

RTRI's Researcher awarded the Medal with Yellow Ribbon

Dr. Fumiaki Uehan, Director of Railway Dynamics Division at RTRI, was awarded the Medal with Yellow Ribbon in the spring in 2020.

Since the award ceremony was canceled due to the novel coronavirus outbreaks, Dr. Uehan was handed the award certificate and the medal by Prof. Masao Mukaidono, Chairman of RTRI on August 25 at RTRI.

Award winner:

Dr. Fumiaki Uehan
Director, Railway Dynamics Division

The award-winning research:

Invention of the non-contact vibration measurement system for structures diagnosis

[Outline of the research]

Since Japan has been facing many issues such as increasingly severe natural disasters, aging social infrastructure and decreasing working-age population, it is an urgent necessity to develop labor-saving technologies for structures inspection and diagnosis. Dr. Uehan developed the non-contact vibration measurement system "U-Doppler" and made it available for commercial services. U-Doppler is capable of detecting the structures damage caused by disasters and deterioration by aging. Since this system features a correcting mechanism that compensates for the effects of winds and ground vibrations, it is capable of measuring subtle vibrations of structures accurately and conducting quantitative structures inspections by irradiating the structures with a laser from outside remote places.

In addition, a drone has been used for inspections since an earlier stage and it has made it possible to detect local changes on structures and trackside slopes.

Since these techniques enable quantitative inspections without requiring the work at high places or in the areas close to tracks, they have been widely used mainly for railways.

[Comment by Dr. Uehan]

I am greatly honored and pleased to receive this prestigious Medal with Yellow Ribbon and I am so grateful that this award has shed light on the research and development in the field of structures inspection.

I have been focusing on improving the technologies for railway structures inspections for about 20 years. I would like to express sincere thanks to the people at RTRI and affiliated companies for their cooperation in developing and raising the popularity of the U-Doppler and to the staff people of railway

operators who have supported me since I was running around railway structures holding a prototype machine.

Being encouraged by this award, I will keep focusing on the structures inspection technologies in order to ensure the safety of railway operation and to save labor for maintenance. I will be most grateful if I could ask for your continued support.



Dr. Uehan (left) handed the award certificate by Prof. Mukaidono



The non-contact vibration measurement system

Left: U-Doppler II

Right: U-Doppler I