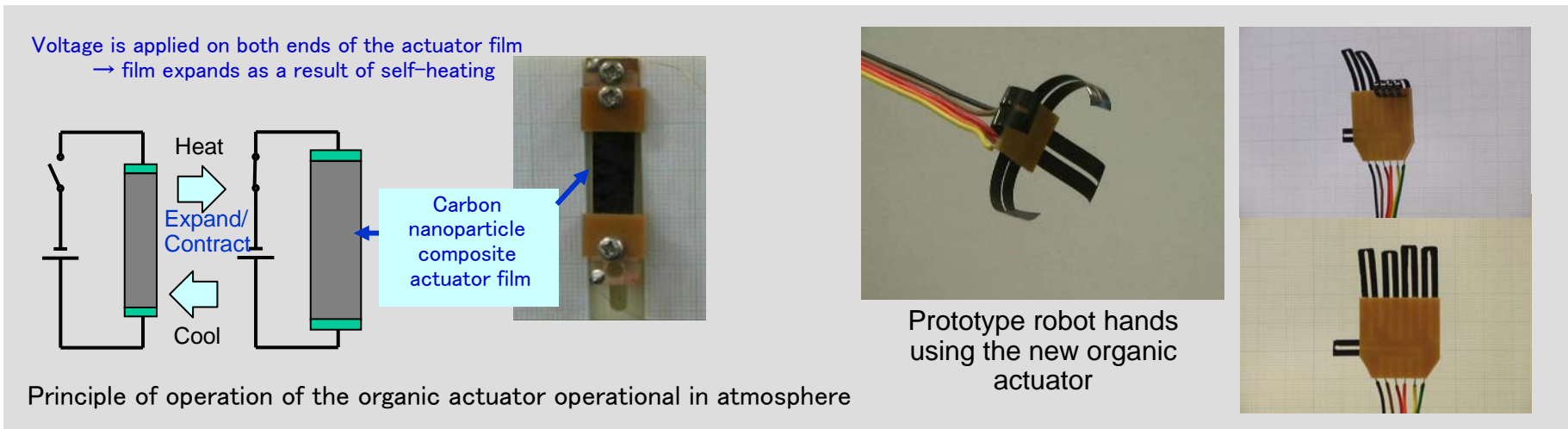


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Development of a light and flexible organic actuator operational in atmosphere
- Low voltage operation achieved by using carbon nanoparticles composite organic material -



The Advanced Research Laboratory of Hitachi, Ltd. (General Manager: Dr. OSAKABE Nobuyuki) has developed a light and flexible actuator using organic material. Actuators are equipment or materials which produce movement such as motors, air cylinders, hydraulic oil cylinders, piezo electric elements, etc. There are many types of actuators, for example those producing a large amount of power by motor operation, or those that produce contraction and extension movement without the use of a motor.

The technology developed takes advantage of the thermal expansion of the material which results from the joule heat generated by applying an electrical signal to an organic material containing carbon nanoparticles. As it is light and flexible, easily miniaturized and able produce movement in atmosphere with a low voltage of several to few tens of volts, it is expected to find application in medical equipment and micro-robots.