

The Third International Symposium on Aero Aqua Bio-mechanisms ISABMEC 2006

**July 3rd-7th, 2006,
Okinawa Convention Center, Ginowan, Okinawa, Japan**



**Sponsored by
JSPS, ONRG, AFOSR/AOARD,
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**Organized by
Study Group of Aero Aqua Bio-mechanisms (Japan)
Osaka University (Japan)
University of California Los Angeles (USA)
Northeastern University Marine Science Center (USA)**

Time Table of ISABMEC2006

Revised on May 28th

From	To	Jul.3	Jul. 4 (Room B-1)	Jul. 5 (Room B-1)	Jul. 6	Jul. 7 (Room B-1)
		Monday	Tuesday	Wednesday	Thursday	Friday
8:30	8:45				Bus Tour (Okinawa Churaumi Aquarium) Starting from Festone (8:30) and Laguna Garden Hotel (8:45) Detailed information will be given during the meeting.	
8:45	9:00	Bio-fluid dynamics				
9:00	9:15	Biological aspects		(Physiological Ses.) S22		(Biomim./Water Ses.) S40
9:15	9:30	Biomimetics				(Material Ses.) S41
9:30	9:45		(Opening) S1	S23		S42
9:45	10:00			S24		S43
10:00	10:15		(Swimming Session) S2	S25		S44
10:15	10:30			S26		S45
10:30	10:45		Coffee break	Coffee break		S46
10:45	11:00		S3	(Locomotion Session)		S47
11:00	11:15		S4	S27		S48
11:15	11:30		S5	S28		Closing
11:30	11:45		S6ab	S29		
11:45	12:00					
12:00	12:15		Lunch	Lunch		
12:15	12:30					
12:30	12:45					
12:45	13:00					
13:00	13:15		(Flight Session) S7	S30		
13:15	13:30		S8	S31		
13:30	13:45		S9	S32		
13:45	14:00		S10			
14:00	14:15		S11	1 minute Oral Presentation for poster		
14:15	14:30		S12	Poster Sesssion		
14:30	14:45		S13			
14:45	15:00		S14			
15:00	15:15	Registration (Okinawa Convention Center, B - conference room)	Coffee break	Odd # Core time	Coffee break	
15:15	15:30					
15:30	15:40					
15:40	15:55			S15		Even # Core time
15:55	16:10					
16:10	16:25			(Sports Session) S16		(Biomim./Water Ses.) S33
16:25	16:40			S17		S34
16:40	16:55			S18		S35
16:55	17:10			Coffee break		Coffee break
17:10	17:30					
17:30	17:45		(Bio-logging Session) S19	S36		
17:45	18:00		S20	S37		
18:00	18:15		S21	S38		
18:15	18:30	Welcom party (Ginowan Beach Park) Detailed information will be given at the registration desk.		S39		
18:30	18:45					
18:45	19:00					
19:00	19:15					
19:15	19:30					
19:30	19:45					
19:45	20:00					
					Banquet until 21:00 (Laguna Garden Hotel) Detailed information will be given during the meeting.	

Bio-fluid dynamics	Biological aspects	Biomimetics
<p>(Opening) S. Kamimura*</p> <p>(S01) Invited: Baku M. Nagai*, Paradoxes Promote Science Development</p>	<p>(S19) Invited: Tomonari Akamatsu*, Ding Wang, Kexiong Wang, Yasuhiko Naito, Masahiko Furusawa and Tomohito Imaizumi, Biosonar and Biomimetic Sonar of Porpoises</p>	<p>(S33) Invited: Joseph Ayers* and Nikolai Rulkov, Controlling Biomimetic Underwater Robots with Electronic Nervous Systems</p>
<p>(S02) Invited: Xi-Yun Lu* and Bing-Gang Tong, Some Studies on Biofluidynamics of Animal Flight and Swimming</p>	<p>(S20) Keiko Fukuda*, Tomonari Akamatsu, Ding Wang and Kexiong Wang, Drag Coefficient of Free-ranging Finless Porpoises in Open Waters</p>	<p>(S34) Yogo Takada*, Toshiaki Tamachi, Satoshi Taninaka, Toshinaga Ishii, Kazuaki Ebita and Tomoyuki Wakisaka, Development of Fish Robots Powered by Fuel Cells -Improvement of Swimming Ability by a Genetic Algorithm and Flow Analysis by</p>
<p>(S03) Stefan Kern and Petros Koumoutsakos*, Evolutionary Optimization of Anguilliform Swimming</p>	<p>(S21) Sinichiro Ito*, Yoko Mitani, Katsufumi Sato, Russel D. Andrews, Daniel P. Costa, Akiko Kato and Yasuhiko Naito, A Consideration Concerning a Periodical Motion of Seals in a Drift Dive</p>	<p>(S35) Baku M. Nagai*, Kazumasa Ameku and Hiroshi Saita, A Study of Robotic Fish</p>
<p>(S04) Takuji Ishikawa* and T. J. Pedley, Collective Motion of Swimming Model Micro-organisms in a Concentrated Suspension</p>	<p>(S22) Invited: Malcolm S. Gordon*, Dean V. Lauritzen and Alexis M. Wiktorowicz, Passive and Active Mechanisms for Trim Control in Swimming Fishes</p>	<p>(S36) ChunZhao Guo* and ZengFu Wang, Design and Dynamics Simulation of a Virtual Fish-like Robot Based on Fish's Superficial Red Muscle Model</p>
<p>(S05) Hiroyoshi Suzuki*, Naomi Kato, Tomohisa Katayama and Yo Fukui, Development of CFD-based Motion Simulator for an Underwater Vehicle with Mechanical Pectoral Fins</p>	<p>(S23) Invited: Johan L. van Leeuwen*, Talitha van der Meulen, Henk Schipper and Sander Kranenbarg, Muscle Structure and Function in Swimming Fish</p>	<p>(S37) Chao Zhou, Zhiqiang Cao*, Long Wang, Shuo Wang and Min Tan, Study on Design and Control of a 3-D Locomotion Biomimetic Robot Fish</p>
<p>(S06ab) Functional Morphology of Swimming Bluefin Tuna Based on CFD Analysis: Yumiko Tamura*, Tsutomu Takagi and Takeshi Yamane, I. Effects of Morphology on Hydrodynamic Characteristics Tsutomu Takagi*, Yumiko Tamura, Holger Korte, Mathias Paschen, Susumu Okano, Yasushi Mitsunaga and Wataru Sakamoto, II. Efficiency of Glide and Tail-Beat Swimming Modes</p>	<p>(S24) Kazumasa Uematsu*, Nobutaka Kobayashi, Yuuki Miyai, Soon-Ju Moon and Masayuki Yoshida, The Remote-controlled Goldfish, Swimming by Electrical Stimulation of a Brain Region via Infrared Transmitted Commands</p> <p>(S25) Takeshi Kojima* and Masayuki Sakuma, Change in Odour Concentration Steers Walking Mould Mites</p>	<p>(S38) Akihisa Konno*, Koichi Hirarta and Masakuni Kawada, Development and Performance Estimation of Flapping Fin Propulsion System</p> <p>(S39) Masaru Higuchi*, Yotaro Mori, Yoichi Tatsumi, Yukio Takeda and Koichi Sugimoto, Design of Leg Mechanism for a Water Surface Runner Driven by Pneumatic Actuators</p>
<p>(S07) Invited: Jia-Chi Wu and Zoran Popovic*, Synthesis of Complex Bird Flight Behaviors</p>	<p>(S26) Invited: Wataru Seki*, Takashi Yokoi, Shingo Kato and Shinji Saito, Design and Analysis of Artificial Tail Flukes for a Bottlenose Dolphin</p>	<p>(S40) Invited: Jenhwa Guo*, Forng-Chen Chiu, Jing-Fa Tsai and Shen-Wen Cheng, Maneuvering and Control of a Biomimetic-Autonomous Underwater Vehicle</p>

Bio-fluid dynamics	Biological aspects	Biomimetics
(S08) Makoto Iima*, Stability and Selection of Flight Mechanisms in Insects' Free-flight	(S27) Kenji Kikuchi*, Osamu Mochizuki and Nobuyuki Terada, Pump System of Mosquito	(S41) Invited: Kwang-Joon Yoon* and Ngoc-Trung Nguyen, Development of Piezo-Composite Actuator LIPCA and Its Application to Biomimetic Robots
(S09) Hiraku Aono* and Hao Liu, A Numerical Study of Reynolds Number Effect in Insect Hovering Flight	(S28) Pablo J. Perez-Goodwyn* and Kenji Fujisaki, Functional Morphology and Biomechanics of the Water Striders' (<i>Heteroptera: gerridae</i>) Locomotion System: A Comparative Approach	(S42) Satoshi Endo*, Koichi Suzumori, Takefumi Kanda, Naomi Kato, Hiroyoshi Suzuki and Yoshito Ando, Flexible and Functional Pectoral Fin Actuator for Underwater Robots
(S10) Hyungmin Park, Kiso Bae, Woo-Pyung Jeon and Haecheon Choi*, Role of Hind-wing Tails in the Gliding Flight of a Swallowtail Butterfly	(S29) Masahiko Sugiura* and Keiji Kawachi, Design Principles for Micro Machines Walking on Water in Steady Motion	(S43) Hui Zhang, Yoshimichi Hagiwara*, Shinya Nakamura, Ryoichi Matsubara and Toyoshi Saito, Reduction of Friction Drag by Angled Wavy Silicon-rubber Wall as a Model of Dolphin Skin
(S11) Kei Senda*, Masakazu Sawamoto, Masahiko Kitamura and Tsuyoshi Tanaka, Study on Flapping-of-Wings Flight of Butterfly Considering Wakes	(S30) Invited: Senzo Uchida*, Cetaceans in Aquariums and the Okinawan Waters	(S44) Invited: William C. Sandberg* and Ravi Ramamurti, 3-D Unsteady Computations of Flapping Flight in Insects, Fish and Unmanned Vehicles
(S12) Yongliang Yu* and Binggang Tong, Aerodynamic Responses to Various Wing-Tip Trajectories in Flapping During Insect Forward Flight Based on Theoretical Modeling	(S31) Sho Kusuda*, Shintaro Takeuchi and Takeo Kajishima, 2-D Analysis of Fish Locomotion and Optimization by Genetic Algorithm	(S45) Invited: Hao Liu*, What Can a Biology-inspired Dynamic Flight Simulator Tell about Insect Flight?
(S13) Koji Isogai* and Yohei Harino, Optimum Aeroelastic Design of a Flapping Wing	(S32) Akitoshi Itoh* and Wataru Tamura, Object Manipulation by Formation Controlled Euglena Group	(S46) Wei Wang, Kenzo Nonami*, Mitsuo Hirata, Gang Song and Osamu Miyazawa, Autonomous Hovering Control and Guidance Control of Micro Flying Robot
(S14) Kensaku Tanaka* and Keiji Kawachi, Dynamic Flight Stability in Bumblebees (<i>Bombus terrestris</i>)		(S47) Yoshiyuki Kawamura*, Satoshi Souda and C. P. Ellington, Quasi-hovering Flight of a Flapping MAV with Large Angle of Attack
(S15) Invited: Yongsheng Lian and Wei Shyy*, Implication of Laminar-Turbulent Transition on MAV Aerodynamics		(S48) Koju Hiraki*, Naofumi Goto, Tunanori Ohkubo, Kouichiro Kawazoe, Keisuke Yamada, Yasuaki Nishii, Kazuoki Harada and Masanobu Inoue, An Experimental Study of Micro Air Vehicle with Flapping and Feathering Wings by a Single Motor

Bio-fluid dynamics	Biological aspects	Biomimetics
(S16) Invited: Barry S. Bixler* and David L. Pease, Analysis and Test Methods Used to Develop the Speedo FSII Swimsuit		
(S17) Kyoji Kamemoto*, Akira Ojima, Satoshi Ido and Toshiharu Arai, Study on Application of Lagrangian Numerical Simulation to Fluid Dynamics in Sports Science		
(S18) Takeshi Kinoshita*, Hiroshi Kobayashi and Masaki Miyashita, Rowing Velocity Prediction Program with Estimating Hydrodynamic Load Acting on an Oar Blade		

Bio-fluid dynamics	Biological aspects	Biomimetics
(P01) Akira Ojima and Kyoji Kamemoto*, Numerical Simulation of Unsteady Flows around a Fish	(P14) Kohji Mitsubayashi*, Masaharu Kozuka, Toshiaki Okamoto and Yoshihiko Wakabayashi, Biochemical Pump for Aqua Chemo-Mechanical System	(P20) Hirohisa Morikawa*, Shuji Kurita and Shunichi Kobayashi, Mechanical Properties and Propulsive Performance of Wing Modeled on Lunate Caudal Fin of Tuna
(P02) Naoko Ogawa*, Hiromasa Oku, Koichi Hashimoto and Masatoshi Ishikawa, Dynamics Modeling and Real-Time Observation of Galvanotaxis in Paramecium caudatum toward Robotic Maneuvering	(P15) Hitoshi Suda*, Myosin Itself Generates Force without Actin	(P21) Kazuyoshi Nakaaki* and Eiichi Inagaki, Effects of Elastic Joints for an Eel-like Robot
(P03) Tomonobu Goto* and Yukio Magariyama, Fluid Dynamic Interaction of a Swimming Bacterium with a Rigid Wall	(P16) Shinji Kamimura*, Takaaki Sugiyama, Yasunobu Sugimoto and Katsuzo Wakabayashi, Dynamic Flow Alignment of Flagellar Axonemes for Low-angle X-ray Fiber Diffraction Analysis	(P22) Long Wang, Shuo Wang*, Zhiqiang Cao, and Min Tan, Analysis on Design and Realization of a New Robot Fish Prototype
(P05) Shuichi Nakamura*, Tomonobu Goto and Yukio Magariyama, Improvement in Motion Efficiency of the Spirochete <i>Brachyspira pilosicoli</i> in Viscous Environments	(P17) Hitoshi Miyake*, Micro-structural Approach Toward the Resonance Model of the Indirect Flight Mechanism	(P23) Isao Segou* and Keiji Suzuki, Feasibility of CyberFish Based of FES
(P06) Yasunari Takano*, Takahiro Yasuda, Takenao Kato and Taisuke Morioka, Analysis of Motion of Wobbling Bacteria	(P18) Hiromichi Fujie*, Masanori Sato, and Sho Nakajima, Frictional Properties of Earthworms	(P24) Seiya Kobayashi* and Keiji Suzuki, Application to Swim Action of the Small Humanoid Robot by Reinforcement Learning
(P07) Edouard Boujo*, Tuan Mohammad Yusoff Shah Tuan Ya, Shintaro Takeuchi and Takeo Kajishima, Study of Fluid-Structure Interaction Problems Involving Deformable Objects by a New Finite Element - Immersed Boundary Approach	(P19) Seiji Ichikawa* and Osamu Mochizuki, Propulsion Motion of Jellyfish	(P25) Shunichi Kobayashi*, Masataka Nakabayashi, Reiji Kobayashi, Ji Jie and Hirohisa Morikawa, Propulsion Mechanism in Fluid Using Fin with Dynamic Variable Effective Length Spring
(P08) Lin Bao, Yongliang Yu* and Binggang Tong, Viscoelastic Constitutive Model Related to Deformation of Insect Wing Under Loading in Flapping Motion		(P26) Toshihide Shigemori, Yohei Orimo, Taisuke Hamada* and Naomi Kato, Study on Underwater Navigation System for Long-Range Autonomous Underwater Vehicles Using Geomagnetic and Bathymetric Information
(P09) Yuichi Kamisawa and Koji Isogai*, Study on Optimum Flapping Wing Motions of Dragonfly		(P27) Yasuyuki Toda*, Hirofumi Ikeda and Naoto Sogihara, The Motion of a Fish-Like Under-Water Vehicle with two Undulating Side Fins

Bio-fluid dynamics	Biological aspects	Biomimetics
<p>(P10) Akira Shionoya*, Toshio Kobayashi, Toshinori Saijoh, Kenichirou Ogata and Toshiaki Matsuhashi, Flexural Vibration of a Jump Ski Plate in Flight</p>		<p>(P28) Yoshito Ando, Naomi Kato*, Hiroyoshi Suzuki, Tomokazu Ariyoshi, Koichi Suzumori, Takefumi Kanda and Satoshi Endo, Elastic Pectoral Fin Actuators for Biomimetic Underwater Vehicle</p>
<p>(P11) Toshinori Saijoh*, Toshio Kobayashi, Kenichirou Ogata, Toshiaki Matsuhashi and Akira Shionoya, Relationship Between the Force in Tethered Swimming and the Power in Semi-Tethered Swimming</p>		<p>(P29) Seiichi Sudo*, Kazumasa Nashimoto, Koji Tsuyuki, Tetsuya Yano and Muneo Futamura, Micro Energy Converter Using Insect Wings</p>
<p>(P12) Motomu Nakashima*, Analysis of Breast, Back and Butterfly Strokes by the Swimming Human Simulation Model SWUM</p>		
<p>(P13) Shinichiro Ito*, Research on a Fluid Dynamical Specification of Hand Palms in Swimming</p>		