

Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

Hydrophobic coating study for anti-icing aircraft KATSUAKI MORITA, University of Tokyo, AKIHITO AOKI, AKIHISA KONNO, Kogakuin University, HIROTAKA SAKAUE, JAXA — Anti-icing or deicing of an aircraft is necessary for a safe flight operation. Mechanical processes, such as heating and deicer boot, are widely used. Deicing fluids, such as ethylene glycol type, are used to coat the aircraft. However, these should be coated every time before the take-off, since the fluids come off from the aircraft while cruising. We study a hydrophobic coating as a anti-icing for an aircraft. It is designed to coat the aircraft without removal. Since a hydrophobic coating 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 an icing condition (-10 to 0 degrees C). The contact angle is tested for various hydrophobic coatings. A water jet impingement on a hydrophobic-coated plate is included. The jet freezes under the icing condition. Qualitative comparison among various hydrophobic coatings as anti-icing is discussed.

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Date submitted: 09 Aug 2010

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