

# 73rd SUGA ACADEMIC SEMINAR : WEATHERING PROGRAM 2022

Time	Date: November 25, 2022 (Fri) by live-streaming (ZOOM)
10:00	<b>Opening of the seminar</b>
10:00 – 10:05	Introduction by <b>Shigeo Suga</b> , Director-General, Suga Weathering Technology Foundation
[1] 10:10 – 10:40	<b>Ozone degradation mechanism of rubber under low temperature conditions</b>  <b>Yuka Iwase</b> Assistant Chief, Polymer Technology Department, Chemicals Evaluation and Research Institute
[2] 10:45 – 11:15	<b>Avalanche and falling rock measurement using piezoelectric dynamics and static sensors</b>  <b>Nobuhiro Shimoi</b> Professor, Department of Machine Intelligence and Systems Engineering, Akita Prefectural University
[3] 11:20 – 11:40	<b>Applications of metal halide perovskite materials and the assessment of thermal and radiation stability</b>  <b>Masashi Ikegami</b> Professor, Faculty of Biomedical Engineering, Toin University of Yokohama
[4] 11:40 – 12:00	<b>Development of durability evaluation technology for organic photovoltaics</b>  <b>Hidenori Saito</b> Chief Research Specialist, Kawasaki Technical Support Department, Kanagawa Institute of Industrial Science and Technology
	Lunch
[5] 13:00 – 13:35	<b>Explain about the technical changes in the next revision of ISO 9227 (5th edition)</b>  <b>Kazuya Hasegawa</b> Manager, Technology Division Project D and Standards Development Division, Suga Test Instruments Co., Ltd.
[6] 13:40 – 14:35	<b>Weathering resistance of exterior coating for an automotive</b>  <b>Takao Tsukimori</b> Assistant Manager, Resin & Paint Design Department, Mobility Material Engineering Division, TOYOTA MOTOR CORPORATION
14:35	<b>Closing of the seminar</b>

**[1] Yuka Iwase**

Ozone cracking of rubber is generally suppressed at low temperatures, because ozone degradation of rubber is a typical chemical reaction. However, rubber containing antiozonants may cause ozone cracks at low temperatures, even if it has been confirmed to have high ozone resistance under high temperatures. The phenomenon and mechanism of ozone degradation of rubber, which occur especially at low temperatures, are described.

**[2] Nobuhiro Shimoi**

Under certain weather conditions, avalanches and falling rock can occur because of snow and soil cover on a steep slope. Such avalanches and falling rock can reach snow fences that are arranged as countermeasures. Furthermore, traffic is completely blocked when fences collapse and snow falls on a road. Therefore, prediction of avalanche and falling rock occurrence is important, but such measurements are considered difficult. To resolve this difficulty, in this presentation we would like to propose assessing the danger degree by measuring the broken risk of the avalanche and failing rock defences fence.

**[3] Masashi Ikegami**

Lead iodide perovskite compounds have attracted attention for their application to high-efficiency solar cells. On the other hand, the high durability of these compounds against radiation has also been elucidated, and research on X-ray sensors and space applications is progressing. This presentation will introduce the background of research on perovskite materials and for their future application.

**[4] Hidenori Saito**

In recent years, organic photovoltaics have attracted attention as a power source for small IT equipment. Organic photovoltaics do not easily lose power generation in low irradiation, and since they are manufactured in a coating process, they are easy to modularize even if they have a small area. On the other hand, some types have a slower current response to voltage changes than silicon photovoltaics. In this research, we developed an evaluation program incorporating an algorithm that automatically determines the steady-state value corresponding to the delay of each device and examined its application to durability evaluation too.

**[5] Kazuya Hasegawa**

This section explains ISO 9227 currently being revised, focusing on the technical changes that will be revised from the current 4th edition. In addition to ISO, salt spray testing is a slightly different standard for IEC, ASTM, and JIS as a basis for accelerated corrosion testing. The revision of ISO 9227, a typical standard for salt spray testing, is also significant in other standards.

**[6] Takao Tsukimori**

The exterior coating for a automotive is exposed to the severe load that heat, water, ultraviolet rays compounded under natural environments. We analyzed natural environments for an evaluation, and continues investigation for the examination the correlation are high for natural environment. In this presentation, we report the weatherbility of the automotive exterior coating and evaluation methods progress from the past to the present.