



**INSTRUMENTATION, MEASUREMENTS AND COMMUNICATIONS
FOR THE FUTURE
Bandung – Indonesia, 11 – 13 July 2001**

Hosted by :
Institut Teknologi Bandung (INA)
Universität der Bundeswehr Munchen (D)

Organized by :
International Business Technology Science (I-BiTS)
Lab. of Electronics and Instrumentation, Dept. of Physics, ITB

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The Ministry of Research and Technology of Republic Indonesia
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Indonesian Chamber of Commerce and Industry (KADIN)
Ministry of Communication of Republic Indonesia
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Communications and Information (IECI)
The Indonesian Infocom Society (MASTEL, INA)
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Dept. of Physics, Institut Teknologi Bandung
Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung

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Hendayun	(INA)	L.A. Pasasa	(INA)	H.-R. Tränkler	(D)

Welcome

On behalf of the organizing committee we would like to welcome you to the conference Instrumentation, Measurements and Communication for The Future in Bandung Indonesia.

The conference will highlights recent and significant advances in many research field related to Instrumentation, Measurements and Communication such as Design, Theory, Signal Processing, Communication, Systems and Application fields.

General assembly report about recent advances in many fields of interest at a glance, significant, contributions from several research fields including fundamentals, environment, subsystems and total systems for specific applications are presented.

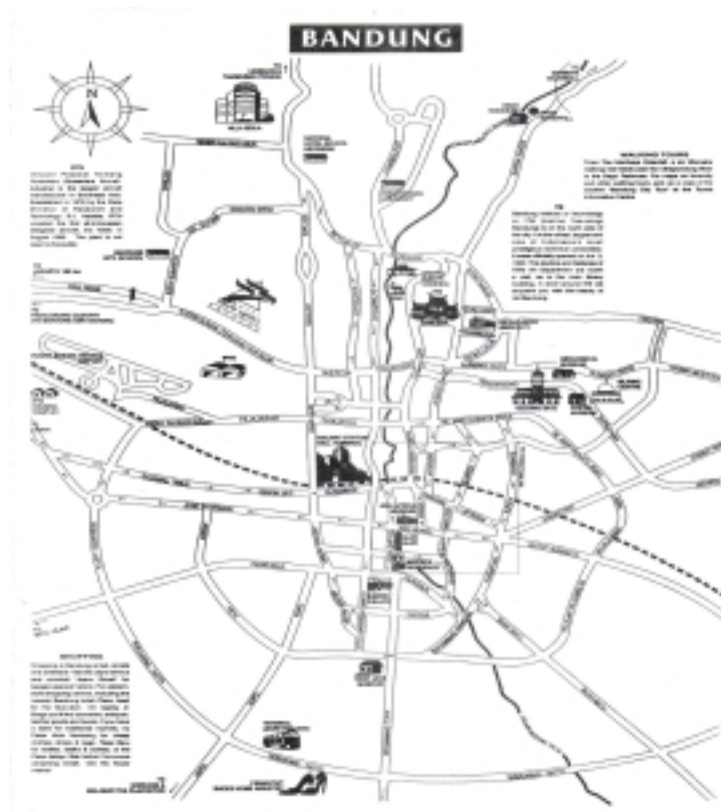
This conference was mainly realized in a cooperative work between Indonesian and German scientists, and scientists from other countries, which have been taking the initiative for this challenging, project for the promotion of science and technology in the field of Instrumentation, Measurement and Communication.

We welcome all participant from both countries and also from other countries such as Japan, United Kingdom and Morocco which significantly contribute to the success of the conference.

Mitra Djamal
Conference Chairman

Hans.-Rolf Tränkler
Conference Vice Chairman

General Information



The location Bandung is in the Highland of West Java, 180 km south of Jakarta the capital city of Indonesia, 400 km west of Yogyakarta the art and culture city.

Bandung is a nice town, it is usually called the Paris from the East

For more information about the country see :

<http://www.indonesiatourism.com>

For more information about Bandung see :

<http://www.westjava.com>

Transfer to Bandung

For groups of min 5 persons, the transfer from Jakarta Sukarno Hatta Airport to the hotels costs 50 US\$.

The transfer time is :

Jakarta - Bandung approx 4 hours

You should book the transfer to :

I-BITS

Tel./ Fax. +62.(0).22.5207498

There are additionally different possibilities to travel to Bandung :

- Taxi or collective taxi
- Taxi from Airport to Gambir Station, by train to Bandung until Kebon Kawung Station, and then by taxi to Hotel

The Host Country Indonesia

Official Language

The official language in Indonesia is Indonesian. Mother language of west Java is Sundanese.

Due to Bandung is student town, most people can speak other language like English.

Currency Exchange

International currencies can be changed in banks or money changers to Indonesian Rupiahs (Rp). The exchange rates to and from US\$ and DM are approximately:

1 US\$ = Rp. 11.425
1 DM = Rp. 5.000

Bank opening times :

Monday – Thursday : 08.00 – 12.00 and 13.00 – 15.00
Friday : 08.00 – 11.00 and 13.30 – 15.00

Money Changer opening :

Monday – Thursday : 08.00 – 12.00 and 13.00 – 15.00
Friday : 08.00 – 11.00 and 13.30 – 15.00
Saturday : 08.00 – 12.00

Furthermore, in most hotels, there are possibilities to change little amounts of money.

Time Zone

Indonesia has six hours different time zone with Germany.

Climate

The middle temperature in July is about 21° C. The middle water temperature is about 18° C. The weather in July is generally nice.

Mobiles

The system for mobile phone in Indonesian is the GSM.
The German D1 and D2 phones can be principally used in Indonesia.

Conference Secretariat

Lab. of Electronics and Instrumentation, Dept. of Physics, ITB

Address : Jl. Ganesha 10, Bandung 40132

E-mail : mitra@fi.itb.ac.id

Conference Web Site

<http://www.fi.itb.ac.id/~imcf/>

Conference Registration Desk

The conference registration desk will be indicated in the hotel Grand Aquila and will open as follows :

Wednesday, 11 July	08.00 – 16.00
Thursday, 12 July	08.00 – 16.00
Friday, 13 July	08.00 – 16.30

Payment Method and Registration Fees at the Conference Site

Payment of the registration fees during the conference will be possible also in cash. The conference fee is \$ 325.

Hotel Reservation

The conference Hotel is :

Grand Aquila (**)**
Jl. Dr. Djundjuran No. 116 (Terusan Pasteur)
Bandung 40173 Indonesia
Tel. +62.(0).22.2039280, Fax. +62.(0).22.2039282

Social Program

Following excursions could be hold by corresponding interest. Final program will be given during the conference.

Bandung City Tour	½ day	12 US\$
Bandung Volcano Tour	1 day, included lunch	20 US\$
Padasuka Village Tour	½ day	14 US\$
Shopping Tour in Bandung	½ day	10 US\$

Jakarta Package Tour	2/1 day	Half Twin	Single Supplement
SariPacific/Hotel Indonesia/Similar		75 US\$	35 US\$
Jakarta Package Tour	3/2 day	Half Twin	Single Supplement
Sari Pacific/Hotel Indonesia/Similar		130 US\$	70 US\$

Toraja Package Tour	3/2 day	Half Twin	Single Supplement
Novotel Toraja		215 US\$	60 US\$
Toraja Prine		195 US\$	35 US\$
Toraja Package Tour	4/3 day	Half Twin	Single Supplement
Novotel Toraja		320 US\$	90 US\$
Toraja Prine		290 US\$	52.5 US\$

Yogyakarta Package Tour	Half Twin	Single Supplement
2/1 days	100 US\$	25 US\$
3/2 days	135 US\$	45 US\$
4/3 days	215 US\$	65 US\$

Conference Dinner

The conference dinner includes cultural fascinations from the host West Java - Indonesia. An extra ticket for accompanying person costs 12 US\$.

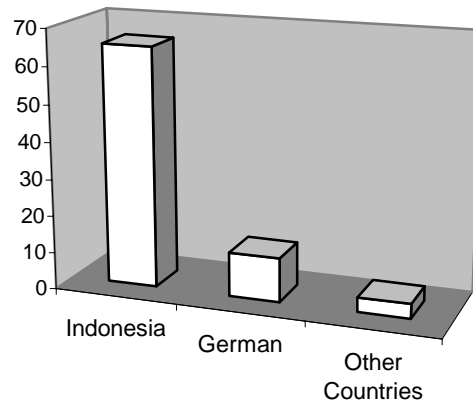
Additional Proceedings

Additional copies of the conference book cost 20 US\$.

Technical Program

Submitted Papers

Statistic :



Information to the Authors

The sessions A and B are reserved for oral presentations.

Official Language of the Conference

The official language of the conference is English and will be used for all presentations and printed material.

Oral Presentations

A 20 minute time slot (incl. Discussion) is allocated for each contributed oral presentation. A standard slide projector and eventual a video projector. In all cases you should have necessarily slides at the same time.

Schedule IGC 2001
Instrumentation, Measurements and Communication For The Future
Bandung, 11 - 13 July 2001

	Wednesday, 11 July 2001	Thursday, 12 July 2001	Friday, 13 July 2001
08.00	Registration	Registration	Registration
08.30	Opening	Plenary 3	Plenary 5
09.10		Plenary 4	Coffee Break
10.00	Coffee Break	Coffee Break	Parallel Sessions A6 & B6: Sensor System 2 & Measuring/Analyzing
10.30	Plenary 1	Parallel Session A3 & B3: Life Sciences & Sensor Technology	
11.10	Plenary 2		
12.00	Lunch	Lunch	Lunch
13.00	Parallel Sessions A1 & B1 : Environment & Signal Processing	Parallel Sessions A4 & B4: Sensor System 1 & Communication 1	Closing Session
14.40	Coffee Break	Coffee Break	
15.00	Parallel Sessions A2 & B2 : Hazards/Energy & Artificial Intelligent	Parallel Sessions A5 & B5 : Optical System & Communication 2	
17.00			

Wednesday, 11 July 2001

08.15 – 08.45 : Registration and Seminar kit distribution

08.45 – 08.50 : Introduction Animation

08.50 – 09.00 : Welcome speech by conference chairman

09.00 – 09.15 : Speech by ITB Director

09.15 – 09.30 : Speech by Uni-Bw Director

09.30 – 10.00 : Slide performance

10.00 – 10.15 : Keynote speech by Menristek and opening the ceremony

10.15 – 10.30 : Coffee break

10.35 – 11.05 : Plenary 1

Core Technologies for Sensor System, by *H.-R. Tränkler* (Germany)

11.05 – 11.40 : Plenary 2

Micro Electro Mechanical System (MEMS) Research in Indonesia, by *S. Samadikun* (Indonesia)

11.40 – 12.10 : Photograph session

12.10 – 13.10 : L u n c h

13.10 – 14.50 : Parallel Sessions A1 & B1

Session A1 : Environment

Chairs : H.-R.Tränkler (Germany), S. Soegijoko (Indonesia)

Soil Moisture Sensing, by *M. Djamal* (Indonesia), *T. Flaschke*, *H.-R. Tränkler* (Germany)

Laser Radar System Network and Mobile Lidar to Observe Lower Atmospheric Structure and Study of Air Pollution, by *S. P. Sugondo, T. Gunar, M. Pinandito, Sunartoto (Indonesia)*

Analysis of Errors of Remotely Sensed Images, by *K. Rennolls, M. Ibrahim, A. Fedorec (UK)*

Monitoring of River Water Quality Continuous and Automatically by Flow Injection Analysis (FIA) System, by *A. Wiryawan (Indonesia)*

Surface Sound Radiation Measurement of Partitions by Using Sound Intensity Method in Narrow Frequency Band (1/12 Octave), by *Purnomo, T. Gunar (Indonesia), T. Otsuru (Japan)*

Session B1 : Signal Processing

Chairs : E. Schröder (Germany), B. Kusumoputro (Indonesia)

Optimized Filters to Reject Power Line Noise for Electromagnetic Data by *T. Hanstein, A. Hoerdt (Germany)*

Digital Image Processing for Rock Characterization, by *U. Fauzi (Indonesia)*

Rapid Detection of Short Circuits in Power Line Systems with a Scalable Multi-DSP-Architecture, by *K. Kraft (Germany)*

Applied Fuzzy Concept in Capital Budgeting, by *H. Y. Rosadi (Indonesia)*

14.50 – 15.10 : Coffee Break

15.10 – 16.50 : Parallel Sessions A2 & B2

Session A2 : Hazards/Energy

Chairs : S. Samadikun (Indonesia), K. Rennolls (UK),

Instrumentation for Flood Prediction in Bandung, by *A. Purqon, T. H. Liong, M. Djamal (Indonesia)*

Timing and Synchronisation of Geophysical Measurements, by
S. L. Helwig (Germany)

Self Control Sensor for Level Measurement of Liquid in Container, by
L. Umar (Indonesia), *M. Horn* (Germany)

Data Acquisition on Hybrid PV and Wind Turbine Based on the
Experience during some Research in Germany, by *A. Mostavan*, *N.*
Bangsing, *M. Y. Kuntjoro* (Indonesia), *W. Storm* (Germany)

Solar PV to Water Pump System and Its Controller, by *A. Mostavan*,
E. Joelianto, *Rustandi*, *I. Hakim*, *O. Soekmono* (Indonesia)

Session B2 : Artificial Intelligent

Chairs : T. H. Liong (Indonesia), F. Derbel (Germany),

The use of Neural Networks in Modelling of Chemical Process, by *B.*
L. Widjiantoro, *T. H. Liong*, *Y. Y. Nazaruddin*, *Bambang S.P.A.*
(Indonesia)

Artificial Odor Discrimination System to Recognize Fragrance Mixtures
with Probabilistic Neural Networks, by *W. Jatmiko*, *B. Kusumoputro*
(Indonesia)

Comparison of Probabilistic Neural Network and Back propagation
Network in Bispectrum analysis of Speech in Noisy Environment, by
B. Kusumoputro, *A. Triyanto* (Indonesia)

Hybrid Neural System of Adaptive Self-organized Network With
Winning Probability Function and Back-propagation Supervised
Learning, by *B. Kusumoputro*, *A. Saptawijaya* (Indonesia)

Design and Implementation of Indonesian Sign Language to Speech
Converter, by *A. A. Arman*, *K. Soemintapoera*, *E. T. Sekar* (Indonesia)

19.00 – 21.00 : Conference Dinner

Thursday, 12 July 2001

08.00 – 08.30 : Registration

08.30 – 09.10 : Plenary 3

Principle and Application of Fourier Spectrometers, by *E. Schröder* (Germany)

09.10 – 09.50 : Plenary 4

Ferro-electric Materials and Its Sensor Applications, by *M. Barmawi* (Indonesia)

10.00 – 10.20 : Coffee Break

10.20 – 12.00 : Parallel Sessions A3 & B3

Session A3 : Life Sciences

Chairs : S. Soegijoko (Indonesia), H.-D. Liess (Germany)

Intelligent Instrumentation and Control for Optimising DNA Amplification, by *A. M. Fedorec, D. Blackshields, K. Rennolls, I. Bruce* (London, UK)

Application Wavelet Transformation for Modelling of Electroencephalogram (EEG) Signal, by *E. C. Djamal, F. I. Muchtadi* (Indonesia)

Performance of TPS SIS for the Radiotherapy Treatment Planning of Breast Cancer, by *D. S. Soedjoko, H. Prasetyo* (Indonesia)

Relationship between the growth length of the stem and of the panicle of the plant of corn: water stress effect by, *B. Bennouna and A. Lahrouni* (Marocco)

Power-Line Interference Elimination in Biopotential Signals Measurement Using Interference Controller Device, by *Adli* (Indonesia), *Y. Yamamoto* (Japan)

Session B3 : Sensor Technology

Chairs : Z. Su'ud (Indonesia), O. Kanoun (Germany)

Design and Implementation of Field Ionization in Microfabrication of Gas sensor with Micromachining Technology, by *N. Subarna, S. Soegijoko, S. Samadikun, A. Suwandi, G. Wiranto* (Indonesia)

Preparation of $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ Thin Films by A Pulsed Laser Ablation Deposition (PLAD) Method and Their Applications for Ultraviolet Detectors, by *A. Fuad, Darsikin, M. Barmawi, P. Arifin, D. Kurnia* (Indonesia)

Electroluminescence Technique for Evaluation of Semiconductor LED/LD Chips, by *D. Bayuwati, T. B. Waluyo* (Indonesia)

Miniaturizing a Gas Chromatography System : Micromachining the silicon Capillary Columns, by *G. Wiranto* (Indonesia)

Miniaturizing a Gas Chromatography System : Result and Characterization, by *G. Wiranto* (Indonesia)

12.00 – 13.00 : Lunch

13.00 – 14.40 : Parallel Sessions A4 & B4

Session A4 : Sensor System 1

Chairs : Frühauf (Germany), H. L. Malasan (Indonesia)

Concepts for Self-Test and Self-Calibration in Sensors Systems, by *O. Kanoun, M. Horn, H.-Tränkler* (Germany)

Design and Implementation of High-Resolution Magnetic Sensor Based on Induction Coil, by *A. Sakti, M. Djamal* (Indonesia)

Ultrasonic-Microwave Multisensor For Reliable measurement of Distances and Velocities of Objects, by *H. Ruser, V. Mágori* (Germany)

Liquid Level Meter Design Based on Time-of-Flight of Ultrasonic Wave, by *Nuryani, S. Sukirno* (Indonesia)
Design of Flow Meter Using A Flat Coil Sensor, by *R. W. Widanarto, M. Djamal* (Indonesia)

Session B4 : Communication 1

Chairs : U. Fauzi, B. Kusumoputro (Indonesia)

Integration of Wireless Detectors in Fire Detection Systems, by *F. Derbel* (Germany)

Advantages of Autonomous Sensor System for the Control Of distributed Parameter Systems : A Case Study for Individual Room Control, by *R. Grassnick* (Germany)

Design and Application of Antenna Cross Yagi UHF/VHF Dual Band to Support of Tracking Ground Station in the Micro Satellite System, by *T.E. Napitupulu* (Indonesia)

Development of Fast Ethernet Based Parallel Computer and Its Performance for Computational Problems, by *Z. Su'ud, Agus P., R. Kurniadi, I. Arif, Ferhat A* (Indonesia)

Design and Application of The DQDB Metropolitan Area Network Using Optical-Fiber Technology, by *T.E. Napitupulu* (Indonesia)

14.40 - 15.00 : Coffee Break

15.00 – 17.00 : Parallel Sessions A4 & B4

Session A5 : Optical System 1

Chairs : V. Mágori (Germany), G. Wiranto (Indonesia)

The Effects of Stress in Fiber Optic and It's Application on Mach-Zehnder Interferometer, by *H. Ramza, A. Syahriar, H. Zain* (Indonesia)

Moire Patterns Implementation in Measuring Similarity of Image, by S. Hadi, I. Soekirno (Indonesia)
Research of Application of CCD-Sensor Camera in Image Processing of Lapan's Microsatellite, by T. E. Napitupulu (Indonesia)

Simulation of the electromagnetic Wave Propagation in the Optical Fibre, by R. Soegeng (Indonesia)

Design and Implementation of a Compact Spectrograph for Astronomical Research and Education, by H.L. Malasan, B. Hidayat, H. Setyanto, I. Ibrahim (Indonesia), T. Yamamuro, N. Takeyama, H. Kawakita, K. Kinugasa (Japan)

A low-cost RF Driver for Acousto-optic Modulator, by T. B. Waluyo, I. Mulyanto, H. On (Indonesia)

Session B5 : Communication 2

Chairs : L. A. Pasasa (Indonesia), K. Kraft (Germany)

The Instrumentation and Signal Processing Method to determine Phase Velocity of Dispersive Wave in Noisy Environment, by G. Handayani (Indonesia)

A Method to Generate the Half-Sine Shock Pulse Signal to Electromechanical Vibration Machine for Environment Test of Instrument System, by S. P. Sugondo (Indonesia)

Development of Common Memory Based Computer Interconnection for Parallel Computation, by Z. Su'ud, F. Suharyono (Indonesia)

Reliability of Wind Gauge Position in Athletic Competition, by Sardjito (Indonesia)

Development of PCI Based Parallel I/O Card for Inter Computer Communication for Parallel Computation, by M. Yusuf, Z. Su'ud (Indonesia)

Friday, 13 July 2001

08.00 – 08.30 : Registration

08.30 – 09.10 : Plenary 5

State of Art of Chemical Sensors, by *H.-D. Liess* (Germany)

09.10 – 09.30 : Parallel Sessions A6 & B6

Session A6 : Sensor System 2

Chairs : R. Grassnick (Germany), A. M. Fedorec (UK)

Self-Calibration and Self-Test in Measuring Systems for Improved Accuracy, by *U. Frühauf* (Germany)

A Hysteresis Loop Tracer Based on Rotating Pick-up Coil, by *E. Sesa, M. Djamal, S. Bijaksana* (Indonesia)

Flow Calculation around Airfoils using the TSD equation and Viscous - Inviscid Interaction, by *W. K. Sekar, C. Weishäupl, B. Laschka* (Germany)

An Alternative Method for Identifying Dynamics Suspension of Vehicle Using Genetic Algorithm, by *M. S. Muntini, Y. Y. Nazaruddin, Bambang S. P. A.* (Indonesia)

National Traceability Establishment of Time and Frequency Measurement, by *D. Erawan, A. C. Trijanto, A. Harimawan* (Indonesia)

GaN Thin Film as Gas Sensor, by *Sugianto, A. Suhandi, M. Budiman, P. Arifin, M. Barmawi* (Indonesia)

Session B6 : Measuring/Analyzing

Chairs : A. Mostafan (Indonesia), T. Hanstein (Germany)

Frequency Counter Based on Micro controller as Data Acquisition from Oscillator-sensor, by *S. Darma, S. Sukirno* (Indonesia)

DHMMs and CDHMMs Analysis for Isolated-Word Recognition, by *U. Tursadi* (Indonesia)

Spectral Response of Al/Si Photodiode as IR Sensor, by *Irzaman, A. Fuad, M. Barmawi* (Indonesia)

Track Reference of Servo-motor Aeroelastic System with Adaptive Predictive Controller, by *Salmah* (Indonesia)

An Uncertainty Budget for Characteristics of SPRTs Calibrated According to the ITS-90, by *D. Erawan* (Indonesia)

Design and Implementation of Ship Guidance System to Reach Fish Potential Area, by *S. Hardhienata, A. Bafaqih, H. Budisantoso, P. Harsani, T. Pandoyo* (Indonesia)

12.00 – 13.30 : Lunch

13.30 – 14.10 : Closing

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