



# Integration 2012



5th Symposium on Integrating CFD and Experiments in Aerodynamics

3rd to 5th October, 2012  
JAXA Chofu Aerospace Center, Tokyo, JAPAN

## Preliminary Program



Technical Session Program

revised on September 8, 2012

## Wednesday, October 3, 2012

8:30-16:00	<b>Registration</b>
9:30	<b>Opening Ceremony</b>
9:45	<b>Invited Lecture 1</b> chaired by TBD <b>IL1, EFD/CFD for MRJ Development</b> Keita Hatanaka, Ichiro Maeda (Mitsubishi Aircraft Co.)
	<b>Session 1: Digital/Analog-Hybrid Wind Tunnel (DAHWIN)</b> chaired by TBD
10:30	<b>1-1, DAHWIN - Digital/Analog-Hybrid Wind Tunnel</b> Shigeya Watanabe, Shigeru Kuchi-ishi, Keiichi Murakami, Atsushi Hashimoto, Hiroyuki Kato, Tatsuya Yamashita, Kanako Yasue, Kentaro Imagawa (JAXA), Eiji Saiki, Jun Ogino (Ryoyu Systems Co., Ltd.)
11:00	<b>1-2, Development of Digital Wind Tunnel as a Subsystem of JAXA Digital/Analog Hybrid Wind Tunnel</b> Keiichi Murakami, Atsushi Hashimoto (JAXA), Manabu Hishida (Ryoyu Systems Co., Ltd.), Paulus R. Lahur (RCCM Inc.), Akira Kunieda (CEC Ltd.), Shigeya Watanabe (JAXA)
11:30	<b>Poster Presentations (2 min x 15)</b>
12:00	<b>Lunch &amp; Poster Session</b>
13:30	<b>Invited Lecture 2</b> chaired by TBD <b>IL2, Bayesian Data Assimilation with Applications in Aerodynamics</b> Richard Dwight (Delft University of Technology)
	<b>Session 2: Data Assimilation-1</b> chaired by TBD
14:15	<b>2-1, Using Proper Orthogonal Decomposition Methods for Comparing CFD Results to Experimental Measurements</b> Thomas Andrienne, Amandine Guissart, Greg Dimitriadis (University of Liege)
14:45	<b>2-2, A Mesh and Matrix-free Approach to Data Coupling with Aerospace Applications</b> Matthew Wilkinson (William Marsh Rice University)
15:15	<b>Coffee Break</b>
	<b>Session 3: Wind Tunnel Application</b> chaired by TBD
15:45	<b>3-1, An Experience of Using Numerical Methods in Experimental Investigations of TsAGI</b> S.L. Chernyshev, V.Ya. Neyland, S.M. Bosnyakov, A. R. Gorbushin (Central Aerohydrodynamic Institute (TsAGI))
16:15	<b>3-2, A Methodology to Derive Wind Tunnel Wall Corrections with RANS Simulations</b> Jean-Luc Hantrais-Gervois (ONERA)
16:45	<b>3-3, Wall Interference Analysis by Whole Wind Tunnel CFD</b> Atsushi Hashimoto, Masataka Kohzai (JAXA)
17:15	<b>3-4, Prediction of the Aerodynamic Effect of Model Deformation during Transonic Wind Tunnel Tests</b> Sylvain Mouton, Marianne Lyonnet, Yves Le Sant (ONERA)
17:45	
18:00-20:00	<b>Reception (Exhibition Hall, JAXA CAC)</b>

## Thursday, October 4, 2012

8:30-16:00	<b>Registration</b>
9:00	<b>Invited Lecture 3</b> chaired by TBD <b>IL3, InfoSymbiotics - The power of Dynamic Data Driven Applications Systems (DDDAS)</b> Frederica Darema (AFOSR)
9:45	<b>Coffee Break</b>
	<b>Session 4: Aeroacoustics</b> chaired by TBD
10:15	<b>4-1, Identification and Prediction of Trailing Edge Aeroacoustic Sources and Responses</b> Jiangtao Liu, Gang Chen, JingJing Lu (Xi'an Jiaotong University), Zhengwu Chen (China Aerodynamics Research and Development Center)
10:45	<b>4-2, Numerical Noise Prediction of a Flap Configuration</b> Kapa-KoloszarLilla (von Karman Institute)
11:15	<b>4-3, Computational Efforts in Designing Experiment for High-Lift Aeroacoustics</b> Mitsuhiro Murayama, Yuzuru Yokokawa, Kazuomi Yamamoto, Kazuhisa Amemiya (JAXA), Kentaro Tanaka, Tohru Hirai (Ryoyu Systems. Co. Ltd.),
11:45	<b>4-4, Integrating CFD, CAA, and Experiments towards Benchmark Datasets for Airframe Noise Problems</b> Meelan Choudhari (NASA), Kazuomi Yamamoto (JAXA)
12:15	<b>Lunch</b>
13:15	<b>Invited Lecture 4</b> chaired by TBD <b>IL4, Integration of CFD and EFD for Analysis of Complex Real Flows</b> Toshiyuki Hayase (Tohoku University)
	<b>Session 5: Data Assimilation-2</b> chaired by TBD
14:00	<b>5-1, Sensitivity Analysis of Unsteady Flow Fields and Numerical Experiments for Optimal Measurement</b> Takashi Misaka (DLR), Shigeru Obayashi (Tohoku University)
14:30	<b>5-2, Application of Measurement Integrated Simulation Method to Compressible Fluid Problems</b> Kentaro Imagawa, Kanako Yasue, Shigeru Kuchi-Ishi (JAXA)
15:00	<b>5-3, Toward the Development of Measurement Integrated Simulation</b> Hiroshi Kato (Tohoku University)
15:30	<b>Coffee Break</b>
	<b>Session 6: Modeling/Flow Control/Wind Turbine</b> chaired by TBD
16:00	<b>6-1, A Variable Fidelity Response Surface Approach towards Integration of CFD and EFD</b> Wataru Yamazaki (Nagaoka University of Technology), Shigeru Kuchi-Ishi (JAXA)
16:30	<b>6-2, Requirements for Computer Generated Aerodynamic Models for Aircraft Stability and Control Analysis</b> Kenneth Badcock (University of Liverpool)
17:00	<b>6-3, A Study on the Performance of Fluidic Thrust Vector Control Nozzles Utilizing Coanda Effects</b> MyungJun Song, SangHun Yoon (Korea Aerospace University), YongHo Cho (Micro Friend, Inc), HongBeen Chang (ADD), Yeol Lee (Korea Aerospace University)
17:30	<b>6-4, Measurements of Counter Flow Region in Averaged Wake-Velocity-Field of a Small Straight-Bladed Vertical Axis Wind Turbine</b> Yutaka Hara, Takahiro Suzuki, Hirofumi Kamon (Tottori University)
18:00	
19:00-21:30	<b>Banquet (KICHIJOJI PARK CAFE, Kichijoji Tokyu INN 1F)</b>

## Friday, October 5, 2012

8:30-10:00	<b>Registration</b>
9:00	<b>Invited Lecture 5</b> chaired by TBD <b>IL5, CFD for Aerodynamic Flight Prediction: From Irrational Exuberance to Sobering Reality</b> Pradeep Raj (Virginia Tech)
9:45	<b>Coffee Break</b>
	<b>Session 7: Supersonic/Hypersonic Flow</b> chaired by TBD
10:15	<b>7-1, A Combined Study on Shock Diffraction</b> Mark Kenneth Quinn, Konstantinos Kontis (University of Manchester)
10:45	<b>7-2, Wind Tunnel and CFD Studies on Production of Prebiotic Materials in Hypersonic Flow around Extraterrestrial Entry Object</b> Kojiro Suzuki (The University of Tokyo)
11:15	<b>7-3, Experimental and Numerical Study on Shock Layer Radiation for Planetary Entry Flights</b> Gouji Yamada, Shota Ago, Yuto Kubo, Takashi Matsuno, Hiromitsu Kawazoe (Tottori University)
11:45	<b>7-4, Numerical Study on Anomalous Heating over Apollo CM Test Model in Free-Piston Shock Tunnel Hiest</b> Tomoaki Ishihara, Yousuke Ogino, Keisuke Sawada (Tohoku University), Hideyuki Tanno (JAXA)
12:15-14:30	<b>Lunch (Jindaiji, Suijin-en)</b>
14:30-16:45	<b>Technical Tours (JAXA CAC)</b>
16:45-17:00	<b>Closing Ceremony</b>

**P1, Visualization of Unsteady Behavior of Shock Waves around Supersonic Intake installed in Shock Tunnel**

Naruaki Tanaka, Toshiharu Mizukaki (Tokai University)

**P2, Experimental investigation of initial shear-layer effect on the pressure oscillation in supersonic cavity flows**

Takaya Ozaki, Shinji Maruyama (Kyushu University), Hatsuki Kakuno (Nippon Steel Engineering Co., Ltd.), Taro Handa (Kyushu University)

**P3, Aerodynamic Characteristics of a Delta Wing with the Arc Camber for Mars Exploration**

Takao Unoguchi, Shogo Aoyama, Hiroshi Suemura, Gouji Yamada, Takashi Matsuno (Tottori University), Shigeru Obayashi (Tohoku University)

**P4, CFD Calculation of Airfoil Characteristics for Performance Prediction of Vertical Axis Wind Turbine**

Naoko Inoue, Kana Tanaka, Yutaka Hara, Takahiro Sumi (Tottori University)

**P5, Multi-objective Numerical exploration of Airfoil Design for Mars Aircraft**

Gaku Sasaki (Kyusyu Institute of Technology), Tomoaki Tatsukawa, Taku Nonomura (JAXA), Koichi Yonemoto (Kyusyu Institute of Technology), Akira Oyama (JAXA), Takaaki Matsumoto (Kyusyu Institute of Technology)

**P6, Bow-shock instability around an edged ballistic object in a low-gamma gas**

Yosuke Sato (Tohoku University), Kanako Yasue (JAXA), Takamasa Kikuchi, Kiyonobu Ohtani, Naofumi Ohnishi (Tohoku University)

**P7, A Study on Pressure Variation of a Rotor Blade Tip using PSP**

Kidong Kim (University of Science and Technology), Kijung Kwon (KARI)

**P8, Assessment of some experimental and processing factors for background oriented schlieren measurements**

Ardian B. Gojani, Shigeru Obayashi (Tohoku University)

**P9, Dynamic Wind-Tunnel Testing of a Delta Wing Using a Multi-Degree-of-Freedom Robotic Manipulator**

Tatsuya Hara, Daiju Numata, Keisuke Asai, Takahumi Ito, Xin Jiang (Tohoku University)

**P10, Integration between Measurements and Particle Simulations for Hypersonic Rarefied Flows**

Takashi Ozawa, Toshiyuki Suzuki, Kazuhisa Fujita (JAXA)

**P11, Experimental Data Reconstruction Using CFD Results Based on Proper Orthogonal Decomposition**

Kanako Yasue, Shigeru Kuchi-ishi, Shigeya Watanabe (JAXA)

**P12, Drag and Lift Estimation from 3-D Velocity Field Data Measured by Multi-Plane Stereo PIV**

Hiroyuki Kato (JAXA), Kisa Matsushima (University of Toyama), Makoto Ueno (JAXA), Shunsuke Koike, Shigeya Watanabe (JAXA)