AFAS2021

THE INTERNATIONAL CONFERENCE ON UNDERWATER ACOUSTIC TECHNOLOGY AND EDUCATION FOR SUSTAINABLE FISHERY IN ASIA

The Fourteenth Annual Meeting of Asian Fisheries Acoustics Society

AFAS

November 1-2, 2021
Bogor, Indonesia

HOSTED BY:

IPB University
Bogor Indonesia

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Message from Chairman of Local Organizing Committee

Prof. Henry M. Manik, Ph.D.

One behalf of the Organizing Committee, I am honored and delighted to welcome you to the ***The Fourteenth Annual Meeting of Asian Fisheries Acoustics Society AFAS2021 The International Conference on Underwater Acoustic Technology and Education for Sustainable Fishery in Asia*** which are held virtually due to COVID-19 pandemic.

I believe that during those two days conferences, we have all has insightful, interactive discussions and great chance to share the outcomes of our research. We also expect to provide technical demonstrations, and numerous opportunities for networking.

As a conference chair of AFAS2021, I know that the success of the conference depends ultimately on the many people who have worked with us in planning and organizing both the technical program and supporting sponsor arrangements. In particular, we thank the AFAS Chairman for his wise advice and brilliant suggestion on organizing the AFAS program; the Board Member of AFAS for their thorough and timely supporting this meeting, and IPB University who have helped us to maintain IT platform. Recognition should go to the Local Organizing Committee members who have all worked extremely hard for the details of important aspects of the conference programs.

In closing, I would like to extend my warmest gratitude to all participants with good wishes. I look forward to a successful conference.

Prof. Henry M. Manik, Ph.D.
Chair, Local Organizing Committee of AFAS 2021
Bogor, INDONESIA

Message from Rector of IPB University for AFAS,

Prof. Arif Satria, Ph.D

It is my great pleasure and honor for me to welcome our honorable guests, colleagues, and distinguished participant at "***14th annual meeting of the Asian Fisheries Acoustics Society (AFAS) 2021*** in Bogor, West Java Indonesia. In particular, I would like to give my biggest respect and honor to Prof. Henry Manik from Department of Marine Science and Technology, IPB University, the chairman of the steering committee and Prof Yoshinori Miyamoto, the AFAS chairman.

The annual meeting of the Asian Fisheries Acoustic Society is providing a great opportunity for scholars and graduate students from IPB University to contribute and exchange the knowledge and experience on marine science and technology especially fisheries acoustics with Asian Scientists. IPB University is one of the famous national universities in Indonesia, and was founded in 1963. The Department of Marine Science and Technology Faculty of Fisheries and Marine Sciences IPB University aims to educate and develop theories and application of marine science and technology.

Until now, Asian marine scientist and marine engineer are developing various technologies for utilizing marine resources sustainably. Especially, the sustainable management of fisheries resources has been highly improved because of great beneficial outcomes from various acoustic studies. I can emphasize that the fishery acoustics applications are extremely crucial to understand the ecosystem of aquatic organisms. I believe that all talks and discussions presented during the annual meeting of the AFAS 2021 will be greatly helpful in establishing and gaining the deep knowledge on underwater acoustics technology and practical applications to enable to accomplish better and sustainable fisheries industry as well as government policies managements in Asian waters.

In closing, I would like to extend my warmest gratitude to all participant with good wishes. I look forward to a successful meeting.

Thank you.

Prof. Arif Satria, Ph.D

Rector of IPB University

Message from CHAIRMAN of AFAS, *Prof. Yoshinori Miyamoto, Ph.D*

Professor MIYAMOTO Yoshinori

Chairman of AFAS

Tokyo University of Marine Science and Technology, Japan

On behalf of the Asian Fisheries Acoustics Society, I would like to give a brief address. Our society has been established in 2007 in Dalian, China. However, in 2020, COVID-19 raged and the whole world was exhausted, so AFAS2020 had to be postponed. It was feared that the conference would be held in 2021 as well. AFAS2021 has become possible to do by the Web meeting. I am very pleased to have the memorable fourteenth annual meeting AFAS2021 in Bogor in Indonesia.

Since its foundation, we have experienced thirteenth annual meetings held in Dalian, Incheon, Taipei, Penang, Qingdao, Busan, Tokyo, Kaohsiung, Bangkok, Hakodate, Guangzhou, Jeju and Keelung in Asian countries. Fortunately owing to diligence and passion of members, financial support of sponsor companies, and cooperation of local organization, AFAS has been growing up to a regular society which 80 to 100 persons attend every year. The publication of research results for sustainable fisheries in Asia through fisheries acoustics has great international significance. AFAS is to promote further progress of science and technologies on fisheries acoustics in Asia.

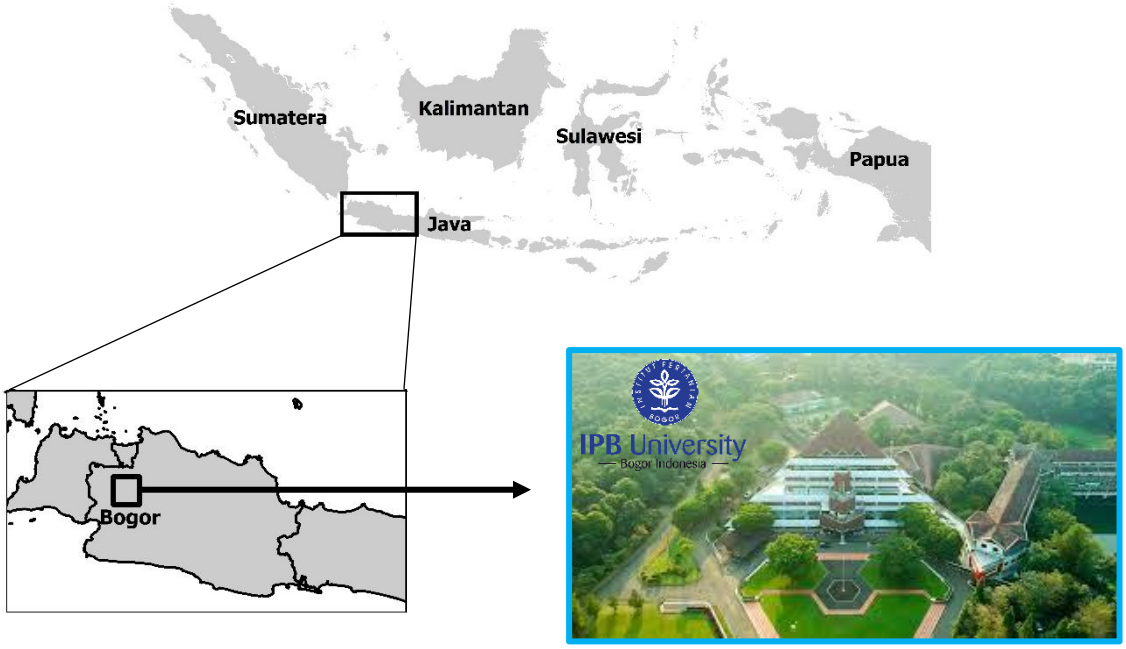
I am sincerely grateful for support from many companies from many companies in AFAS2021.

It is a great pleasure to hold the 14th AFAS meeting in Bogor with many people gathered on the Web meeting. To the success of this conference, we hope that a lively exchange of opinions is carried out.

Lastly, Professor Henry Manik of IPB University would like to express my sincere gratitude to the Steering Committee Chairperson who hosts this conference. I would like to thank all the members of the local organization committee of AFAS 2021 to prepare this meeting.

GENERAL INFORMATION

Bogor is a landlocked city in the West Java province, Indonesia. Located around 60 kilometers (37 miles) south of the national capital of Jakarta, Bogor is the 6th largest city of Jakarta metropolitan area and the 14th nationwide. The city covers an area of 118.50 km^2, and it had a population of 1,043,070 at the 2020 Census. Bogor is an important economic, scientific, cultural and tourist center, as well as a mountain resort. The city is situated in the western part of Java island, about 53 km south of the capital Jakarta and 85 km northwest of Bandung, the administrative center of West Java Province. Bogor spreads over a basin near volcanoes Salak, which peaks at about 12 km south, and Mount Gede whose top is 22–25 km south-east of the city. The average elevation is 265 meters, maximum 330 m, and minimum 190 meters above sea level. The terrain is rather uneven: 17.64 km^2 of its area has slopes of 0–2°, 80.9 km^2 from 2° to 15°, 11 km^2 between 15° and 25°, 7.65 km^2 from 25° to 40° and 1.20 km^2 over 40°; the northern part is relatively flat and the southern part is hillier. Bogor has a tropical rainforest climate, and more humid and rainy than in many other areas of West Java – the average relative humidity is 70%, the average annual precipitation is about 1700 mm, but more than 3500 mm in some areas. Most rain falls between December and February. Because of this weather, Bogor has the nickname "Rain City". The temperatures are lower than in coastal Java: the average maximum is 25.9 °C (cf. 32.2 °C in Jakarta). Daily fluctuations (9–10 °C) are rather high for Indonesia. The absolute maximum temperature was recorded at 38 °C and the minimum at 3 °C.



Day 1, November 1st, 2021 (UTC+7)	
07.00 – 08.00	**Registration**
08.00 – 08.10	**Opening Session**
08.10 – 08.20	**Introduction of Guests and Leaders** Prof. Henry M. Manik, Ph.D., Chairman of Local Organizing Committee of AFAS 2021, IPB University Bogor, Indonesia
08.20 – 08.30	**Welcome Speech** Dr. rer.nat. Hawis Madduppa, Head Department of Marine Science and Technology IPB University Bogor, Indonesia
08.30 – 08.40	**Welcome Speech** Dr. Fredinan Yulianda, Dean of Faculty of Fisheries and Marine Sciences IPB University Bogor, Indonesia
08.40 – 08.50	**Opening Ceremony** Prof. Dr. Arif Satria, Rector of IPB University Bogor, Indonesia
08.50 – 09.00	**Welcome Address** Prof. Yoshinori Miyamoto, Ph.D, Chairman of AFAS 2021
09.00 – 09.10	**Break**
Keynote Speaker and Sponsor Session, **Chair : Prof. Henry M. Manik, Ph.D, Co-Chair : Prof. Yoshinori Miyamoto**	
09.10 – 10.00	**Keynote Speaker 1** **Recent Advances in Instantaneous Wide-Area Sensing of Fish Population Density and Behavior with Ocean Acoustic Waveguide Remote Sensing** Prof. Nicholas Makris, Massachusetts Institute of Technology USA Director of the Center for Ocean Engineering at MIT Professor of Mechanical and Ocean Engineering William I. Koch Professor of Marine Technology Secretary of the Navy/Chief of Naval Operations Scholar of Oceanographic Sciences
10.00 – 10.50	**Keynote Speaker 2** **Utilization of Underwater Acoustic Technology for Hydro-Oceanographic Surveys** Vice Admiral Dr. Agung Prasetiawan, M.A.P (Hydrographic and Oceanographic Center, Indonesian Navy, Pushidrosal)
Sponsor Session	

10.50-11.10	**SS-1 (Simrad)** **Scientific Echosounder and ADCP System for Modern Sensor Platform with Wordwide Experiment** Ken Ichi Nakano
11.10-11.30	**SS-2 (Furuno)** **Products Introduction of The Split-Beam Echo Sounder FURUNO FCV-38 and The Multi-Beam Sonar WASSP** Satoshi Misonoo, Stefan Richardson, and Yasushi Nishimori
11.30-11.50	**SS-3 (BioSonics)** **Feasibility Study for Detection of Shrimp Feed Pellets on Pond Bottom Substrate Using a Scientific Sonar System** Timothy W. Acker, and Dr. Asa Packer
11.50-12.10	**SS-4 (Echoview)** **Introduction of Echoview (Solutions, Applications and Workflow Echoview)** Briony Hutton
12.10 – 13.00	**Break**
13.00 – 13.30	**General Meeting of AFAS and Regional Report**
Session 1 (SGAT) Chair : Dr. Yasushi Nishimori, Co-Chair : Irsan S. Bodjonegoro, Ph.D	
13.30 – 13.45	**AT-1** **Designing and Implementing Active Sonar Monitoring System for Floating Objects Detection in the Water Column** Adhi.KN, Henry M. Manik, and Susilohadi
13.45 – 14.00	**AT-2** **Echo Data Transmission Around an Artificial Reef Installed in Gijang Coastal Area by The LTE Mobile Communication** Hyeon-Ok Shin, Doo-Jin Hwang, Taejong Kang, Eunbi Min and Gyeom Heo
14.00 – 14.15	**AT-3** **Experimental Study on The Measurement of Calibration Sphere Echoes by Broadband Scientific Echosounders** Jing Liu, Burak Saygili, Akira Iwasa, Tomohito Imaizumi, and Kazuo Amakasu
14.15 – 14.30	**AT-4** **Evaluation of The Resources of Penaeus Vannamei in Aquaculture Water Based on DIDSON** SHEN Wei, PENG Zhan fei, ZHANG Jin, CAO Zheng liang, and LIAO De liang
14.30 – 14.45	**AT-5** **A Long-Range Target Detection and Classification System for Environmental Monitoring at Marine Hydrokinetic (MHK) Sites** Timothy W. Acker, Dr. Jae-Byung Jung, and Dr. Asa Packer
14.45 – 14.55	**Break**
Session 2 (SGTS) Chair : Dr.Kouchi Sawada , Co-Chair : Dr. Totok Hestirianoto	

14.55 – 15.10	**TS-1** **The First Report of Target Strength Seahorse (Hippocampus comes) versus Brood Pouch Volume** Feren Rika Susanti, Ita Karlina, and Dony Apdillah
15.10 – 15.25	**TS-2** **Target Strength of *Puelurus Phase* : Scalloped Spiny Lobster (Panulirus homarus) and Ornate Spiny Lobster (*Panulirus ornatus*)** Asep Ma'mun, Asep Priatna, Duranta D. Kembaren, and Erfind Nurdin
15.25 – 15.40	**TS-3** **Analysis of Target Strength of Blue Swimming Crab (*Portunus pelagicus*) Based on Sex Differences** Deddy Bakhtiar, Chantika Rachma Maylandia, Ari Anggoro, Freddy Supriyadi, and Ellis Nurjuliasti Ningsih
15.40 – 15.55	**TS-4** **Broadband Target Strength Measurements of Three Bladderless Fishes** Naizheng Yan, Tohru Mukai, Kohei Hasegawa, Jun Yamamoto, and Yoshiaki Fukuda
15.55 – 16.10	**TS-5** **Target Strength Distribution in The North Waters of Alue Naga Using Simrad Ek-15 Echosounder** Syahrul Purnawan, Leni Anggraini, and Henry M. Manik
16.10 – 16.25	**Break**
Session 3 (SGES) Chair : Prof. Kazushi Miyashita, Co-Chair : Dr. Totok Hestirianoto	
16.25 – 16.40	**ES-1** **Fish Identification by Acoustic Characteristics Analysis of Multi-Frequency** Doojin Hwang, Eun-bi Min, and Tae-jong Kang
16.40 – 16.55	**ES-2** **Diel Vertical Migration of Mesopelagic Fishes in The Central and Southern Waters, South China Sea** Zhang Jun, Jiang Yan'e, Cai Yancong, Kong Xiaolan, CHEN Zuozhi, Yu Wenming, and Sun mingshuai
16.55 – 17.05	**ES-3** **Fishery Independent (Acoustic) Survey of The Blue Mackerel Spawning Ground in Yilan Bay, Taiwan** Ting-Chieh Huang, Ruei-gu Chen, Kuo-Wei Yen, and Hsueh-Jung Lu
17.05 – 17.20	**ES-4** **The Spatio-Temporal Distribution of Fish Density in Arafura Sea** Asep Priatna, Asep Mamun, Wijopriono, and Moh. Natsir
17.20 – 17.35	**Closing Day-1**
Day 2, November 2nd, 2021 (UTC+7)	
07.00 – 08.00	**Registration**

08.00 – 08.05	**Opening Session**
08.05 – 08.15	**Break**
Session 4a (SGAA) Chair : Dr. Tomonari Akamatsu, Co-Chair : Dr. Fauziah	
08.15 – 8.45	**Invited Speaker :** Continental Shelf-scale Passive Ocean Acoustic Waveguide Remote Sensing of Marine Ecosystems, Dynamics and Directional Soundscapes: Whales, Fish, Ships and other Sound Producers **Prof Purnima Ratilal** Director Laboratory for Ocean Acoustics and Ecosystem Sensing Department of Electrical and Computer Engineering Northeastern University, USA 360 Huntington Ave, 422 Dana, Boston, MA 02115
08.45 – 09.00	**AA-1** **Fish Stock Assessment in North Alue Naga Waters Using Single Echo Detector** Syahrul Purnawan, Althaf Haqqi, and Henry M. Manik
09.00 – 09.15	**AA-2** **Swimming Behavior Comparison of Olive Flounder (Paralichthys Olivaceus) Against The Periphyton Attachment to Underwater Structure of The Wind Power Plants** Gyeom Heo and Hyeon-Ok Shin
09.15 – 09.30	**AA-3** **Waveform Detection from Biosonar (*Tursiops Aduncus*)** Muhammad Zainuddin Lubis, Henry M Manik, Shaik Asif Hossain and Adlian Jefiza
09.30 – 09.45	**AA-4** **Eelgrass Habitat Identification Using Multispectral Multibeam Echosounder at Richardson Bay, California** Danar Guruh Pratomo, Moniq Fransiska, Irena Hana Hariyanto, Khomsin
09.45 – 10.00	**AA-5** **Applications SIMRAD EK-15 Echosounder for Estimating the Temporal Distribution of Pelagic Fish Target Strength in Pancur Waters, Indonesia** Heti Apriliani, Totok Hestirianoto, Sri Pujiyati, Ayi Rahmat and Dony Apdillah
10.00 – 10.15	**AA-6** **Evaluation of Fish School Resources Based on Echo Statistics** WANG Yongxian, SI Jifeng, WANG Yaobin, LI Xue, and Xu Xiaoliang
10.15 – 10.30	**AA-7** **Insights on the distribution and drift trajectories of fish larvae in Cendrawasih Bay Papua Indonesia** Aldo Darmawan, Agus S Atmadipoera, Dwiyoga Nugrohio, M Mukhlis Khamal, Henry M Manik, and Asep Ma'mun

10.30 – 10.40	**Break**
Session 4b SGAA Chair : Prof. Yong Tang Co-Chair : Dr. I Gede Hendrawan	
10.40 – 10.55	**AA-8** **Estimation of Fish Stock Using Integrated Acoustic Biomass and Catch Composition in The Inland Waters of Giam Siak Kecil, Bengkalis Indonesia** Asep Priatna, Melfa Marini, Khairul Amri, Ali Suman, and Muhlizar
10.55 – 11.10	**AA-9** **Fish Aggregation Patterns Under the Effect of Light on Stationary Lift net Using Acoustic Methods in Banyuasin Waters-Indonesia** Ellis Nurjuliasti Ningsih, Edo Arnando, Freddy Supriyadi, Fitri Agustriani, Anna, Purwiyanto, Wike Ayu Eka Putri, and Fauziyah
11.10 – 11.25	**AA-10** **Acoustic Detection and Extraction of Artificial Reefs** Liao Deliang
11.25 – 11.40	**AA-11** **Fish Larvae and Density of Pelagic Fishes Distribution in the Java-Flores-Makassar Seas** Asep Priatna, Karsono Wagiyo, Agus Atmadipoera, Rina Zuraida, Henry M. Manik, Asep Mamun, Yani Permanawati, and Herlisman
11.40 – 11.55	**AA-12** **Estimation of Stock Abundance of Fish Resource Using Hydroacoustic Method in Banyuasin Waters, Banyuasin Regency, South Sumatra Province** Agung, Ellis Nurjuliasti Ningsih, Freddy Supriyadi, Fitri Agustriani, Rozirwan, T Zia Ulqodry, and Fauziyah
11.55 – 12.10	**AA-13** **Acoustic Surveys to Estimate Fish Biomass in Indonesia Marine Waters** Asep Priatna, Asep Mamun, Fayakun Satria, Ali Suman, and Indra Jaya
12.10 – 13.00	**Break**
Session 5 (SGEM) Chair : Prof. Tohru Mukai, Co-Chair : Dr. Danar G. Pratomo	
13.00 – 13.15	**EM-1** **Quantification of Seabed Acoustic Backscatter Strength Using Scientific Single Beam Echosounder** La Elson, Henry M. Manik, Totok Hestirianoto, dan Sri Pujiyati
13.15 – 13.30	**EM-2** **Acoustic Backscatter from Tilted Multibeam Echosounder Sonar System to Detect Fringing Reef Habitats** Rozaimi Che Hasan, Najhan Md Said, Khaira Ismail, Azizi Ali, and Albert Apollo Chan
13.30 – 13.45	**EM-3**

	Sound Scattering Layers Within and Beyond the Seychelles-Chagos Thermocline Ridge (SCTR) in the Southwest Indian Ocean Myounghee Kang, Jung-Hoon Kang, Minju Kim, SungHyun Nam, Yeon Choi, and Dong-Jin Kang
13.45 – 14.00	**EM-4** **Bottom Condition Survey Using Fishfinder for Fishery** Akinori Kasai, Yoshihiro Nishiyama, Takuto Hazama, and Nobuyo Matsushima
14.00 – 14.15	**EM-5** **Measurement and Analysis of Acoustic Backscatter for Bottom Classification of Tidung Island Waters** Hasbi, Henry M. Manik, S. Pujiyati, L.Elson, Suhengki, Amdani, R.Kasanah, and S.R Deswati
14.15 – 14.30	**EM-6** **Guidance on Measurement and Evaluation Methods for Underwater Sound** Tomonari Akamatsu
14.30 – 14.45	**EM-7** **Acoustic Measurement of The Cyanobacterium Microcystis Aeruginosa Using a Quantitative Echo Sounder in Lake Sakura** Riku NAKAMORI, Kenji MINAMI, Hokuto SHIRAKAWA, Yanhui ZHU, Jiro OKITSU, Tomonori OSUGI, Nobuyuki AZUMA, Sangyeob KIM, Mitsuki KURODA, Shohei NAGAOKA, Nobuhiko SATO, and Kazushi MIYASHITA
14.45 – 15.00	**EM-8** **Monitoring of jellyfish at the water intake of nuclear power plant by using acoustic methods** WANG Zi, TANG Yong, FU Yuanyuan, MENG Wei, WANG Shuai, LIU Xiaolin
15.00 – 15.10	**Break**
Session 6 (Others Topic) Chair : Prof. Kazuo Amakasu Co-Chair : Dr. Agus S Atmadipoera	
15.10 – 15.25	**OT-1** **Ocean Temperature Stratification Inverted From Low-Frequency Acoustic Reflection In The Northern Maluku Sea** Randi Firdaus, Henry M. Manik, Agus S. Atmadipoera, Rina Zuraida, and Catur Purwanto
15.25 – 15.40	**OT-2** **Trial of Seabed Classification Using Multifrequency Quantitative Echosounder** Masanori Fujinuki, Tohru Mukai*, Kohei Hasegawa, Yoshiaki Fukuda, and Naizheng Yan
15.40 – 15.55	**OT-3** **Mapping of Seabed Surface and Sediment Types Using The Hydroacoustic Method in The Waters of Banyuasin, Banyuasin Regency, South Sumatera** Remi Akbarimansyah, Ellis Nurjuliasti Ningsih, Freddy Supriyadi, Fitri Agustriani, Rozirwan, T Zia Ulqodry, and Fauziyah

15.55 – 16.10	**OT-4** **The Relationship Between The Surface Acoustic Scatter and The Sea Surface Environmental Factors** Zhen LU and Tomohito Imaizumi
16.10 – 16.25	**OT-5** **Acoustic Backscattering of Medium Voltage Underwater Power Cable Using Single Beam Echosounder** Suhengki, Henry M Manik, Totok Hestirianoto, Susilo Hadi, Hasbi, La Elson, Amdani, R.Kasanah, and S.R Deswati
16.25 – 16.40	**OT-6** **Comparison of The Abundance and Distribution of Zooplankton in Two Different Study Areas Using The Scientific Echosounder Instrument in North Peninsula Coastal Banyuasin Waters, South Sumatra** Amanda Astri Pratiwi Febrianti, Henry M. Manik, Wijopriono, Fauziyah, Fitri Agustriani, Ellis Nurjuliasti Ningsih, and Freddy Supriyadi
16.40 – 16.55	**OT-7** **Internal Wave Detection and Mapping Using SIMRAD EK80 Broadband Echosounder Instrument** Edriyan Situmorang, Henry M. Manik and Agus S. Atmadipoera
16.55 – 17.10	**OT-8** **Relation Between Vertical Distribution of Pseudaspius Hakonensis and Environmental Factors in Stratified Dam Reservoir** Shohei NAGAOKA, Mitsuki KURODA, Kenji MINAMI, Jiro OKITSU, Hokuto SHIRAKAWA, Tomonori OSUGI, Nobuyuki AZUMA, Kenta UEDA, Yanhui ZHU, Riku NAKAMORI, Nobuhiko SATO, and Kazushi MIYASHITA
17.10 – 17.25	**Closing Session**