



10th International Workshop on Railway Noise

Program

October 18–22, 2010
Nagahama, Japan

Supported by

Ministry of Land, Infrastructure, Transport and Tourism

Ministry of the Environment

In cooperation with

Institute of Noise Control Engineering / Japan

Acoustical Society of Japan

Japan Society of Mechanical Engineers

Japan Society of Civil Engineers

Japanese Geotechnical Society

Society of Exploration Geophysicists of Japan

Sponsors



MITSUBISHI HEAVY INDUSTRIES, LTD.



**MITSUBISHI HEAVY INDUSTRIES
MECHATRONICS SYSTEMS, LTD.**



ITAKE CORPORATION

RockDelta®

High-efficiency mats for vibration isolation and ballast protection



Brüel & Kjær 
Incorporating LDS and Lochard

esi
get it right®



 **TOYO Corporation**

getzner
the good vibrations company

SEKISUI



 **NIPPON SHARYO**

 **KINKI SHARYO**

 **Kawasaki**

TOSHIBA
Leading Innovation >>>

HITACHI
Inspire the Next

 **RI TOKAI RUBBER INDUSTRIES, LTD.**

 **NITTO**

 **TML Tokyo Sokki Kenkyujo Co., Ltd.**

Host organization

Railway Technical Research Institute (RTRI)



Railway Technical Research Institute

2-8-38 Hikari-cho, Kokubunji-shi, Tokyo 185-8540, Japan

Tel: +81-42-573-7258, Fax: +81-42-573-7356

E-mail: iwrn10@rtri.or.jp

Planning Committee

Chair: Masao Uchida

Co-chair: Tatsuo Maeda, Koichi Goto

Secretariat: Tetsuo Uzuka, Kiyoshi Nagakura

Executive Committee

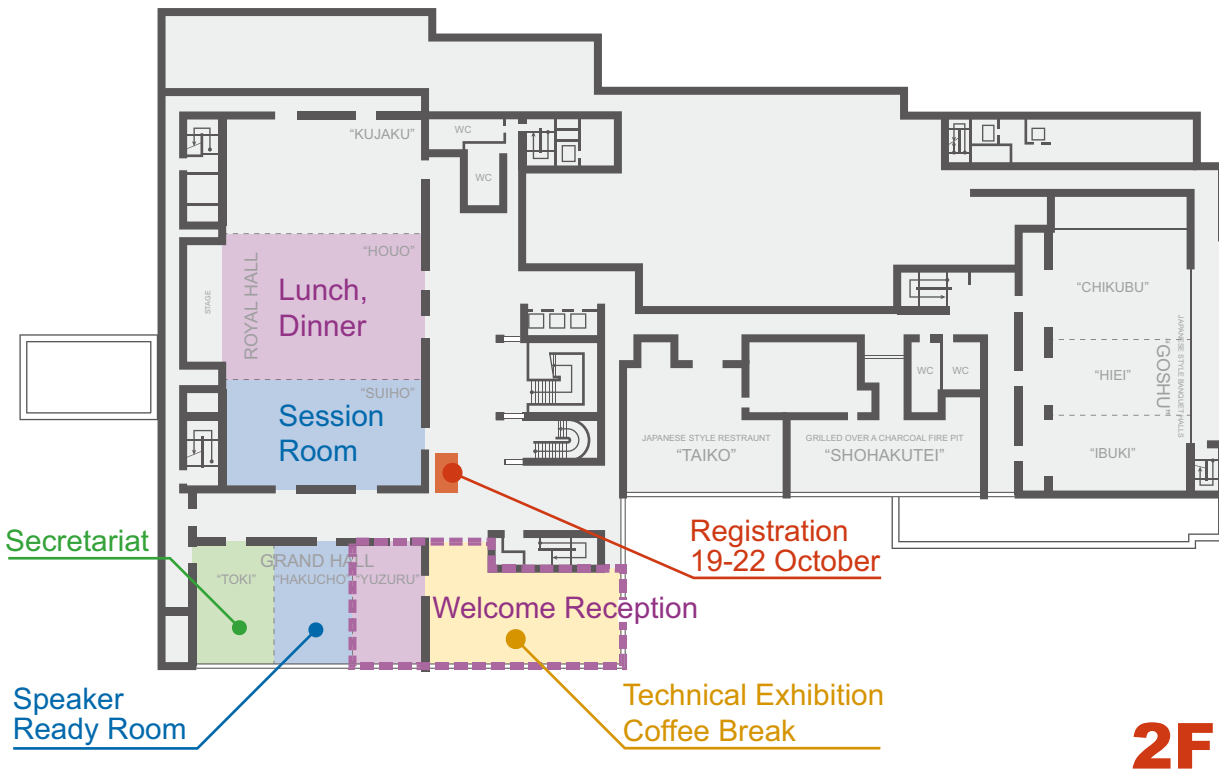
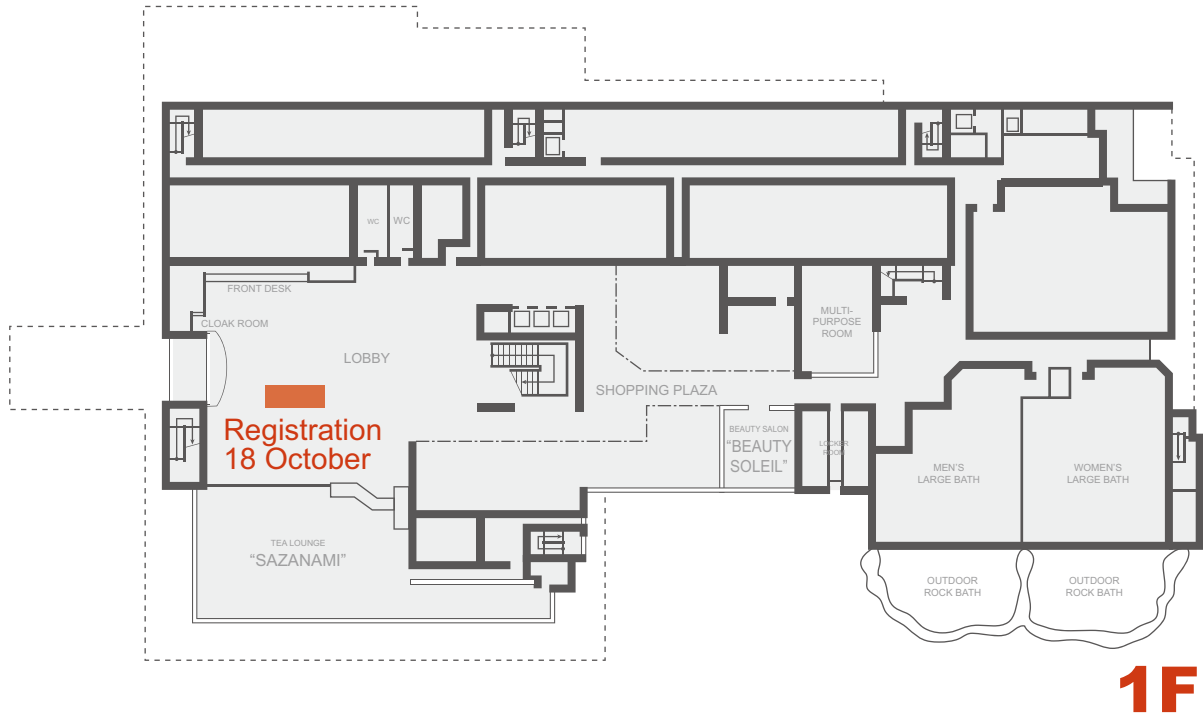
Chair: Tatsuo Maeda

Co-chair: Koichi Goto, Masanobu Iida

IWRN International Committee

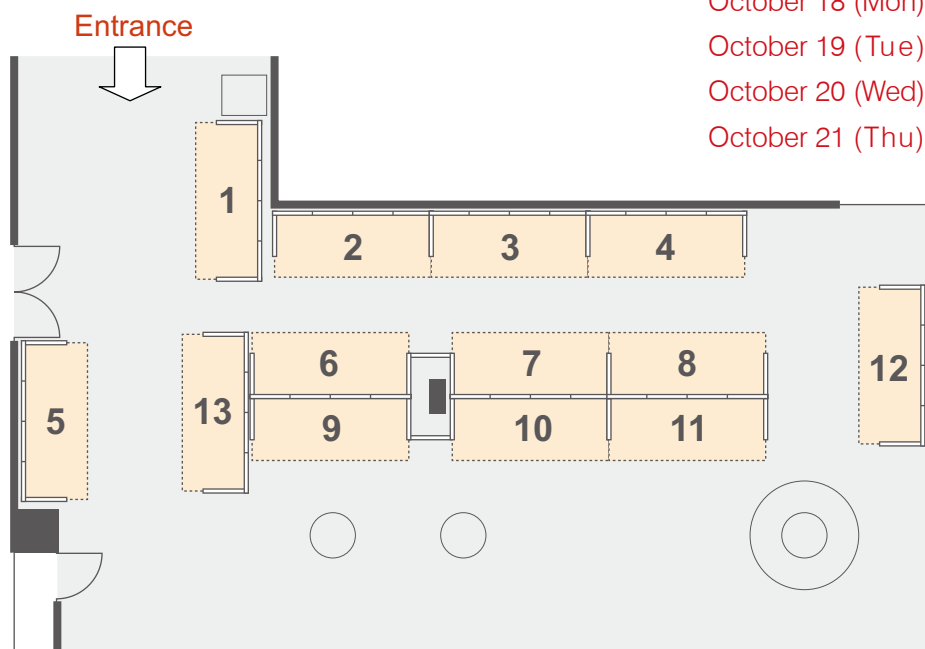
Tatsuo Maeda (Chair)	Japan
Pierre-Etienne Gautier	France
Carl Hanson	USA
Brian Hemsworth	UK
James Nelson	USA
Burkhard Schulte-Werning	Germany
David Thompson	UK
Paul de Vos	Netherlands

Floor plan of Nagahama Royal Hotel



Technical Exhibition

Exhibition Floor Plan



Opening Hours

October 18 (Mon) 18:00 - 20:00
 October 19 (Tue) 9:00 - 17:00
 October 20 (Wed) 9:00 - 17:00
 October 21 (Thu) 9:00 - 16:00





List of Exhibitors



Booth No.	Company Name	
1	Sekisui Chemical Co., Ltd.	
2	Nihon Getzner K.K.	
3	Sankei / Nihon Tokushu Toryo	
4	ESI Japan Ltd.	
5	Mitsubishi Heavy Industries, Ltd	
6	RockDelta a/s	
7	Toyo Corporation	
8	Toyo Corporation	
9	Itake Corporation	
10	Rion Co., Ltd.	
11	Brüel & Kjær	
12	INNOtec Systems GmbH	
13	RTRI, JR Group	






IWRN10 Program at a Glance



	Monday October 18	Tuesday October 19	Wednesday October 20	Thursday October 21	Friday October 22
8:30		Welcome and Introduction by RTRI 8:30 – 9:00	Session 4 Structural-borne Noise, Squeal Noise 8:30 – 10:30	Session 7 High Speed Trains – Part 1 8:30 – 10:10	Session 10 Prediction, Measurements, Monitoring – Part 1 8:30 – 9:50
9:00		Session 1 Prospects, Legal Regulation, Perception 9:10 – 10:30			Coffee Break
10:00		Coffee Break	Coffee Break	Coffee Break	Session 11 Prediction, Measurements, Monitoring – Part 2 10:20 – 11:40
11:00		Session 2 Wheel and Rail Noise – Part 1 11:00 – 12:30	Session 5 Ground-borne Vibration – Part 1 11:00 – 13:00	Session 8 High Speed Trains – Part 2 10:40 – 12:00	Break
12:00		Lunch Break	Lunch Break	Lunch Break	Award and Close 11:50 – 12:20
13:00		Session 3 Wheel and Rail Noise – Part 2 13:30 – 14:40	Session 6 Ground-borne Vibration – Part 2 14:00 – 16:00	Session 9 Interior Noise, Sound Barrier 13:00 – 15:00	Technical Tour to the Wind Tunnel Technical Center of RTRI 13:30 – 16:30
14:00	Registration	Coffee Break		Coffee Break	
15:00		Poster Session 1 Wheel and Rail Noise 15:10 – 16:40		Poster Session 3 High Speed Trains, Interior Noise, Sound Barrier, Prediction, Measurements, Monitoring 15:30 – 16:20	
16:00			Coffee Break		
17:00			Poster Session 2 Prospects, Legal regulation, Perception, Structural-borne Noise, Squeal Noise, Ground-borne Vibration 16:30 – 17:50		
18:00	Welcome Reception 18:00 -			Gala Dinner 18:30 -	

10th International Workshop on Railway Noise - Schedule

Monday, October 18		
14:00 – 19:00	Registration	
18:00 – 20:00	Welcome Reception Sponsored by RockDelta a/s 	
Tuesday, October 19		
08:30 – 09:00	Welcome and Introduction by RTRI	
09:10 – 10:30	Session 1 Prospects, Legal regulation, Perception Chair: Carl Hanson	
	S1.1	Transportation noise annoyance, cognitive performance and sleep disturbances related to temporal structures and traffic modes (Deufrako Project "RAPS")
	S1.2	Advancements in noise and vibration abatement to support the noise reduction strategy of Deutsche Bahn
	S1.3	Planning and controlling railway noise in a metropolis - our practical experience
	S1.4	Human response to ground-borne noise and vibration in buildings caused by rail transit: Summary of the TCRP D-12 Study
10.30 – 11:00	Coffee Break Sponsored by Itake Corporation  ITAKE CORPORATION	
11:00 – 12:20	Session 2 Wheel and Rail Noise - Part 1 Chair: David Thompson	
	S2.1	An investigation of velocity-dependent friction in wheel-rail rolling contact
	S2.2	High-frequency vertical wheel-rail contact forces at high vehicle speeds –the influence of wheel rotation
	S2.3	Optimization of new noise shielded and vibration damped assemblies for high speed train wheel using FEM-BEM simulation
	S2.4	Rolling noise simulation: A new approach in time domain
12:20 – 13:20	Lunch Break Sponsored by The Kinki Sharyo Co.,Ltd.  KINKI SHARYO	
13:20 – 14:40	Session 3 Wheel and Rail Noise - Part 2 Chair: David Thompson	
	S3.1	Wave propagation in an infinite track having an irregular region
	S3.2	Slab track vibration and wayside noise in a high speed rail tunnel
	S3.3	Tuned mass damper for rail noise control
	S3.4	Development of Rail Noise Isolating Material (RNIM)
14:40 – 15:10	Coffee Break Sponsored by Itake Corporation  ITAKE CORPORATION	
15:10 – 16:40	Poster Session 1 Wheel and Rail Noise Chair: Brian Hemsworth	
	P1.1	Bridging the gap from multibody simulations to acoustic analysis
	P1.2	Influence of subway LIM train wheel polygonization on the vibration and sound radiation characteristics of it
	P1.3	Dynamic models of railway track taking into account of cross-section deformation at high frequency
	P1.4	Modelling and performance analysis of rail vibration absorber by FE and BE methods
	P1.5	Modelling the directivity of wheel/rail radiation using a circular/straight line of perpendicular dipole pairs
	P1.6	Measurement of dynamic characteristics of rail supports using flexural wave propagation
	P1.7	High-speed rail: excitation frequencies and track stiffness
	P1.8	Railway noise reduction technology using a damping material
	P1.9	Detection of brake type and tread surface quality of passing trains based on rail-sleeper-force measurements

Wednesday, October 20		
08:30 – 10:30	Session 4 Structural-borne Noise, Squeal Noise Chair: Carl Hanson	
	S4.1	Estimation of vibration power flow to and sound radiation from a railway concrete viaduct due to vehicle/track interaction Tianxing Wu
	S4.2	An investigation on vibratory and acoustical characteristics of concrete bridge for Shinkansen Yuichi Kozuma
	S4.3	Local vibration properties of RC viaduct under passing trains Kodai Matsuoka
	S4.4	Prediction and measurement of vibration on a modern concrete railway bridge fitted with resilient rail fasteners David Herron
	S4.5	Development of silent steel railway bridge equipped with floating ladder track and floating reinforced concrete deck Tsutomu Watanabe
	S4.6	A time-domain model for coupled vertical and tangential wheel/rail interaction - a contribution to the modelling of curve squeal Astrid Pieringer
10:30 – 11:00	Coffee Break Sponsored by Itake Corporation  ITAKE CORPORATION	
11:00 – 13:00	Session 5 Ground-borne Vibration - Part 1 Chair: James Phillips	
	S5.1	A comparison of predicted and measured ground vibrations due to high speed, passenger, and freight trains Geert Lombaert
	S5.2	Verification of an empirical prediction method for railway induced vibration Hans Verbraken
	S5.3	Track-based control measures for ground vibration - the influence of quasi-static loads and dynamic excitation Nuthnapa Triepaischajonsak
	S5.4	Ground vibration induced by railway traffic – the influence of vehicle parameters Adam Mirza
	S5.5	Localization of vibration sources along railway tracks Carl Wersall
	S5.6	Analysis and design of new floating slab track for special trackwork using Finite Element Analysis (FEA) James E. Phillips
13:00 – 14:00	Lunch Break Sponsored by Kawasaki Heavy Industries, Ltd.  Kawasaki	
14:00 – 16:00	Session 6 Ground-borne Vibration - Part 2 Chair: James Phillips	
	S6.1	Evaluation of the ground-borne vibration reduction properties of tire derived aggregate installed on the Denver RTD Light Rail System David A. Towers
	S6.2	Dynamic response of frozen soil under movable track traffic load Aiping Tang
	S6.3	Specificities of ground vibrations induced by freight traffic from the track to the building Estelle Bongini
	S6.4	Ground vibration on high-speed railway tunnel Tsutomu Watanabe
	S6.5	The effects of a second tunnel on the propagation of ground-borne vibration from an underground railway Kirsty Kuo
	S6.6	A numerical investigation of railway ground vibration mitigation using a trench in a layered soil Chris Jones
16:00 – 16:30	Coffee Break Sponsored by Itake Corporation  ITAKE CORPORATION	
16:30 – 17:50	Poster Session 2 Prospects, Legal regulation, Perception, Structural-borne Noise, Squeal Noise, Ground-borne Vibration Chair : Brian Hemsworth	
	P2.1	How does noise annoyance relate to traffic intensity? Tomas Jerson
	P2.2	Internal occupational noise and vibration environments of intermodal freight trains Luke Zoontjens
	P2.3	Noise reduction of steel bridges with non ballast tracks Helmut Venghaus
	P2.4	Field verification of curving noise mechanisms Jiandong Jiang
	P2.5	Effectiveness of using elastomeric pads to mitigate impact vibrations at an urban turnout crossing Sakdirat Kaewunruen
	P2.6	Analyses of the ground borne vibration induced by high-speed trains in finite element models Giovanni Leonardi
	P2.7	A 2.5D coupled FE-BE methodology for the prediction of railway induced vibrations Geert Degrande
	P2.8	Advantages of 3-D vibration and ground-borne noise model Barry James Murray

Thursday, October 21		
08:30 – 10:10	Session 7 High Speed Trains – Part 1 Chair: Tatsuo Maeda	
	S7.1	Development to decrease noise in place along railway-tracks of Sanyo Shinkansen
	S7.2	Noise test of Beijing-Tianjin 350 km/h high speed train
	S7.3	Acoustic assessment of micro-pressure wave emissions from high-speed railway tunnels
	S7.4	Model experiments on the tunnel compression wave using an axisymmetric and three-dimensional train model
	S7.5	Micro-pressure wave calculation using three dimensional compressive fluid analysis
10:10 – 10:40	Coffee Break Sponsored by Itake Corporation  ITAKE CORPORATION	
10:40 – 12:00	Session 8 High Speed Trains – Part 2 Chair: Tatsuo Maeda	
	S8.1	Recent studies on aerodynamic noise reduction at RTRI
	S8.2	Aerodynamic noise reduction of a pantograph by shape-smoothing of panhead and its support and by the surface covering with porous material
	S8.3	Application of a component-based approach to modelling the aerodynamic noise from high-speed trains
	S8.4	The numerical prediction of the aerodynamic noise of the TGV POS high-speed train power car
12:00 – 13:00	Lunch Break Sponsored by Toshiba Corporation  TOSHIBA Leading Innovation >>>	
13:00 – 15:00	Session 9 Interior Noise, Sound Barrier Chair: Pascal Fodiman	
	S9.1	Interior noise prediction in rolling stock high speed driver's cab: Focus in structureborne paths (mechanical and aero sources)
	S9.2	Noise reduction at trains by the operational transfer path analysis - Demonstration of the method and evaluation by case study
	S9.3	Sound quality evaluation for interior noise of high-speed trains
	S9.4	In-car noise control for Epping to Chatswood Railway Link
	S9.5	Development of a system using the piezoelectric materials to reduce the interior noise of the railway vehicle
	S9.6	Design of sound barrier based on micro-perforated panel absorber for railway
15:00 – 15:30	Coffee Break Sponsored by Itake Corporation  ITAKE CORPORATION	
15:30 – 16:20	Poster Session 3 High Speed Trains, Interior Noise, Sound Barrier, Prediction, Measurements, Monitoring Chair : Brian Hemsworth	
	P3.1	Separation of rolling noise and aerodynamic noise by in-service measurement of combined roughness and transfer functions on a high speed slab track
	P3.2	Experimental study on flow field under a high speed Shinkansen train
	P3.3	Experimental study of noise barriers for high-speed trains
	P3.4	Reverberation time measurement of a railway station waiting hall
	P3.5	"Noise mapping" of a railway network: validation and use of a system based on measurement of axlebox vibration
18:30 –	Gala Dinner Sponsored by Mitsubishi Heavy Industries, Ltd.  MITSUBISHI HEAVY INDUSTRIES, LTD. Mitsubishi Heavy Industries Mechatronics Systems, Ltd.  MITSUBISHI HEAVY INDUSTRIES MECHATRONICS SYSTEMS, LTD.	

Friday, October 22		
08:30 – 09:50	Session 10 Prediction, Measurements, Monitoring – Part 1 Chair: Burkhard Schulte-Werning	
S10.1	sonRAIL – The new Swiss calculation model for railway noise	Markus Hecht
S10.2	Small deviations procedure: a new way to introduce flexibility in the conformity assessment of reference tracks for pass-by acoustic tests	Fabien Letourneaux
S10.3	Numerical simulations of propagation of bogie noise in 3D field by Duhamel's transformation using transient solutions calculated by 2D-FDTD method	Masaaki Hiroe
S10.4	Difference between using 2 and 4 meter receiver height in railway noise prediction	Mikael Ogren
09:50 – 10:20	Coffee Break Sponsored by Itake Corporation  ITAKE CORPORATION	
10:20 – 11:40	Session 11 Prediction, Measurements, Monitoring – Part 2 Chair: Burkhard Schulte-Werning	
S11.1	Stationary noise monitoring for high speed trains with single or multiple microphones	Koji Watanabe
S11.2	Rail vehicle noise source identification using moving frame acoustical holography	Hyo-In Koh
S11.3	Indirect rail roughness measurement: the ARRoW system within the LECAV project	Ard Kuijpers
S11.4	Estimation of rail irregularity by axle-box accelerometers in a high-speed train	Jun Seok Lee
11:50 – 12:20	Award and Close	
12:20 – 13:20	Lunch Break Sponsored by Hitachi, Ltd.  HITACHI Inspire the Next	
13:30 – 16:30	Technical Tour to the Wind Tunnel Technical Center of RTRI	

Technical Tour to RTRI's Wind Tunnel Technical Center

Date/Time: Friday, 22 October
13:30 – 16:30

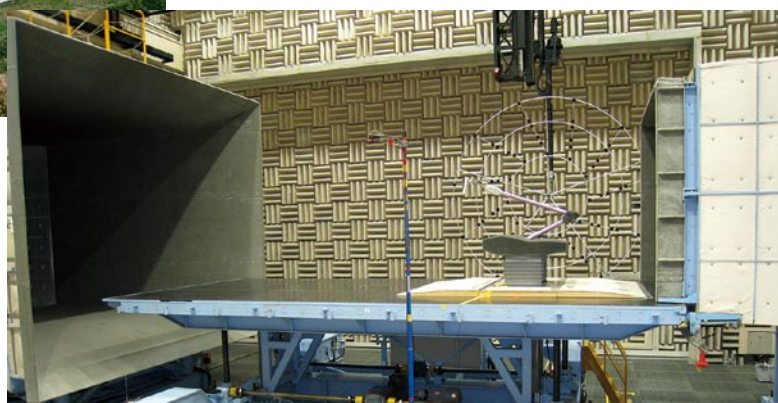
Departure time: 13:30 (Group A)
13:50 (Group B)
14:10 (Group C)

*Your group name is printed on your name tag

Meeting point: Lobby of Nagahama Royal Hotel

*A brief introduction of the wind tunnel will be given before lunch break (12:20-)
in the session room

Course (by Bus): Nagahama Royal Hotel
↓
Wind Tunnel Technical Center
↓
MAIBARA station (You can get off the bus)
↓
Nagahama Royal Hotel





10th International Workshop on Railway Noise
18-22 October 2010 Nagahama, Japan

Program