

IWRN10 (The 10th International Workshop on Railway Noise)

Tatsuo MAEDA

Principal Researcher, Research & Development Promotion Division

IWRN10 (The 10th International Workshop on Railway Noise) was held on October 18 to 22, 2010 in Japan. This was the first time that the event had been staged in Asia. The workshop was organized by RTRI (Railway Technical Research Institute) and supported by the Ministry of Land, Infrastructure, Transport and Tourism and the Ministry of the Environment.

In total, there were 147 participants from 15 countries across the world: 73 from Japan, 11 from the UK, 11 from China, 11 from Sweden, 7 from Australia, 6 from France, 5 from the USA, 5 from Korea, 3 from Belgium, 2 from Denmark, 1 from Austria, 1 from Singapore and 1 from Spain.

IWRN10 covered not only railway noise but also other environmental problems that affect railways. Sessions were classified into 7 categories: 1. Prospects, legal regulation and perception, 2. Wheel and rail noise, 3. Structure-borne noise and squeal noise, 4. Ground-borne vibration, 5. High speed trains (aerodynamic noise and micro-pressure waves from tunnel portals), 6. Interior noise and sound barriers and 7. Prediction, measurements and monitoring. As many as 50 papers were presented in oral sessions and 20 papers were given in poster sessions. Table 1 shows the number of papers and their main themes classified by category.

Papers submitted to IWRN10 from many countries showed

that the understanding of environmental phenomena and their countermeasures are essential if railway networks are to prosper and high speed railways are to be developed around the world. The selected papers will be published in a special dedicated issue of

“Notes of Numerical Fluid Mechanics and Multidisciplinary Design” from Springer Japan.

Figure 1 shows the participants at IWRN10.

During IWRN10, a technical tour to RTRI's Wind Tunnel Technical Center was arranged for the afternoon of October 22. Nearly 100 people joined the technical tour and inspected the large scale and low noise wind tunnel. The low aerodynamic noise from an improved pantograph and the low background noise of the wind tunnel were demonstrated. A technical exhibition was also held at IWRN10. 12 companies including RTRI and Japan Rail group took part in the exhibition.

The next IWRN11 is scheduled to be held in Europe in 2013.



Table 1 Categories, papers and main themes in IWRN10

Category		Number of papers and main themes	
1	Prospects, legal regulation and perception	5	Noise and vibration abatement, Annoyance caused by transportation noise, cognitive performance and sleep disturbance, Human response to ground-borne vibration in buildings
2	Wheel and rail noise	16	Wheel-rail contact forces, Simulation and abatement of wheel and rail noise
3	Structure-borne noise and squeal noise	9	Field measurements and numerical simulation of structure-borne vibration and noise, Model for wheel and rail interaction contributing to squeal noise
4	Ground-borne vibration	14	Field measurements and numerical simulation of ground-borne vibration
5	High speed trains (Aerodynamic noise and micro-pressure waves from tunnel portals)	10	Numerical simulation and abatement of aerodynamic noise, Numerical simulation and model experiments of micro-pressure waves from tunnel portals
6	Interior noise and sound barriers	5	Estimation method and abatement of interior noise, Effect of noise barriers
7	Prediction, measurements and monitoring	11	Monitoring methods for railway noise, Measurements of rail roughness and irregularity



Fig.1 Participants at the closing ceremony of IWRN10 on October 22