master and PhD studies through various advanced regression models that there is strong evidence that attitudes and social norms significantly influence one’s intentions to buy a car. If we can alter one’s attitudes and the prevailing norms in a society, we might be able to create movements to more sustainable modes.

**Navjot Bhullar**  
University of New England, Australia  
Senior Lecturer in Psychology  
Psychology - BCSS  
University of New England  
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Web: http://researchers.une.edu.au/staff-profiles/BCSS/nbhulla2  
*Research: Social Decision Making/Behavioural Economics*  
I am a behavioural scientist primarily focusing on psychological principles of behaviour change within a range of environmental & consumer decision-making contexts. My research uses behavioural science-informed strategies (e.g., community-based social marketing campaigns, normative feedback, heuristics, social proofing) in decision choices and risk communication. I am currently working on projects focusing on improving air quality, public acceptance of recycled water use & household water conservation practices, and farmer engagement in sustainable practices.

**Beben Benyamin**  
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Centre for Neurogenetics and Statistical Genomics, Queensland Brain Institute  
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Tel: +61 7 3346 6408  
E-mail: b.benyamin@uq.edu.au  
Web: http://researchers.uq.edu.au/researcher/2702  
*Research: Genetics*  
I am an NHMRC Career Development Fellow at the Centre for Neurogenetics and Statistical Genomics, the University of Queensland (UQ). My expertise is on statistical genomic applied to large-scale omics data to dissect the genetic causes of human complex traits/diseases. My current research: 1) System genomic analyses of neuro-psychiatric diseases; 2) Mendelian randomization analysis to infer the causal effect of biochemical markers on diseases; 3) Trans-ethnic genomic analysis using samples from Asia (China and Indonesia).

**Cyrille Boyer**  
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Marilyn Brandt  
University of the Virgin Islands  
Research Associate Professor  
Center for Marine and Environmental Studies  
2 John Brewers Bay  
St. Thomas, 00802  
United States  
Tel: +1-340-693-1376  
E-mail: mbrandt@uvi.edu  
Research: Coral Reef Ecology, Marine Diseases  
My research focuses on understanding how species- and habitat-specific characteristics affect the dynamics and impact of disease in Caribbean coral reefs. The activities of my laboratory include ecological experiments in the field and in seawater tables, and these experiments build off of my work with long-term local and regional coral reef and environmental monitoring programs. My laboratory benefits greatly from immediate access to the coral reef environments of the US Virgin Islands.

Adam Braunschweig  
University of Miami  
Assistant Professor  
Chemistry Department  
Cox Science Center  
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Research: nanoscience, carbohydrate chemistry  
The Braunschweig group pursues three main research directions: (1) Synthesizing small molecules that bind cell-surface glycans, (2) Studying self-assembled donor-acceptor superstructures for solar energy harvesting,and (3) Developing 4D printing technologies.

Tatas Hardo Panintingjati Brotosudarmo  
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Ma Chung Research Center for Photosynthetic Pigments  
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Research: biochemistry and spectroscopy  
I am interested in the study of structure, assembly, modification and function of pigments and pigment-protein complexes in plants, algae, cyanobacteria and photosynthetic bacteria. I am interested to connect these studies in area of biodiversity, sustainability and agriculture, functional food, and optoelectronics. I use methods in biochemistry, chromatography, mass spectrometry as well multispectral imaging spectroscopy.

Steve Chang  
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Department of Psychology  
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Research: Neuroscience  
My laboratory investigates the neurobiology of social behavior. My primary research goal is to understand the basic neural mechanisms underlying social cognition in rhesus macaques and to learn about how such mechanisms may go awry in disorders marked by social dysfunctions. We apply single-neuron and local field potential recording techniques as well as brain region-specific pharmacological manipulations to achieve these goals.

Teguh Dartanto  
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Research: Development Economics  
I am now initiating research on "digital divide and divide of society".
Fenny Dwivany
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Web: http://www.the.bananagroup.org
Research: Plant molecular Biology
She earned her PhD in Biology from The University of Melbourne, Australia in 2004 and founder of “Banana Group” (www.the.bananagroup.org). Researches of this group are focused on:
1) Big data using multi-omics approach that correlate with biodiversity, disease and fruit ripening,
2) Advanced nanomaterial as bio-fungicide and edible coating to delay fruit ripening
3) Space biology project to study fruit ripening process

Jajah Fachiroh
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Research: cancer biomarker, (genetic) epidemiology, nasopharyngeal carcinoma, EBV
I developed EBV-based biomarkers for diagnosis and screening of nasopharyngeal carcinoma (NPC). Further implementation of these biomarkers for clinical/ population-based screening is being developed by identification of "high-risk" population. in the same time, we are developing biobank to support longterm research by ensuring good quality data and biosamples.

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Research: Aging, Social and Affective Neuroscience, Decision Making, Oxytocin
Natalie Ebner is Assistant Professor in Psychology and affiliate of the Institute on Aging and McKnight Brain Institute at University of Florida. She completed post-doctoral fellowships at the Max Planck Institute and Yale University. Her laboratory focuses on cognitive, motivational, and socio-affective experimental aging research integrating self-report, cognitive-behavioral, eye tracking, neuroimaging, and neuroendocrine techniques. Her recent work is interventional towards improvement of cognition and socio-affective functioning in advanced age via oxytocin administration and neurofeedback training.

Raphael Flauger
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Research: Theoretical Physics
The Wilkinson Microwave Anisotropy Probe (WMAP) and Planck satellite missions have collected data that allow us to construct an image that shows the universe 13.8 billion years ago. I use this data to extract clues about the very early universe and to test and refine the theories that describe it. In addition, I am interested in both formal aspects and applications of quantum field theories.
Aysha Fleming
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Land and Water
Castray Esplanade
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Research: Social science
I have recently completed a project on big data in agriculture, looking at the social science of barriers and enablers for big data. I am hoping to extend this work into further case studies. I am also currently working on the role of digital technologies to enhance lifelong participation in an ageing society. Additional projects have a marine focus in terms of sustainability and developing social indicators. I also supervise students on marine conservation issues.

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Research: Chemistry
A set of strategies are being developed in our laboratories to incorporate peptides and nucleic acids into novel polymeric synthetic materials. We aim to develop bioresponsive, and bioactive chemical systems through innovations in the synthesis and the characterization of dynamic systems at multiple length and time scales.

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Research: Geobiology
My lab focuses on the biogeochemistry of modern and ancient environments. We are currently studying the ways in which microbial activity is recorded in minerals deposited in anoxic lakes. The biotic signals can then be used as clues to interpret the history of living organisms in ancient sedimentary rocks.

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Research: Coral Reef Ecology
I am interested on the underlying mechanisms of spatial and temporal patterns of communities in coral reef systems. This includes general interests on system dynamics, landscape and macro-ecology. I lead the shallow reef research of the XL Catlin Seaview Survey, a project aimed at understanding spatial and temporal patterns of coral reefs worldwide using emerging technologies in underwater photography and machine learning.

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Research: Enterprise Information Systems Design and Implementation
Having Informatics and Industrial Engineering education background, my current research areas are quite broad, including: the design and implementation of information systems (IS) to support manufacturing or industrial systems, the implementation of e-business systems (ERP/enterprise resource planning, e-commerce, supply chain management), and the adoption and implementation of IT in healthcare. At this moment, together with several PhD and master students, we are working a lot on IT diffusion in healthcare and ERP post-implementation management.
Firdaus Hamid
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Research: infectious diseases, allergy, immunology, microbiome
I am having a great interest in Immunology particularly in epidemiological based of immunologic diseases. For the past 5 years, I am doing my research about ‘The relationship between helminth infection and allergy diseases in Indonesia’. In addition, I will do a study about the profile of gut microbiome, the blood microbiome and the inflammatory pathways engaged in communities where lifestyle and environmental exposures are different.

Anggoro Budi Hartopo
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Research: Cardiovascular Disease
Cardiovascular disease continuum (CDC) forms a progressive processes in molecular and cellular levels that manifest as clinical diseases. We investigate the pathophysiology underlying acute coronary thrombosis and consequent myocardial infarction as part of CDC. We currently investigate the role of microparticle in the developing myocardial infarction. Other research activity is to investigate the biomarker for remodeling after acute myocardial infarction. We investigate the stress biomarker during acute phase to predict long term remodeling process.

Leonie Heilbronn
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Research: Obesity, Diabetes, Aging
A/Professor Leonie Heilbronn is an ARC Future Fellow at the University of Adelaide and the South Australian Health and Medical Research Institute (SAHMRI). Dr Heilbronn completed her PhD in 2001, and went on to research positions in the United States and Sydney, before returning to Adelaide. Her research goal is to reduce chronic disease risk through a greater understanding of nutrition, and metabolism in muscle and adipose tissue. She has published >75 peer reviewed papers, and is an associate editor for Obesity Research and Clinical Practice.

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Research: Plant Molecular Systematics
My research interests is ranging from plant taxonomy and biosystematics to molecular phylogenetics. Molecular approach has been applied to address taxonomic and phylogenetic problem of various plant groups, such as Orchidaceae (Subtribe Aeridinae), Anacardiaceae (Mangifera), Euphorbiaceae (Phyllanthus), Bromeliaceae (Ananas), and Solanaceae. The main current projects include molecular phylogenetic screening of Indonesian medicinal plant and its barcode. Biodiversity literacy and citizen science are also coming to my interest recently.
Gregory Holland
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Research: Chemistry
The Holland Lab explores the molecular structure and dynamics of complex biological and technologically relevant materials. We are interested in scientific problems that lie at the interface of chemistry, biology and materials science including biologically inspired materials and nanostructured systems. The primary focus is on developing nuclear magnetic resonance (NMR) methods to elucidate the molecular mechanisms of biopolymer assembly. A continuing theme is connecting the role of molecular structure and dynamical features to material properties.

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Research: structural engineering, earthquake resistant structures
I have just finished my PhD in Structural Engineering which focused on the composite structural member using fiber - concrete and steel. I am currently looking for further observation on waste material for construction including recycled concrete and metal. I also interest in the impact of disaster on building construction and climate change for the idea of sustainable development. The aim of my research is for the possibility to reduce enormous impact of disasters.

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Research: Information Systems
My main area of research is the social impact of advances in Information Systems and technology on society. I am currently working on projects in the area of systems interoperability in disaster management, information practices amongst farmers in Africa and cyber security in international business. My work has been published in leading international journals and I have been invited by international agencies, private firms and academia to present my research.

Ma’ruf Kasim
Halu Oleo University
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Faculty of Fishery and Marine Sciences
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Research: Development and cultivation of seaweed
I am currently designing a seaweed cultivation technology that could be useful to increase the production of seaweed. This study is based on the various problems faced by the community. Thank you to the 2016 Indonesian-American Kavli Frontiers of Science committee for inviting me to this symposium. It will be very useful for sharing information and knowledge related various update sciences. It will be useful for my research career in future.
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Research: Robotics
Robots have the potential to revolutionize nearly every aspect of our lives. Going beyond their traditional niche of "dirty, dull, and dangerous" jobs, robots will work side-by-side with humans, using their complementary skill sets to enhance our productivity both at home and at work. My research focuses on algorithms and techniques that give robots the dexterity, creativity, and social intelligence to solve complex problems, like furniture assembly and food preparation, for and with humans.

Elizabeth Law
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Research: Environmental science, Applied economics
I pioneer novel, interdisciplinary methods that comprehensively evaluate the environmental, economic, and social trade-offs evident in environmental policies. I focus on agricultural production landscapes, which face increasing pressure to deliver on multiple outcomes, including production, biodiversity conservation, and climate change mitigation. My research aims to explore how production landscapes can be sustainably managed, to both capitalise on and enhance their multifunctional capacity, and to provide outcomes that are effective, efficient, and equitable for all stakeholders.

Corby Martin
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Research: Weight loss, food intake, mobile health, health promotion
My research interests include the study of food intake and the application of novel technology to monitor and modify people’s behavior through mobile health (mHealth) interventions while they reside in their natural environment. With colleagues, I have developed smartphone apps to assess food intake based on images of meals, as well as weight management apps that help people remotely manage their weight without the burden of visiting clinics to receive treatment.

Ryan McKenzie
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Research: Geology/Earth System Science
My research aims to better understand the dynamic co-evolution of life and the Earth system through integrative geochemical, geochronologic, and paleontological studies generally focused on the sedimentary rock archive. I am particularly interested in understanding how plate tectonic processes influence climate, ocean–atmosphere chemistry, and biospheric evolution. My active research projects investigate mountain building processes and their potential influences on long-term carbon cycling, seawater chemistry, and mass extinctions.
Mónica Medina
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Research: marine biology
I am an organismal biology interested in the ecology and evolution of marine invertebrates, primarily cnidarians and molluscs. Part of my research deals with the use of genomic approaches to study life history of corals and how they are coping with climate change. My lab also studies the evolution of biomineralization in animals as an theoretical model to understand the challenges with character homology over large evolutionary scales.

Katja Meyer
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Research: geobiology, stable isotope geochemistry, Earth system modeling
I am a geobiologist interested in the record of ocean euxinia, the role of the biological pump in ocean deoxygenation, and the impact of euxinia on the evolution of marine animal ecosystems. I use numerical modeling and isotope geochemistry to explore the links between euxinia and mass extinction, using the end-Permian mass extinction as a case study. My current work focuses on the use of sulfur isotopes to examine the Early Triassic sulfur cycle.

Yulianto (Anto) Mohsin
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Research: Science and Technology Studies, Public Understanding of Science
I have been studying QEERI's Science Majlis as a form of a public outreach program in the hope of understanding how a scientific culture is cultivated among the public.

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Research: health informatics
Dr. Montague is an Assistant Professor in the Feinberg School of Medicine and Division of General Internal Medicine at Northwestern University. She directs the Wellness and Health Enhancement Engineering Laboratory (WHEEL), the Usability in Health IT program and the Human Factors and Usability Research program of the Chicago Health Information Technology Regional Exchange Center (CHITREC). Dr. Montague specializes in human factors and ergonomics, human computer interaction and health systems engineering. She received her Master's and Doctoral degrees from Virginia Tech primarily in Industrial and Systems Engineering.

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Research: climate change
Global scale analysis of human impact on nature and their feedback.
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Research: Plasma medicine
Generally, my research is in plasma medicine. Plasma is fourth state of matter after solid, liquid and gas. Plasma medicine is an innovative and emerging field combining plasma physics, life sciences and clinical medicine to use physical plasma for therapeutic applications, like for wound, cancer, etc. My research interest is more focus on plasma medicine for experimental wound healing.

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Research: Genomics, Transcriptomics, Non-coding genome
I am keen to begin a career in plant sciences. My PhD work has focused on analyzing transcriptomic data from Maize's specific organs on different genotypes. The aims are to extract the biological information from RNA Seq data using particular specific mutant maize to describe pollen-pistil mechanism and to discover the major factor behind crossing incompatibility in maize. My current and/or research interests are to explore genomics, transcriptomics, and non-coding genome in living organisms.

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Research: Molecular pharmacology of natural product as anticancer and antioxidant
Emerging interest on novel compounds for cancer therapy and modification of tumor metabolic environment, fashion a novel combinatorial metabolic-chemotherapy targeting strategy, which also include overcoming MDR issues. Shifting of medical focus from healing/treatment to preventive action, possibly leads to the use of natural product for cancer prevention. The current and future research relates to the exploration of Indonesia's mega-biodiversity, aiming to develop standardized herbal products, as well as discover new lead compounds for cancer therapy.

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Research: Microbiology
Indonesia is an archipelago country that consisting of various ethnic cultures. Each ethnic has uniqueness in terms of their traditional food. The traditional foods have not been studied about the microbial content and its impact on health. Therefore, I am interested to analyze the microbial content of the entire Indonesian traditional food and its effects on human health.
Rimawan Pradiptyo  
Universitas Gadjah Mada, Indonesia  
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Research: Law and Economics, Applied Game Theory and Experimental Economics  
Since 2010 I have conducted several studies using experimental approach for policy formulation purposes. I think this is the avenue that need to be extended as most studies using experimental method tend to prove economic theory, however limited attempt has been made to use experimental method for policy formulation. This is the real challenge to conduct the experiment since the participants may come from various education and income backgrounds.

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Research: 3D medical imaging, computer vision, visual inspection, and pattern recognition  
I am currently conducting some researches related with computer vision such as visual inspection on sensor chips and corn seeds. My research on fish identification using imaging technique is recently started in 2016. The results will help marine researchers to deal with fish identification problems. Research Center for Oceanography, LIPI is involved in this research to provide real data and to validate the results.

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Research: Information & Communication Technology

Adi Setyo Purnomo  
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Research: Biodegradation of Persistent Organic Pollutants (POPs)  
I interested on green chemistry especially for degrading POPs by using microorganism. Recently, I investigated P. ostreatus as the best source, for degrading some of POPs such as DDT, heptachlor and heptachlor epoxide in contaminated soils. However, optimization of this method is still needed. Now, I am investigating the effect of addition of bacteria on fungi culture to enhance POPs degradation result. The relationship of bacteria and fungi to degrade POPs will be also investigated.
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Sebelas Maret University  
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Research: Nanotechnology, Energy  
My research group has conducted a lot of activities related to the development of methods and processes to produce nanomaterials and its application in energy. The application is focused in solar cell and lithium battery. For solar cell application, we developed FTO thin film with high performance using very simple spray method. Using LiFePO4 nanoparticles, a 18650 type battery were constructed. The cell capacity of 1000 mAh can be produced using this material.

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Research: Metabolomics, Microbiology  
My research interests and current activities are the application of metabolomics, a field that is focused on the large scale quantification of metabolites in a biological system, and its application for various applications. I am interested particularly in the application area of microbial-based chemical production and biofuel research, food quality improvement, effect of food for human health as well as basic microbiology, cell biology and plant biology.

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Research: Environmental Chemistry  
I am an environmental scientist interested in gaining molecular-level insights into the fundamental processes that drive air pollution and human-induced climate change. My laboratory uses a multidisciplinary approach that combines field and laboratory studies; we employ state-of-the-science techniques to measure trace gases in addition to methods employed in fields of aquatic and soil chemistry, and molecular biology. Our work provides data necessary to inform pollution control policy that has direct benefits to improving human/environmental health.

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Research: Maternal and Infant Nutrition  
Dr. Leanne M. Redman an experienced clinical researcher with a particular focus on the physiology of body weight regulation in humans. She has more than 10 years of experience in designing and conducting controlled studies in humans where diet and physical activity are manipulated to alter body energy stores (fat and muscle), and therefore body weight. Dr. Redman is a native Australian and has spent the past 13 years in the United States with majority of this time at Pennington Biomedical Research Center where she is an Associate Professor and directs a research program in Reproductive Endocrinology and Maternal/Infant Health. The current focus of research in her laboratory is dedicated to understanding the role of maternal factors on the genesis of obesity and factors influencing obesity development in children beginning early in life. These in-depth studies implement innovative SmartPhone technologies that were invented by Dr. Redman and her colleagues to deliver health and weight management interventions. Dr. Redman has published more than 100 research papers around obesity, energy metabolism, insulin sensitivity, calorie restriction and exercise.
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Research: Animal of Biosystematics and Ecology
Currently, I am working on the evolutionary history of primates including human. My focus is in their evolutionary genetic structure for its biosystematics and conservation management units. It includes the understanding of the human roles in preserving the natural biodiversity, ecology, as well as their existence on earth.

Yusnita Rifai
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Research: Green Chemistry (Natural Product Chemistry)
My research interests lie in the area of drug discovery, including exploring naturally occurring Glioma inhibitors and their synthetics. The isolation process of compounds using volatile organic solvents (voc) usually generate significant quantities of chemical waste, forcing us to develop new methods with reduced environmental footprint. We developed a new method for a quick isolation of compounds-bound to GLI, a specific target protein for cancer, that was immobilized on magnetic beads.

Akhmad Rizali
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Research: Entomology, Agroecology, Biogeography, Landscape Ecology
Akhmad Rizali is a faculty member at Department of Plant Pests and Diseases, University of Brawijaya. His main interests include entomology, agroecology, biogeography and landscape ecology. For the past few years, he has been active with Bogor Agricultural University and FAO-UN, conducting research on detecting pollination deficits in Indonesia. Recently, he has a research plan about economical valuation of natural habitat in palm oil plantation with perspective on its support to beneficial insects.

Melissa Roth
University of California Berkeley
Postdoc/HHMI Researcher
Plant and Microbial Biology
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Research: marine biology, conservation, coral reefs, physiology, photosynthesis, microalgae
I am interested in how the environment shapes physiology and ecology of marine and photosynthetic organisms. My research focuses on the coral-algal symbiosis and commercially valuable microalgae, and the underlying physiological mechanisms that govern tolerances, responses, and adaptation to environmental variability and change. I use a variety of approaches from molecular genetics to laboratory experiments to fieldwork to investigate human impacts on marine ecosystems, monitor ecosystem health, and provide solutions to mitigate problems.
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Research: computational sciences, high performance computation
My current research activities are most of them on the issue of parallelization of a computation problem in science. My group is now developing High Performance Computation of two problems at one of detectors at ALICE-CERN collaboration. My planned activities are High Performance Computation solutions for problems in computational sciences and big data analytics. These include mathematical modeling and simulation, proper numerical methods, and parallel algorithm development for computer cluster and/or accelerator implementation.

Asep Saepuloh
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Research: Remote Sensing Volcanology
My research is directed towards the use of microwave remote sensing for geological and volcanological applications with specific aim of use back-scattering Synthetic Aperture Radar (SAR) approaches to integrate space borne and field data into models.

Venny Santosa
Satya Wacana Christian University
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Research: Marine biology
My research interest is in the molecular biology field, especially related to microbiology. My current research deals with the exploration of marine biota for novel biological compounds in ecologically-friendly fashion, by the use of marine biota bacterial symbiont. Our current focus is on the lipid-soluble pigments produced by bacterial symbiont. To date, we have characterized several marine biota, their bacterial symbionts and pigments from the sea around Karimunjawa Island, Indonesia.

Dipanwita Sarkar
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Economics and Finance
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Research: Behavioural Economics, Applied Econometrics
As a behavioural economics researcher, I study individual decision-making by conducting economic experiments in the field and laboratory. I have played a leading role in several projects that involve collaboration with national and international partners, including government agencies. My primary focus has been in the areas of economic development, education, and health, but I would like to expand my research with an inter-disciplinary focus as well as wider applications in the context of developing economies.
Ari Winasti Satyagraha  
Eijkman Institute for Molecular Biology  
RBC Disorders  
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Research: RBC Membrane Disorders, G6PD Deficiency, Neonatal Jaundice, UGT 1A1, Methylation, X-chromosome inactivation  
My research interests include G6PD deficiency, RBC inherited disorders, neonatal jaundice, UGT 1A1 mutations, malaria, X-chromosome inactivation and methylation pattern, and epigenetics. My lab currently is active in G6PD research in relation to malaria therapy. However, we are expanding to epigenetics study with G6PD as model.

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Psychology  
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Research: Adolescent and adult career development; cross-cultural psychology  
My research areas include adolescent and adult career development, and cross-cultural psychology. I have a project with an Australian partner regarding the career development of Indonesian academics. I propose a cross-cultural research regarding career progress of Indonesian and Australian undergraduate students, and now I am still preparing a proposal regarding the consequences of career identity in Indonesian and U.S undergraduate students. I look forward to having more collaborations with Australian, and U.S. partners.

Sirmayanti Sirmayanti  
The State Polytechnic of Ujung Pandang  
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Research: Telecommunication Engineering  
My current scientific interest is to develop a low power digital transmitter structure suitable for the next future generation of cellular system. The developed structure will allow all-digital tunability eliminating the need for analog components and programmable to different wireless standards. This work is addressing green communication concept for the energy efficiency of the telecommunications sector. Its goal covers any products that can transmit or receive the information in a digital form.

Yudho Sucahyo  
Universitas Indonesia  
Associate Professor  
Computer Science  
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Research: e-Government, Knowledge Management, Information Security, IT Governance, Business Intelligence  
My research interest is on how Internet-based technologies and policies can contribute to Digital Economy's growth. Internet-based technologies need IT resources which are applications, infrastructure, information and people. However, effective implementation of technology will need policies, including policy on privacy, information security and data sovereignty. Recent development shows that while most developing countries are drafting policies on Digital Economy, establishment of regional agreement such as TPP and RCEP will also have impact to national policy.

2016 Indonesian-American Kavli Frontiers of Science  
Roster of Attendees
Sritrusta Sukaridhoto  
Politeknik Elektronika Negeri Surabaya  
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Creative Multimedia Department  
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Research: computer networks, embedded system, multimedia and Internet of Things  
Smart Environment Monitoring and Analytics in Real-time System (SEMAR),  
We developed environment monitoring systems that consist of:  
1. Big Data analytics  
2. ROV with water quality sensors  
3. Buoy Wireless Mesh Access Point  
4. Low-cost portable handheld water quality monitoring system  
5. Coral reef monitoring system  
6. Early warning disaster system  
For future works, renewable energy to support our system is needed, and also integration with smart city.

Leily Trianty  
Eijkman Institute for Molecular Biology  
Malaria Pathogenesis  
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Research: Molecular and pathogenesis of malaria infection  
My research at the Eijkman Institute initially involved analysis of red blood cell polymorphisms such as Southeast Asian Ovalocytosis (SAO), Duffy-blood type antigens, polymorphism of glycophorin C (GYPc) and also in cyp2c19 gene involved in drug metabolisms under the population genetic. My current research involved analysis of pathogenesis of malaria invasion in human erythrocyte. My planned research, I will analyze antibodies response against the protein antigens that are involved in the invasion process as well.

Teguh Triono  
The Indonesian Biodiversity Foundation (KEHATI) Program  
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Research: biodiversity, Ecology, Evolution, Systematic  
I am a plant taxonomist with research interest on biodiversity, ecology, evolution and systematics. I am currently working as Program Director of The Indonesian Biodiversity foundation (KEHATI) in coordinating programs on biodiversity conservation and biodiversity sustainable use in 130 sites (some are Citizen Science project on Terrestrial and Marine) throughout Indonesia. I am also work as Lecturer in Gunadarma University, in biodiversity informatics with aim to establish an open access database for Flora Indonesia.

Woro Anindito Sri Tunjung  
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Research: Biochemistry, Molecular Biology, Traditional medicine  
Indonesia is one country in the world which is famous for traditional medicine. My research focused on developing Indonesia native natural product which function as traditional medicine especially for noncommunicable diseases. The research include getting scientific information about the action efficacy, Analysing bioactive compounds in natural product, producing standardized raw materials for traditional medicine and increase efficacy of drug delivery of traditional medicine which directly to targeting cell.
Kristina Visscher
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Research: Neuroimaging/neuroscience
How is it that we can process the same information in different ways at different times? Humans have a remarkable ability to process inputs from the environment flexibly. Our lab is interested in understanding what brain mechanisms underlie this ability and how those mechanisms change with age and experience. We study human behavior and brain activity using precise behavioral measurements (including psychophysics and tracking of eye movement), functional magnetic resonance imaging (fMRI) and electroencephalography (EEG).

Felix Warneken
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Research: Psychology
I am a developmental and comparative psychologist studying the behaviors of humans and chimpanzees. My main interested is in exploring the origins of human cooperation: What motivates us to care about the needs of others? How do we decide what’s fair? How do biological and societal factors interact to bring about cooperative behavior? I address these questions by comparing behaviors of human children with those of chimpanzees, and explore similarities and differences across human cultures.

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Research: Material Science & Engineering
Porous materials plays important role on many applications, including catalysis. I focuses on the modification and characterization of porous materials properties, particularly zeolite, in correlation with their catalytic performance. In my previous works, I demonstrated that the balance of Bronsted and Lewis acidity in commercially metal-modified H-Beta-zeolite could provide good synergy for catalytic deoxygenation of bio-oil. In the future, I plan to elaborate the properties improvement strategy of natural zeolites for various applications.

Hendri Widiyandari
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Research: Material Physics and nanotechnology
My research group has conducted a lot of activities related to the development of methods and processes to produce functionalized materials since 2009. The application of material is such as for organic substance decomposition using light irradiation, battery for energy storage, solar cells as energy converter as well. These research has been supported by Indonesia government (UNDIP, Kemenristek, Kemenristek Dikti, Kementan) and international agencies (TORAY-Japan; TWAS-Italy; Loral-Unesco).
Indonesian Organizing Committee
Fenny Dwivany, co-chair
Teghh Dartanto
Rajesri Govindaraju
Topik Hidayat
Ari Winasti Satyagraha

American Organizing Committee
Nathan Gianneschi, co-chair
Natalie Ebner
William Gilhooly
Monica Medina
Enid Montague

Advisory Committee
Satryo S. Brodjonegoro
Budhi Suyitno
Daniel Murdiyarso
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Research: Mechanical Behavior of Engineering Materials
Each engineering material has its properties such as threshold size, critical crack length, and crack propagation rate, and the data is available in many publications as well as references and handbooks. Current research works are focused on how to prevent fatigue failure from material point of view, e.g. by inventing new alloys or composites or even new materials with minimum defects or cracks and with certain grain structure and orientation that will block any propagation. Research is also conducted on the contact mechanism of mechanical surfaces of engineering materials, to observe and study the deformation and/or damage caused by the contact. This information is quite useful for predicting the lifetime and/or reliability of the engineering materials as well as of the constructions and equipment.

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Research: Forest Meteorologist and Senior Scientist at the Center for International Forestry Research (CIFOR). Professor at the Department of Geophysics and Meteorology, IPB, who has published a large number of articles in peer reviewed journals and book chapters. He played an extensive role in the Nobel Peace Prize-winning IPCC as Convening Lead Author. Served the Government of Indonesia as Deputy Minister of Environment (2000-2002). Since 2002 he is a member of the Indonesian Academy of Sciences.

Budhi M. Suyitno
Senior Advisor to the Minister of Transport On Regulations and Safety
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Research: Graduated aviation engineer of the Institute Technology Bandung (ITB) and the aeronautics and space specialist of l'ENSAE (Ecole Nationale Superieure d'Aerotechnique) Poitiers, France. A number of articles were published in the Ageing Aircrafts and Journals. As a government engineer he was in charged for the type certification process of the Indonesian CN-235-110 and N-250 aircrafts (1993-1995) and the implementation of ICAO Indonesia Declaration on Aviation Safety and Security (2007-2008). He was also responsible as the government representative in the establishment of the Aviation Law (2008-2009).
USAID Student Observers

Nurlaelasari Rusmana Ai
Indonesian University of Education
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Research: Science Education
As a biology education student, I am interested to conduct research about science education includes learning media and reasoning science student to scientific issues. I have ever conducted research about productive questions model card in improving student's ability to ask productive questions. Recently, I am also preparing a research proposal related with reasoning in STEM Education, exactly engineering design process. In the future, I am eager to be professional educational researcher.

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Research: Diversity of Bryophytes in Jayagiri Forest
Bio conservation of medicinal plant in Indonesia. I'm interested in biodiversity plant conservation and environmental sciences. Indonesia is a country with a high rate of diversity of plants. The biological natural resources in Indonesia is very abundant and varied as well, thousands species of plants has been known and utilized as a traditional biomedicine. One of my planned research activities is about develop the utilizing of medicinal plant in Indonesia.

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Research: Public finance, public policy analysis, and family economics
Recently, I just finished my research concerning family economics and planned to conduct a research with relevant topic. Having interests in public policy analysis and public finance, I am planning to pursue researches in the related fields.

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Research: Genetic plant transformation
I currently doing my thesis research. I am working on genetic transformation of OsRKD4 gene to induce somatic embryogenesis in Indonesian black rice. Black rice contains high level of anthocyanin that is good for our body. But the productivity of black rice in Indonesia is low due to long harvest time. So I try to produce large number of black rice seedling through genetic transformation. I also interest in the nutritional content of black rice.

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Research: Economics
Recently, I just finished a research on inter-industry wage differentials in Indonesian manufacturing sector, an issue that is believed by many researchers to have a significant contribution to income inequality. Hence, I am interested in continuing further research on both wage differentials and inequality issues in Indonesia.
Ravi Mahesta  
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Research: Computational Chemistry  
My research is about molecular dynamic simulation of gas separation using inorganic membrane. Membrane used in this research is MgO membrane that have both good mechanics and chemicals strength. The purpose are to know the stability and performance of MgO membrane and get useful data for the synthesis of the membrane in laboratories. Work in molecular dynamics simulation are so fun because we can know something that no one ever did before in real life.

Afifah Makhirliana  
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Research: Molecular Pharmacology/Pharmaceutical Technology  
During my study at Faculty of Pharmacy, i realized that pharmacy is a field of science that was very unique and very important for the health of many people. The subject i concerned at Pharmacy is Molecular Pharmacology. I got a lot of interest with a natural compound/extract from endemic plant which can be used as Chemotherapy Agent. Now, my research is about the Anticancer activity of natural compound at H1299 Cell Lung Cancer.

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Research: Bioengineering  
I have been involved on bioleaching project in my department since 2 years ago. For previous research we tried to recover lithium metal from spent battery of electronic devises using ecofriendly process called bioleaching. This method now has been trying to be applied on nickel laterite mining process through my second research. My concern and interest is always bio-engineering.

Aksarani Pratiwi  
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Research: Biotechnology  
My research activities are about fruit quality improvement using biotechnology as the tool. For example, finding resistance genes candidate as to enhance the fruit defense system against pathogen’s infection and using a modified environment to extend the fruit shelf life. I am interested in big data analysis such as omics data analysis.
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Research: Information and Decision Support System  
My current research focuses on improving decision support system in a local hospital by applying data mining technique to gain insight useful for healthcare decision support. I implemented data mining methods to find a new pattern in dengue fever patient medical records that could predict inpatient length of stay at the hospital. Based on the result, I plan to conduct further research on how to apply this prediction ability to better manage healthcare resources.

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Research: Red Blood Cell Disorder  
My current research activity is on red blood cell disorder, specifically in G6PD enzyme deficiency. As an intern student in Eijkman, Jakarta, I have been helping Dr. Ari Satyagraha in her current research in determining the genotype of women with intermediate to normal G6PD activity. My interest is in forensic DNA research. In the long run I'd like to analyse DNA from biological signature to help law enforcement in determining the identity of the victim.

Guests, Media and Staff

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Research: Space engineering, International S&T Collaboration, Science Diplomacy  
Dr. Najib is currently working on international development and science diplomacy programs. She is the program director for the Arab-American Frontiers program of Science, Engineering and Medicine at NAS and she currently manages a USAID-funded grant to build the institutional capacity of the Indonesian Science Fund (DIPi) in grants management. She also works on the Partnership for Enhanced engagement in Research (PEER) program. She holds a PhD in space engineering from University of Michigan.

Edward Patte  
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Research: scientific program management  
scientific program management; science diplomacy