



EXHIBITION INFORMATION

人とくるまのテクノロジー展 2022 NAGOYA

Pre-Open 6/22-28
 2022 6/29 WED 10:00-18:00 30 THU 10:00-18:00 7/1 FRI 10:00-17:00

Portmesse Nagoya
 ONLINE STAGE 2 6/29(水)-7/5(月)
 Registration Required From Monday, June 6

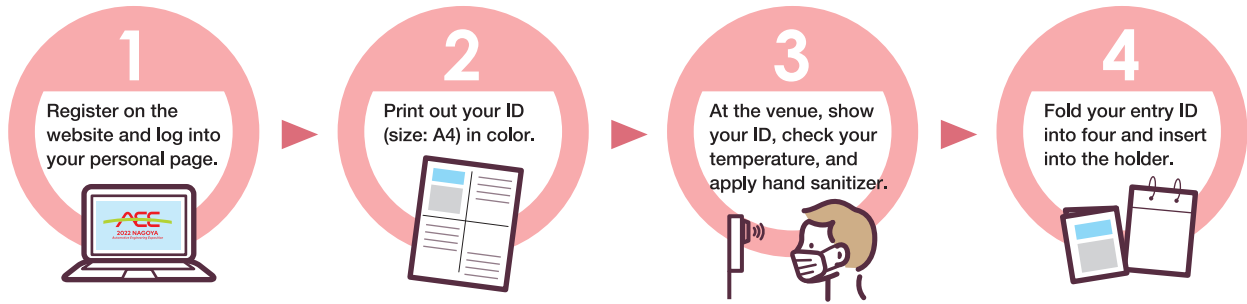
*A pre-open preview event will be held on the official Automotive Engineering Exposition website.
 Please note that this information may be subject to change without notice. Check our website for the latest information.



A Glimpse of Upcoming Technologies

The engineering exposition for building a robust and sustainable car-based society

How to attend the Exposition
 Please register in advance before arriving at the venue. To help prevent the spread of infection, registration desks on the day will not be prepared.



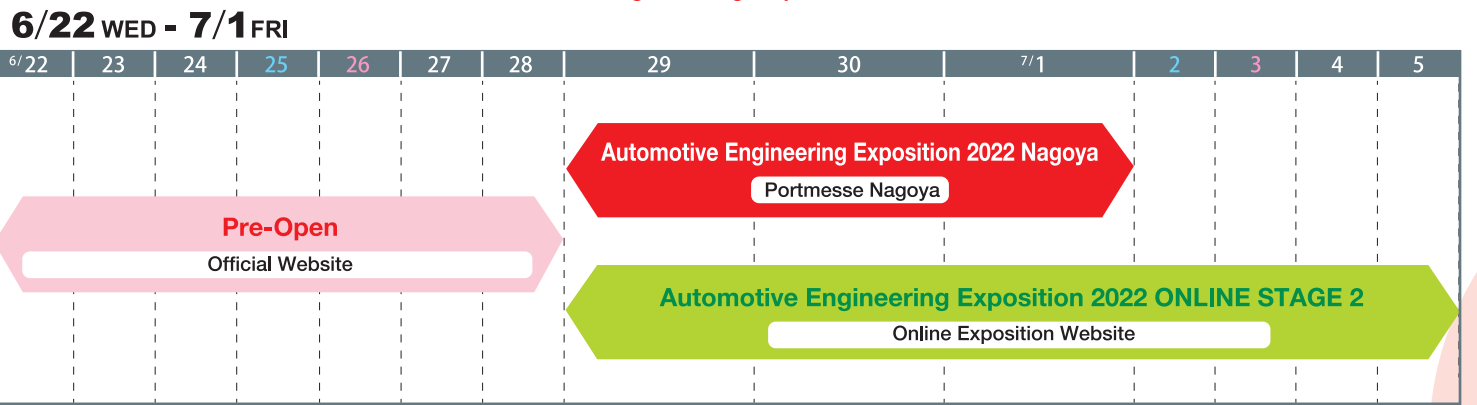
Thorough measures to prevent infection will be applied during the Exposition. These include:

- Temperature checks of all participants
- Mandatory mask wearing by all participants
- Entry restrictions according to guidelines to minimize close contact
- Provision of designated medical facilities
- Provision of hand sanitizer at all entrances and exits
- Constant ventilation by keeping doors open and through air conditioning
- Disinfecting venues, vehicles, and the like after every test drive

* Information in these materials may be subject to change. See the official website for the latest information. See the guidelines issued by the Japan Exhibition Association and the guidelines about preventing the spread of the novel coronavirus COVID-19 released by Portmesse Nagoya for details.

人とくるまのテクノロジー展 2022 NAGOYA

Automotive Engineering Exposition 2022



A pre-open preview event for the AUTOMOTIVE ENGINEERING EXPOSITION 2022 NAGOYA will be held on the official Automotive Engineering Exposition website starting from Wednesday June 22. This pre-open event gives you a chance to see an overview of the products and services that will be on show at the real expositions, with no registration required! Enjoy a taster of this year's Automotive Engineering Exposition before the doors open!

Special Exhibits Nagoya Online STAGE 2

Forging Ahead! The Road to Carbon Neutrality

Looking back over the history of automotive technology development, there have been various occasions in which the automotive industry has joined forces with other industries and strived to develop new technologies for the convenience and benefit of society as a whole. Today, as we face the challenge of decarbonization on a global scale, Japan and many other countries and regions around the world have stated their intention to realize carbon neutrality by 2050. With vehicle electrification seen as an important part of realizing this target, some countries and regions have introduced stringent restrictions on vehicles, some going as far as banning the sale of internal combustion engines. Japan is also studying a wide range of measures in line with the state of affairs in the country.

To help realize the global target of carbon neutrality, the automotive industry is widening the scope of its technological development to an extent never seen before and pursuing cooperation that transcends industry barriers.

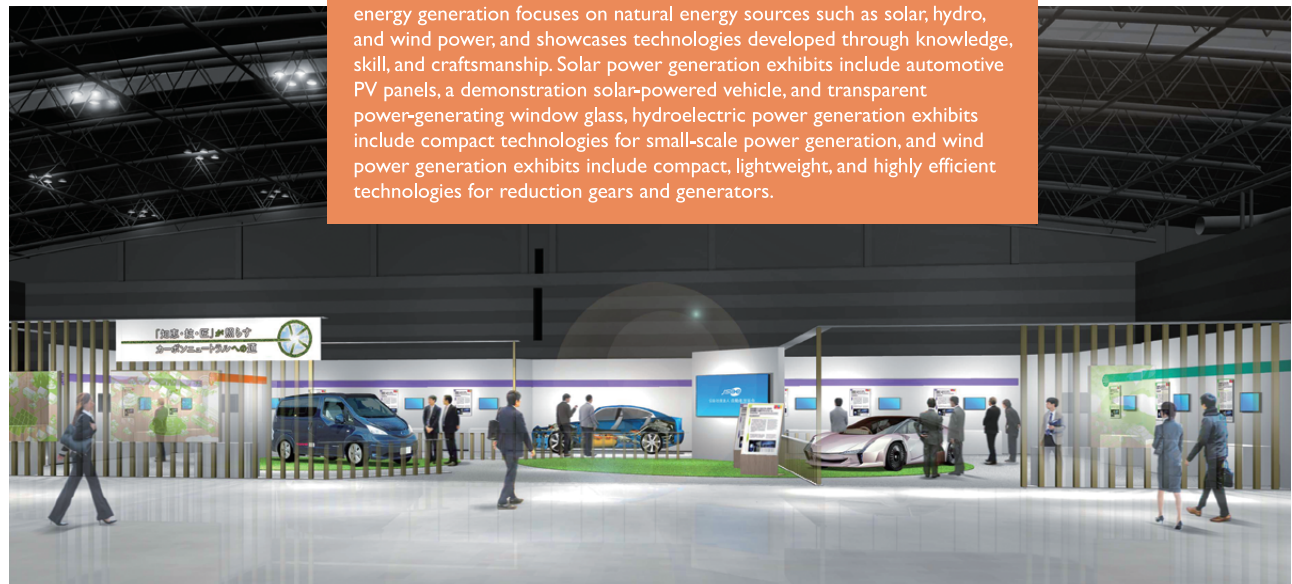
We hope that the AUTOMOTIVE ENGINEERING EXPOSITION 2022 will provide support for your actions toward carbon neutrality.

- The Road to Carbon Neutrality Illuminated by Knowledge, Skill, and Craftsmanship -

This exhibition gathers together technical information from a wide perspective, including information not directly related to cars, and presents a range of technologies developed through knowledge, skill, and craftsmanship to help realize carbon neutrality. The exhibition focuses on general renewable energy and energy saving technologies, such as the latest basic technologies related to renewable energy generation, energy saving technologies in manufacturing processes (monozukuri), as well as technologies to improve vehicle performance through more efficient fuel and power consumption.

The Latest Basic Technologies for Renewable Energy Generation

The exhibition zone for the latest basic technologies related to renewable energy generation focuses on natural energy sources such as solar, hydro, and wind power, and showcases technologies developed through knowledge, skill, and craftsmanship. Solar power generation exhibits include automotive PV panels, a demonstration solar-powered vehicle, and transparent power-generating window glass, hydroelectric power generation exhibits include compact technologies for small-scale power generation, and wind power generation exhibits include compact, lightweight, and highly efficient technologies for reduction gears and generators.



Energy Saving Technologies in Manufacturing Processes (Monozukuri)

The exhibition zone for energy saving technologies in manufacturing processes (monozukuri) focuses on basic elements of monozukuri, namely materials, processes, equipment, and innovations. This zone highlights how knowledge, skill, and craftsmanship can help save energy in any monozukuri process, including cases of energy-saving by changing materials and manufacturing processes, loss reduction through more efficient boilers, motors, and other equipment, and case studies in which practical knowledge and innovation at the worksite have helped to reduce energy consumption.

Greater Vehicle Performance through More Efficient Fuel and Power Consumption

The exhibition zone for technologies to improve vehicle performance through more efficient fuel and power consumption demonstrates practical applications of knowledge, skill, and craftsmanship. In addition to focusing on more versatile weight reduction technologies such as new bonding methods for steel materials and the latest composite technologies using plant-derived cellulose nano-fibers, this zone also showcases technologies for raising the efficiency of HVAC systems in electrified vehicles as a way of reducing the auxiliary loads that have such an impact on fuel and power consumption.

Exhibit Collaborators:

Chubu Electric Power Miraiz Co., Inc. / DENSO CORPORATION / DENSO IWATE CORPORATION / Mazda Motor Corporation / Ministry of the Environment / MITSUI MIKE MACHINERY CO., LTD. / Nanocellulose Japan / NEDO / NGK SPARK PLUG CO., LTD. / Nissan Motor Co., Ltd. / NTT Advanced Technology Corporation / Oji Holdings Corporation / Sharp Corporation / SUBARU CORPORATION / TANAKA HYDROPOWER CO., LTD. / TOYOTA INDUSTRIES CORPORATION / TOYOTA MOTOR CORPORATION

* Listed in alphabetical order.

Special Presentations Online STAGE 2

Five online presentations have been arranged based on the Special Exhibits theme.

* The presentations will be re-broadcast between Monday July 4 and Tuesday July 5. (Broadcasts will also be available between Wednesday July 6 and Friday July 15 for JSAE members only.)

6/29 WED Starting at 10:00 (till the end of the day)



6th Strategic Energy Plan and Clean Energy Strategy Progress Report

Mitsuhiro Nishida
 Director
 Strategy Office, Agency for Natural Resources and Energy
 Ministry of Economy, Trade and Industry

This presentation will report the progress of the 6th Strategic Energy Plan determined by the Cabinet in October last year, as well as the Clean Energy Strategy that is currently under consideration, and describe the measures expected of the automotive industry toward realizing carbon neutrality in 2050.

6/30 THU Starting at 10:00 (till the end of the day)



How Monozukuri Can Learn from Karakuri

Yoshikazu Suematsu
 Visiting Professor
 Research Institute
 Aichi Institute of Technology

The term "karakuri" (intricate self-operating automata unique to Japan) became widely used by ordinary people in the Edo period. This presentation describes an overview of how this happened and the significance of festival float processions featuring karakuri dolls, which have continued for several hundred years. The presentation also touches on how karakuri can contribute to continuous improvements (kaizen), with a focus on energy-saving.

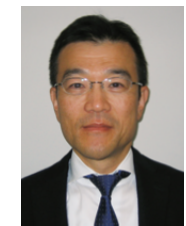


Potential Hydrogen-related Business Opportunities in a Carbon-neutral Society

Takamichi Ochi
 Senior Manager
 Public Sector
 Deloitte Tohmatsu Consulting LLC

This presentation demonstrates how the structure of energy supply and demand will be transformed in a carbon-neutral (CN) society, and presents reference information about the role of hydrogen and potential hydrogen-related business opportunities in the future. In light of this eventuality, reference information will also be presented about key features of hydrogen, which can be produced from a wide range of energy sources, and potential key technologies for the hydrogen supply chain.

6/30 THU Starting at 10:00 (till the end of the day)



Toward the Creation of a Green Hydrogen Supply Chain

Kiyoshi Shima
 General Manager
 Environmental & Solutions Department
 Technology Division
 OBAYASHI CORPORATION

The use of hydrogen as an energy source is likely to expand across a wide range of fields, as well as FCVs. This presentation describes contributions and initiatives toward building a green hydrogen supply chain, which are ongoing in partnership between various businesses across different industrial fields, including the production of hydrogen from geothermal power generation.

7/1 FRI Starting at 10:00 (till the end of the day)



Japan's Future Hydrogen Energy Based Society

Yukitaka Kato
 Professor
 Laboratory for Zero-Carbon Energy,
 Institute of Innovative Research
 Tokyo Institute of Technology

As Japan progresses toward carbon neutrality, hydrogen has potential as an important energy carrier. This presentation describes the direction that Japan is taking toward building a hydrogen energy based society, the issues involved in producing, storing, and using hydrogen for this purpose, and potential technologies for the future.

Special Presentations about Technological Development Online STAGE 2

This is scheduled presentation focusing on the passion and dedication applied to development.

* The presentation will be re-broadcast between Monday July 4 and Tuesday July 5. (Broadcasts will also be available between Wednesday July 6 and Friday July 15 for JSAE members only.)

7/1 FRI Starting at 10:00 (till the end of the day)



Development of Formula 1 Power Unit

This presentation describes the technologies behind Honda's F1 power unit that helped win the Drivers' Championship in the 2021 Formula One World Championship, one of the most fiercely fought series in recent years.

Yasuaki Asaki
 Managing Director
 General Manager, Automobile Racing Development Division
 Honda Racing Corporation



Chubu Branch Exhibit

Nagoya Online STAGE 2

The Chubu Branch of the JSAE has arranged an autonomous driving-themed exhibit to provide a forum for visitors to learn and experience mobility technologies in new fields. Focusing on businesses in the Chubu area of Japan, this exhibition will introduce technologies and products related to autonomous driving, and provide test rides in autonomous demonstration vehicles.

Cognition

Sensor technology is critical for the cognition functions of autonomous vehicles. These exhibits showcase optical sensor technologies capable of sensing the environment around the vehicle, such as objects or people on the road, magnetic sensor technology that estimates the location of the driver's vehicle regardless of the surrounding environment, and magnetic materials that help to improve the accuracy of highly sensitive magnetic sensors.

Decision making

Highly accurate vehicle surroundings object recognition and situational judgment AI technology is critical for autonomous vehicles to drive safely. Focusing on decision making functions, these exhibits present evaluation techniques used in the accumulation of actual driving data and software development, as well as methods of generating driving data for poor driving conditions and dangerous situations, which are difficult to gather from actual driving.

Communication

High-speed and stable data transmission and reception systems play an indispensable role in identifying the constantly changing traffic situation and helping the vehicle to make the correct decisions. In the field of communications, these exhibits highlight radio wave propagation emulation technologies in virtual spaces using 3D maps of roads and buildings, as well as V2X communication technologies that support safe driving through DRSC and cellular communication.

Maps

Accurately localization is a vital aspect of autonomous driving. Maps exhibits shine a spotlight on highly accurate three-dimensional maps containing a many essential objects data, as well as various map technologies for the autonomous driving.

Exhibit Collaborators:

AICHI STEEL CORPORATION / AISAN TECHNOLOGY CO., LTD. / Daido Steel Co., Ltd. / HAGIWARA ELECTRONICS CO., LTD. / HAMAMATSU PHOTONICS K.K. / Murata Manufacturing Co., Ltd. / OTSL Inc.

Autonomous Driving Demonstration Vehicle Test Rides

Nagoya Exhibition Hall 3
* Admission Free, Registration required

6/29 WED | **6/30 THU** | **7/1 FRI**
10:00 ~ 17:00 | 10:00 ~ 17:00 | 10:00 ~ 15:00

Supported by AISAN TECHNOLOGY CO.,LTD.
(During stage 2 of the online exposition, a recorded presentation made by Tier IV, Inc. will be broadcast.)

How about taking a test ride in an autonomous EV designed for last-mile transportation without a steering wheel, or brake pedal! Experience for yourself autonomous driving using highly accurate three-dimensional maps and other technologies.



Chubu Branch Special Presentations

Online STAGE 2

Three online presentations organized by the Chubu Branch.

* The presentations will be re-broadcast between Monday July 4 and Tuesday July 5. (Broadcasts will also be available between Wednesday July 6 and Friday July 15 for JSAE members only.)

6/29 WED Starting at 10:00 (till the end of the day)



Progress and Issues of Autonomous Driving - Are Autonomous Vehicles Special? -

Terunao Kawai

Director
Automotive Safety Research Dept.
National Agency for Automobile and Land Transport Technology
National Traffic Safety and Environment Lab.

In Japan, sales of the world's first type-approved level 3 autonomous vehicle have begun, a major step toward the introduction and popularization of automated vehicles in ordinary society. This presentation describes an outline of the basic concepts related to autonomous vehicle safety, and discusses how critical issues are being handled as the use of autonomous vehicles spreads more widely throughout society.



Autonomous Driving Technologies for Commercial Vehicles

Kozue Kobayashi

SL
Automated Driving Technology Research Dept.
Hino Motors, Ltd.

This presentation focuses on autonomous driving technologies for commercial vehicles such as trucks and buses. In addition to highlighting the different requirements of autonomous passenger and commercial vehicles, this presentation also introduces the future prospects and issues of these technologies, interspersed with examples from field operational tests carried out both inside and outside Japan.



The Potential of Autonomous Buses as a Means of Public Transportation

Shinnosuke Nakajima

Manager
Liaison Section, Market Initiation Department
BOLDLY Inc.

Autonomous buses are a technology attracting a growing wave of attention. Starting with the launch of an autonomous bus service in Sakai, Ibaraki, in 2020, these buses have begun to play a role in public transportation. With level 4 technologies expected to be approved this year, this presentation discusses the potential of autonomous buses as a new form of public transportation.

Exhibitors List

Nagoya Online STAGE 2 165 exhibitors / 406 booths Only for Online 29 exhibitors

Exhibitors at Nagoya and stage 2 of the online exhibition

A&D Co., Ltd.	MARUBENI INFORMATION SYSTEMS Co., Ltd.	TAIHO KOGYO Co., Ltd.
A2Mac1 JAPAN K.K.	MARUBUN Corp.	TAIYO YUDEN Co., Ltd.
Ace Point Systems Inc.	MATEK Japan Inc.	TAKASAGO, Ltd.
Achilles Co., Ltd.	Matsumoto Kosan Co., Ltd.	TEAC CORPORATION
AGC Inc.	Mazda Motor Corp.	TESCO Corp.
AISIN CORPORATION	MEIDENSHA Corp.	TOBII TECHNOLOGY K.K.
Amsted Automotive Group	mi6 Ltd.	Toda Kogyo Corp.
aptpod Inc.	MICRO FASTENERS Co., Ltd.	TODA RACING Co., Ltd.
ARaymond Japan Co., Ltd.	Mitsubishi Chemical Corporation	TOFLO CORPORATION
ARCHIVETIPS Inc.	MITSUBISHI MATERIALS CORPORATION	TOKAI RIKI Co., Ltd.
ASKK Co., Ltd.	Mitsubishi Motors Co., Ltd.	Tokyo Measuring Instruments Laboratory Co., Ltd.
Aspen Aerogels, Inc.	Mitsubishi Paper Mills Ltd.	TOP Co., Ltd.
ATSENSE Inc.	MITSUI CHEMICAL ANALYSIS & CONSULTING SERVICE Inc.	Topia Co., Ltd.
Behr Hella Thermocontrol Japan K.K.	Mitsui Chemicals, Inc.	TOYO Corporation
BETA CAE Systems Japan Inc.	Moriroku Group	TOYODA GOSEI Co., Ltd.
Caresoft / SANYO TRADING Co., Ltd.	Muratec Mechatronics Co., Ltd.	Toyota Auto Body Co., Ltd.
Cepton	nac Image Technology Inc.	Toyota Motor Corporation Corp.
Chip One Stop, Inc.	NHK Spring Co., Ltd.	TOYOTA TECHNICAL DEVELOPMENT Co., Ltd.
Correns Corp.	Nikon Corporation Nikon Solutions Co., Ltd.	Tsubakimoto Chain Co.
DAIDO METAL CO., Ltd.	NIPPO CORPORATION	UACJ Corp.
Daihatsu Motor Co., Ltd.	Nippon Engine Co., Ltd. Co., Ltd.	UL Japan Inc.
Daitron Co., Ltd.	NISHIYAMA Corp. Yamato Scale Co., Ltd. JAPAN WIND	UNIVANCE Corp.
DENSO Corp.	TUNNEL MFG.	VI-grade Japan Ltd.
DITECT Corp.	Nissan Motor Co., Ltd.	Wolverine Japan Inc.
DTS INSIGHT Corp.	Nissho Corp.	ZIPPERTUBING JAPAN Co., Ltd.
DuPont	Nissin Manufacturing Co., Ltd.	
Easy Measure Co., Ltd.	NOK Corp.	Only exhibitors at stage 2 of the online exhibition
FASOTEC Co., Ltd.	OCTEC Inc.	Ansys Japan K.K.
FORUM8 Co., Ltd.	OGAWA INDUSTRY Co., Ltd.	AVL JAPAN K.K.
FTS Co., Ltd.	ONO SOKKI Co., Ltd.	CDH-Japan Ltd.
Fuji Electronics Industries Co., Ltd.	PHOTRON LIMITED	COSMO OIL LUBRICANTS CO. Ltd.
Fuji Technical Research Inc.	Prodrive Technologies Japan K.K.	Dai Nippon Printing Co., Ltd.
FURUKAWA ELECTRIC Co., Ltd.	Pulstec Industrial Co., Ltd.	Elektrobit Nippon K.K.
GAFS Co., Ltd.	QMAIL	Highly Marelli Japan Corp.
Hakuto Co., Ltd.	Research Institute for Computational Science Co., Ltd.	Hitachi Solutions Co., Ltd.
HEAD acoustics Japan K.K.	RION Co., Ltd.	iFLYTEK Automotive Japan Co., Ltd.
HIROSE ELECTRIC Co., Ltd.	RPV Co., Ltd.	IHI Corporation Co., Ltd.
Honda Motor Co., Ltd.	SABIC Japan	IRISO ELECTRONICS Co., Ltd.
HONDA TSUSHIN KOGYO Co., Ltd.	Sandvik Materials Technology K.K.	JATO Japan Ltd.
HORIBA Ltd.	SANKO Co., Ltd.	Keysight Technologies Japan K.K.
Hottinger, Bru?el & Kj?r	SANYO TRADING Co., Ltd.	KURARAY Co., Ltd.
Humanetics Innovative Solutions Japan Inc.	Satyam Venture Engineering Services Private Limited	Littelfuse Japan G.K.
IDAJ Co., Ltd.	SCSK Corp.	NewtonWorks Corp.
IHS Markit now a part of S&P Global	SEIWA ELECTRIC MFG. Co., Ltd.	NIHON DENKEI Co., Ltd.
Imae Industries, Ltd.	shimadzu Corp.	NIHON PLAST Co., Ltd.
Intechno Co., Ltd.	Shinano Kenshi Co., Ltd.	Optomet GmbH
ISUZU MOTORS LIMITED	SHOWA Co., Ltd.	Rescale Japan K.K.
JAPAN 3D PRINTER Co., Ltd.	SINO JAPAN ELECTRIC HEATER Co., Ltd.	T.RAD Co., Ltd.
JFE Techno Research Corporation	SMT Japan	TDK Corp.
JOMESA Japan K.K.	SOLIDWORKS JAPAN K.K.	TECHMATRIX Corp.
JUKI CORPORATION	SOLIZE Corporation	Teijin Limited
Kautex Japan Corp.	SONCEBOZ SA	Toshiba Electronic Devices & Storage Corp.
KEEPER Co., Ltd.	SPAL Japan K.K.	Toshiba Materials Co., Ltd.
Kobe Steel, Ltd.	Stringo Co., Ltd.	TOYO DRILLUBE Co., Ltd.
KURIMOTO Co., Ltd.	Sumitomo Chemical Co., Ltd.	UD Trucks Corporation Corp.
KYOWA ELECTRONIC INSTRUMENTS Co., Ltd.	Sumitomo Electric Industries Ltd.	Vitesco Technologies Japan K.K.
Laser Measurement Corp.	SUZUKI MOTOR Corp.	
Loccioni Japan Co., Ltd.		

* Listed in alphabetical order (as of April 21, 2022, not including joint exhibitors).

Chubu Branch Research Report Sessions

Online STAGE 2 7/4 MON ~ 7/5 TUE

Research Report Sessions organized by engineers in Chubu region.

Theme	Company	Presenter	Title
Core Technologies and the Environment	Mitsubishi Motors Corporation	Hiroyuki Takamura	Optimization CFD of Vehicle Front-end Cooling Structure with Variable Fidelity Models and Proper Orthogonal Decomposition
	Toyota Boshoku Corporation	Shin Inami	Tactile Modeling Method of Leather Materials Considering Individual Differences
	Toyota Boshoku Corporation	Yuya Kumagai	A Study of Thermal and Humid Sensation When Sitting on an Automotive Seat
	Daido Metal Co., Ltd.	Motohiko Koshima	A Study of Engine Bearings Friction Loss Reduction Under Hydrodynamic Lubrication Condition
	TOKAI RIKI Co., Ltd.	Tomoro Tokusumi	Developments on the Watching Service System with the Computer Vision Technique
	JTEKT CORPORATION	Daisuke Maeda	Meshing Simulation of Rack and Pinion for Steering System
	Toyota Auto Body Co., Ltd.	Makoto Segi	Development of a Sound Absorbing and Damping Material Made of Pulp
	NGK Spark Plug Co.,Ltd.	Suguru Miyamoto	Development of Lithium-ion Conductive Oxide Solid Electrolyte and Oxide-based non-sintered Batteries Using Oxide Solid Electrolyte
	Toyoda Gosei Co., Ltd.	Shinya Sakai	Development of "Lightweight Oil Pump"

Theme	Company	Presenter	Title
Production Technologies, CASE, and MaaS	AISIN CORPORATION	Munehiro Takayama Kengo Futa	Defect Inspection Technology on Specular Curved Surfaces by Using a Fringe Pattern Adaptive to the Surface Shape
	JATCO Ltd	Makoto Hirosaki	Improvement of Overall Equipment Effectiveness by Using IoT Technology in the Workplace
	Toyota Central R&D Labs., Inc.	Masahito Kamekawa	Experimental Analysis of Abnormal Values Output From Inertial Measurement Unit(IMU) in Extreme Driving Conditions
Powertrain, Chassis, Body, and Electronics	TOYOTA MOTOR CORPORATION	Yuma Takabatake	Structure and Mounting of FC Stack for New Fuel Cell Electric Vehicle
	SUZUKI MOTOR CORPORATION	Haruaki Suzuki	Development of New Hayabusa (GSX1300R) Engine
	DENSO Corporation	Kohei Oba	Fail Operational Motor Control Unit for Electric Power Steering
	AISIN CORPORATION	Keiichi Yanai	Image Recognition System for Power Sliding Doors
	TOYOTA INDUSTRIES CORPORATION	Nobuyuki Inayoshi	Development of Onboard AC Inverter
ADVICS Co., Ltd.	Masaki Maruyama	Development of an Electronically Controlled On-demand Braking System	