

# Next Generation Transport Aircraft Workshop 2016 Program

	Feb. 22 (Mon.)	Feb. 23 (Tue.)	Feb. 24 (Wed.)	Feb. 25 (Thu.)
9:00-9:30	Plenary Lecture	Keynote 1	Keynote 2	Keynote 4
9:30-10:00		NEDO CAE session	CFD session	UT/SIP session
10:00-11:00				
11:00-11:15: Break				
11:15-11:45	Optimization session	Student session	Keynote 3	Data assimilation session
11:45-12:15			UQ in CFD session	
12:15-12:45				
Lunch Break				
14:30-15:45	Student session			NEDO CAE session

Plenary Lecture: Dr. John C Halpin, JCH Consultants Inc.

Keynote 1: Prof. Johan Larsson, University of Maryland

Keynote 2: Prof. Eric Johnsen, University of Michigan

Keynote 3: Prof. Markus P. Rumpfkeil, University of Dayton

Keynote 4: Prof. Nobuo Takeda, The University of Tokyo

Monday, 22 February 2016

Plenary Lecture

9:00 - 10:00

Chair: Tomonaga Okabe (Tohoku University)

“The aging composite airframe,” John C. Halpin (JCH Consultants Inc.)

SIP session

Chair: Go Yamamoto (Tohoku University)

10:00-10:30	“Simulation based informatics for multidisciplinary optimum design of cross-linked polymer,” Tomonaga Okabe (Tohoku University)
10:30-11:00	“Numerical analysis of bird strike on CFRP laminates using smoothed particle hydrodynamics in a generalized coordinate system,” Shigeki Yashiro (Shizuoka University)

Optimization - Methodology and applications

Chair: Ryosuke Matsuzaki (Tokyo University of Science)

11:15-11:45	“Evolutionary many-objective optimization,” Hiroyuki Sato (The University of Electro-Communications)
11:45-12:15	“Multi-objective optimization of laminated composite fabricated by tailored fiber placement,” Shinya Honda (Hokkaido University)
12:15-12:45	“Topology optimization method for topology and orientation design,” Tsuyoshi Nomura (Toyota Central R&D Labs., Inc.)

Student session

Chair: Oya Yutaka (Tohoku University)

14:30-14:45	“Multiscale modeling for prediction of crack Initiation in CFRP laminates,” Yuta Kumagai (Tohoku University)
14:45-15:00	“Progressive failure analysis of open-hole CFRP laminate and fabric under tensile loading,” Kenji Sakamoto (Tohoku University)
15:00-15:15	“Molecular dynamics simulation of adhesion between metal and epoxy resin,” Kyosuke Inuyama (Tohoku University)
15:15-15:30	“Multi-objective optimization of dual scale Resin Transfer Molding,” Tsubasa Matsumiya (Tohoku University)
15:30-15:45	“Optimization of in-plane fiber direction using perfect fluid functions,” Yusuke Yamanaka (Tokyo Institute of Technology)

Tuesday, 23 February 2016

Keynote

9:00 - 9:30

Chair: Soshi Kawai (Tohoku University)

“Enabling large eddy simulation of realistic aerospace problems,” Johan Larsson (University of Maryland)

NEDO CAE session

Chair: Shigeru Obayashi (Tohoku University)

9:30-10:00	“Change-elements detection between plural unsteady CFD simulation results using sparse structure learning,” Nobuyuki Isoshima (Hitachi High-Technologies Corporation)
10:00-10:30	“Mechanical properties of 3D printed continuous carbon fiber reinforced thermoplastics,” Frank van del Klift (Tokyo Institute of Technology)
10:30-11:00	“The printing process of 3D printer for continuous carbon fiber reinforced plastics” Yoichiro Koga (Tokyo Institute of Technology)

Student session

Chair: Kazuhisa Chiba (The University of Electro-Communications)

11:15-11:30	“Multiphysics topology optimization using a surrogate-based genetic algorithm,” Mitsuo Yoshimura (Tohoku University)
11:30-11:45	“A preliminary study of computational fluid dynamics simulation for an iced wing,” Shohei Minami (Tohoku University)
11:45-12:00	“Numerical analysis of pulse discharge process in DBD plasma actuator,” Shintaro Sato (Tohoku University)
12:00-12:15	“Development of a MSBS position sensor applicable to a reentry capsule,” Kei Komatsubara (Tohoku University)

Wednesday, 24 February 2016

Keynote

9:00 - 9:30

Chair: Soshi Kawai (Tohoku University)

“A discontinuous Galerkin approach for the compressible Navier-Stokes equations with application to multicomponent and multiphase flows,” Eric Johnsen (University of Michigan)

High-order numerical methods in CFD

Chair: Soshi Kawai (Tohoku University)

9:30-10:00	“Application of high-order flux-reconstruction method for aerospace simulation,” Takanori Haga (JAXA)
10:00-10:30	“Conservative flux-reconstruction schemes towards high-fidelity flow simulation around complex geometries,” Yoshiaki Abe (The University of Tokyo)
10:30-10:45	“High-order DG-CRI scheme for unsteady flow computations,” Hiroyuki Asada (Tohoku University)
10:45-11:00	“Improved spectral volume method (SV+ method) for hybrid unstructured mesh,” Yuta Sawaki (Tohoku University)

Keynote

11:15 - 11:45

Chair: Koji Shimoyama (Tohoku University)

“Optimization under mixed uncertainty using surrogate models and derivatives,” Markus P. Rumpfkeil (University of Dayton)

Uncertainty quantification in CFD and optimization

Chair: Koji Shimoyama (Tohoku University)

11:45-12:15	“Aerodynamic uncertainty quantification of innovative supersonic transport configuration,” Wataru Yamazaki (Nagaoka University of Technology)
12:15-12:45	“Robust design optimization of airfoil for human-powered aircraft considering manufacturing errors,” Daisuke Sasaki (Kanazawa Institute of Technology)

Thursday, 25 February 2016

#### Keynote

9:00 - 9:30

Chair: Tomonaga Okabe (Tohoku University)

“Development of high-production innovative aircraft PMC products and quality assurance technology: SIP innovative materials for structure program,” Nobuo Takeda (The University of Tokyo)

#### UT/SIP session

Chair: Takahira Aoki (The University of Tokyo)

9:30-10:00	“Cure process simulation of composites based on in-situ measurement of internal strain,” Akira Hamamoto (The University of Tokyo)
10:00-11:00	Panel Discussion “Emerging composite technology for future transport aircraft,” John Halpin, Ken’ichi Yoshioka, Nobuo Takeda, Akira Hamamoto

#### Data assimilation

Chair: Takashi Misaka (Tohoku University)

11:15-11:45	“Data assimilation aided turbulence modeling,” Hiroshi Kato (JAXA)
11:45-12:15	“Data assimilation techniques in earth sciences,” Shinya Nakano (The Institute of Statistical Mathematics)
12:15-12:45	“Data assimilation for integration of electrical measurements and stochastic flow simulation during liquid composite molding,” Ryosuke Matsuzaki (Tokyo University of Science)

#### NEDO CAE session

Chair: Tomonaga Okabe (Tohoku University)

14:30-15:00	“Analytical evaluation of impact damage in circular laminates subjected to a transverse load,” Hiroshi Suemasu (Sophia University)
15:00-15:30	“Damage propagation analysis of CFRP laminate using quasi-three-dimensional XFEM,” Toshio Nagashima (Sophia University)