

Abstract Submitted
for the DFD12 Meeting of
The American Physical Society

Effect of PTFE Particle on Super-Hydrophobic Coating for Anti-Icing RIHO KAMADA, Chuo University, KATSUAKI MORITA, KOJI OKAMOTO, The University of Tokyo, AKIHITO AOKI, SHIGEO KIMURA, Kanagawa Institute of Technology, HIROTAKA SAKAUE, JAXA — Anti/deicing of an aircraft is necessary for a safe flight operation. Mechanical processes, such as heating and deicer boot, are widely used. Deicing fluids should be coated every time before the take-off, since the fluids come off from the aircraft while cruising. We study a super-hydrophobic coating as anti-icing for an aircraft. It is designed to coat the aircraft without removal. Since a super-hydrophobic surface prevents water by reducing the surface energy, it would be another way to prevent ice on the aircraft. We provide a temperature-controlled room, which can control its temperature at the icing conditions (-14 to 0 degrees C). The contact and sliding angles are measured to study the effect of the various PTFE particles on the super-hydrophobic coatings for anti-icing. The particle diameter is varied from 5 to 30 micrometer. Comparisons among the super-hydrophobic coatings by various PTFE particles are made to discuss the performance of the resultant coatings as anti-icer.

Riho Kamada
Chuo University

Date submitted: 03 Aug 2012

Electronic form version 1.4