

OKABE, Y. LAB.

[Composite-structural health monitoring and new deployable structures]

Department of Mechanical and Biofunctional Systems

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Smart Material Systems

Department of System Innovation

Smart Materials and Structures

Damage detection in composite materials and deployable structures

When small devices for damage detection or new deployment mechanisms are integrated into traditional structural members, they become **smart structures**. Especially, we are developing high-sensitive optical-fiber ultrasonic sensors built in aircraft structures and structural health monitoring or NDE methods using ultrasonic guided waves. Moreover, novel deployable structures are proposed based on geometry of Origami and wings of insects.

- ◆ High performance fiber-optic ultrasonic sensors: High sensitive damage monitoring in composites
- ◆ Advanced NDI system suitable for FRP: Theoretical clarification of laser-ultrasonic waves
- ◆ Damage detection in composite structures based on the mode conversion of Lamb waves
- ◆ Innovative deployable structures based on insect wing mechanisms and Origami

