Aerodynamics of a comb-like plate mimicking a fairyfly wing SE-
UNGHUN LEE, CHEOLGYUN JUNG, DAEGYOUM KIM[1], KAIST — There have
been many studies on the aerodynamics of a wing with smooth surface in a wide
range of the Reynolds number. Unlike smooth wings of common insects or birds,
however, fairyfly has a distinctive wing geometry; a frame with several bristles. Mo-
tivated by the peculiar wing geometry of the fairyfly we experimentally investigated
the fluid dynamics of a translating comb-like wing in a wide range of Reynolds
number in O(1) – O(10^3). We conducted the same experiment in several fluids of
different viscosities in order to investigate the effects of the Reynolds number on the
aerodynamic performance. Aerodynamic force of various wing shapes was measured,
and it was correlated with the flow structure generated by the wing.

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