

Abstract Submitted
for the DFD08 Meeting of
The American Physical Society

Visualization of Velocity Profile on Separately Applied Hydrophobic and Hydrophilic Surfaces NATSUKI MUKOSHIMIZU, TAKESHI MIYAZAKI, The University of Electro-Communications, KATSUAKI MORITA, HIROTAKA SAKAUE, JAXA — A chemical flow control method using functional chemical is discussed. In our previous tests, we showed that separately applied hydrophobic and hydrophilic coatings with six different patterns on an ogive shape model could control the dropping speed by maximum 22 percent at the Reynolds number of $1.0E6$. In the present study, we focused on the velocity profile on the coated surface. We use Fusso51 from Yukawa as hydrophobic coating and WaterX from Nishikinodo as a hydrophilic coating. Contact angles of these coatings are 130 degree and 5 degree, respectively, on anodized aluminum surfaces. These coatings are separately applied on a 2D profile. A hydrogen bubble technique is used to visualize its velocity profile related to the coatings.

Hirotaaka Sakaue
JAXA

Date submitted: 04 Aug 2008

Electronic form version 1.4