Insects use bubbles to walk underwater

August 23 2012

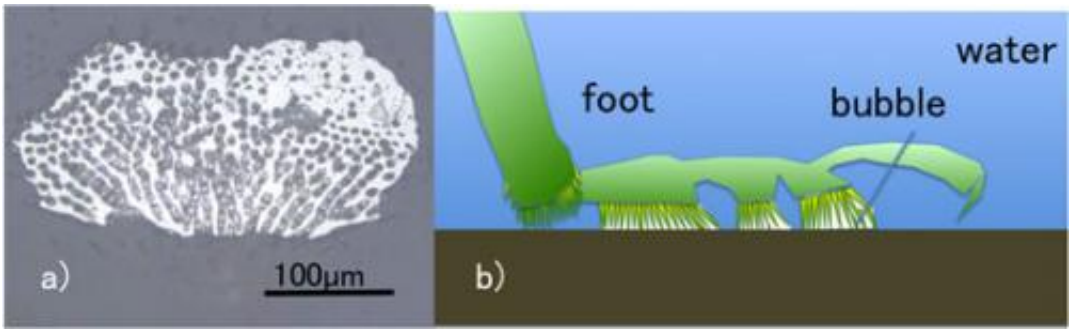

Fig:(a) Photo showing the bottom side of the foot of a leaf beetle fixed underwater (photographed from back side). The dots of color black shows the foot of the beetle (adhesive setae); white shows bubbles. (b)Schematic diagram of the mechanism by which the beetle's feet fixed underwater using bubbles.

A team headed by Dr. Naoe Hosoda at the National Institute for Materials Science is engaged in research and development of "Future joining technology for reversible interconnection" as an environment-friendly technology.

In their research on insect feet, which display excellent adhesive properties, the NIMS team discovered that leaf beetles (Gastrophysa viridula)—terrestrial insects that normally live in the atmosphere—can also walk underwater by trapping bubbles with the adhesive setae on their feet.

Dr. Hosoda and her team clarified the mechanism which makes this

possible and developed an artificial silicone polymer structure with underwater adhesion properties. This achievement is expected to be developed as an environment-friendly technology and is also considered applicable to clean underwater adhesion without using chemical substances that impact the environment.

More information: This result will be published in the English scientific journal *Proceedings of the Royal Society B* on Wednesday, August 8 at 8:01a.m. Japan time.

Provided by National Institute for Materials Science