▶ Program

Audio translation | **ST** scSTREAM | **HD** HeatDesigner | **FLOW** scFLOW | **SCT** SC/Tetra | **POST** scPOST

2018 User Conference
Software Cradle × Sponsor Event

AM	**Track AB** (merged)	
9:15 - 10:00	Registration [45 mins]	
10:00 - 10:15	Opening	Masayuki Kuba, President and CEO Software Cradle Co., Ltd.

10:20 - 11:20	**SP Keynote** **FLOW**
	Adventure in Algorithm Development for Computational Fluid Dynamics
	Passion is the driving force behind algorithm development for computational fluid dynamics (CFD). Today, researchers still continue the pursuit of superior algorithms to meet the ever-increasing demand for superior accuracy and efficiency. Dr. Nishikawa at the forefront of the CFD algorithm development will talk about how passion drives research and how new algorithms are born, through his endeavor to bring the CFD algorithm to a higher level.
	Hiroaki Nishikawa (Ph. D.) National Institute of Aerospace (NIA) Associate Research Fellow Center for High Performance Aerodynamic Computations

11:25 - 12:00	**SC-1 Software Cradle** **ST HD FLOW POST**
	New Features and Development Plan
	We will introduce the current development progresses and schedules for the new features of scSTREAM, HeatDesigner, scFLOW, and scPOST V2020 to be released in November 2019, and future plans.
	Makoto Shibahara Software Cradle Co., Ltd.

12:00 - 13:10	Lunch [70 mins]

PM	**Track A**	**Track B**

13:10 - 13:45

A-1 Electronics **ST**
Example of Thermal Analysis of LCD Module using Lamp Function in scSTREAM
Hiroyoshi Umeda, Panasonic Corporation
Our original modeling method using the lamp function in scSTREAM has enabled the light's behavior within the LCD panel module with the edge type back light system simulate accurately. Using this method, the light absorption and the heat generation of the parts are precisely estimated and the parts' temperatures can be calculated with high accuracy. In addition to that, the method to reduce the measurement error caused by strong light when measuring temperature with thermocouples was introduced.

B-1 Transportation Equipment **FLOW SCT**
Reduction of Marine CO_2 Emissions: SC/Tetra Applications in Ship Model Development
Ryuji Yamasaki, NAMURA SHIPBUILDING CO.,LTD.
Our company output geometry data from NAPA (a hull CAD) with details of hull lines, auto-create MDL data that has high model reproducibility by macro-system, and calculate the resistance and self-propulsion performance. This session will introduce briefly about these analysis cases of resistance and self-propulsion using the official, JBC ship model and our company model.

13:45 - 13:55 Break [10 mins]

13:55 - 14:30

A-2 Electronics **HD**
Points for Designing a Radiator
Takashi Kitagawara, NICHICON CORPORATION
With the increasing needs for smaller radiator with higher capability, it has become more difficult to design in the conventional way in the limited time, which relies on one's experience and sense. This session will introduce our CFD approach towards the mechanism of the heat dissipation and the reasonable design points of radiator.

B-2 Transportation Equipment **SCT**
Approach for the Improvement of the Performance of the Automotive Brake Disc
Hiroyuki Yumoto, KIRIU CORPORATION
The weight saving demand for automotive components is increasing. The brake discs especially are facing the challenges to save weight because they are increasing in size due to advanced vehicle capability. The session introduces our attempt to reduce the weight and improve the coolability, and how we have evaluated and verified the effect of the air flow in ventilated disc brake.

14:30 - 14:40 Break [10 mins]

14:40 - 15:10

SC-2 Software Cradle **ST**
Discrete Element Method (DEM) Functions and its Applications
Yuki Kanayama, Software Cradle Co., Ltd.
This session introduces discrete element method (DEM) which is newly implemented in scSTREAM V14. DEM function enables to calculate solid particles that flow while they contact with each other. The talk will also share a coupling scheme with fluid and its case studies as well as useful setting tips to know on utilizing this function.

SC-3 Software Cradle **FLOW**
Development of Density-Based Solver for Compressible Flow Analysis in scFLOW
Yoshitaka Nakashima, Software Cradle Co., Ltd.
This session will introduce the density-based solver released in scFLOW V14. The density-based solver is suitable for the analysis of a high speed compressible fluid flow such as a shock wave phenomenon. Difference with the pressure-based solver used by default, improvement from the density-based solver of SC/Tetra, and the combination uses with various functions including overset mesh, will be discussed. Furthermore, the latest solver of JFNK method will be a topic.

15:10 - 15:35 Break [25 mins]

15:35 - 16:10

C-1 Building and Architecture **English session** **ST**
Evaluation on Indoor Thermal Environment and Energy Consumption Using CFD Simulation
Srisuwan Parinee, Kyudenko Corporation
CFD analysis on the optimum operating schemes between the convectional air-conditioning and radiant system was conducted. The results indicated a greater reduction in MRT during summer compared to those without radiant panel. Vertical temperature gradient was suppressed during winter. Thermal comfort could be enhanced with low energy consumed by radiant system.

D-1 Machinery **SCT**
Robust Design of Centrifugal Blower Section Using SC/Tetra
Nobuhiro Yuhashi, MARUYAMA MFG. CO., INC
Recently, low cost and less lead time are required strongly for the development. However, the design in our company are based on the experience of the engineers so they have to redesign when any problem occur. We have evaluated a new engine blower with the combination of quality engineering and CFD to minimize the alteration, lead time and cost.

16:10 - 16:20 Break [10 mins]

16:20 - 16:55

C-2 Building and Architecture **ST**
Prediction of Wind Environment in Urban Area by scSTREAM
Tsuyoshi Murakami, General Building Research Corporation of Japan
Introduce an example of CFD simulation of wind environment in urban area by scSTREAM, and our efforts of create macro program to improve operational efficiency of building shape input and of simulation results analysis. And also introduce a business of our corporation.

D-2 Machinery **FLOW SCT**
Strategies for Optimizing the Design of Propeller Fan and Case Studies of Coupled Analysis
Seiji Hashino, Panasonic Ecology System Co.,Ltd.
We have developed quiet, high performance fan by extracting parameter that affects the performance and using Optimus for Cradle to perform optimization. This session introduces example of ceiling fan, where we performed fluid-structure interaction and coupling of electromagnetic field and CFD. The latter involved heat dissipation analysis, where heat distribution from electromagnetic field analysis using JMAG was used.

16:55 - 17:00 Closing [5 mins]

17:15 - 19:00 Conference banquet [105 mins]

Time	**Track C**	**Foyer / exhibit space**

12:10 - 12:40   **TF-1** **ST FLOW**
Co-Simulation Integrated between scFLOW/scSTREAM and Adams
MSC Software Corporation
Latest scFLOW/scSTREAM support FMI (functional Mockup Interface). In this presentation, we will introduce how to set up for Co-simulation between CFD and Adams using FMI and some examples. In addition, we will also introduce MSC Co-sim Engine which realizes coupling simulation including structure analysis.

12:40 - 13:10 Lunch [30 mins]

13:10 - 13:40   **TF-2** **FLOW**
Quick Guide to scFLOW
Software Cradle Co., Ltd.
This session introduces various useful features and setting know-hows along with practical operations which scFLOW users are encouraged to acquire, so that users can quickly exploit the strength of this young software in their own CFD practices. In addition, a particularly noteworthy knowledge among the differences between scFLOW and SC/Tetra will be shared for users to make a seamless transition from SC/Tetra to scFLOW.

13:40 - 13:55 Break [15 mins]

13:55 - 14:25   **TF-3** **FLOW**
Invitation for the Computation Analyses of Naval Architecture and Ocean Engineers using scFLOW
Software Cradle Co., Ltd.
This session introduces the analysis cases by the scFLOW for the region of Naval Architectures and Ocean Engineers. Especially, for clearing the recent strict regulations, we will show how to calculate the reduction of ship hull drag by Energy Saving Device or predict the noise by propeller cavitation. In addition, not only the fluid analysis cases but also the "Co-Simulation" analysis cases, combination with MSC softwares for the marine engineering regions will be presented.

14:25 - 14:40 Break [15 mins]

14:40 - 15:10   **TF-4** **ST HD**
Methods of Creating Thermal Model of Semiconductor Package Using Structure Function
Software Cradle Co., Ltd.
This session introduces that methods of creation of thermal model based on structure functions obtained by converting transient thermal resistance which has recently drawn attention in power semiconductor fields. Also how to convert to structure function and create highly accurate thermal models using ElectronicPartsMaker and Optimus for Cradle will be explained.

15:10 - 15:35 Break [25 mins]

15:35 - 16:05   **TF-5** **FLOW SCT**
Aero-Acoustic Analysis Base on the Integration Between Cradle CFD and Actran
MSC Software Corporation
Actran is a dedicated CAE tool for acoustic analysis. The cause of the noise is Vibro-Acoustic due to the vibration of the structure and Aero-Acoustic due to turbulence of the flow. In order to analyze Aero-Acoustic, CFD analysis is required in front of Actran. Both transient CFD and steady-state CFD can be used for CFD analysis. In this presentation we will introduce a case of fluid acoustic analysis that combines Cradle's CFD software and Actran.

16:05 - 16:20 Break [15 mins]

16:20 - 16:50   **TF-6** **FLOW**
Introduction of scFLOW-Marc Coupled Analysis
MSC Software Corporation
The MSC group has been developing a coupled analysis method using heterogeneous application software in the Co-simulation scheme. In this method, coupled analysis is performed by combining already developed application software, so all functions already implemented in application software can be utilized. This also improves the speed of software development and makes it possible to reuse user's utilization methodology.

16:50 - 16:55 Closing [5 mins]

17:15 - 19:00 Conference banquet [105 mins]

Foyer / exhibit space
- Sponsor exhibition
- Software Cradle exhibition
- Poster sessions
  12 academic users are to demonstrate their case studies in poster format (Japanese only)

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