OKABE, Y. LAB.

[Health Diagnostic Systems for Composite Structures Based on Ultrasonics]

Department of Mechanical and Biofunctional Systems

Structural Health Diagnostics

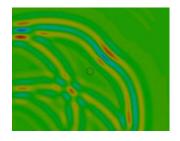
Department of Systems Innovation

http://www.okabeylab.iis.u-tokyo.ac.jp

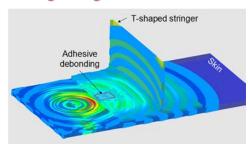
Lightweight composite structures have been applied to airplanes and automobiles. For the health diagnostics of the structures, we are developing structural health monitoring systems with optical fiber ultrasonic sensors and non-destructive inspection techniques using laser ultrasonics.

Lightweight Composite Structures CFRP stiffened panel

Structural Health Monitoring Using Guided Waves

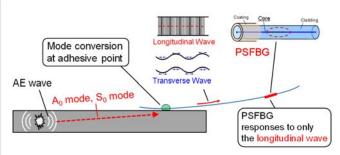


Modeling of impact damage in CFRP for FEM simulation of wave propagation

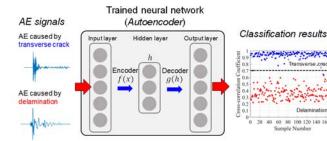


Detection of debonding damage in a CFRP skin/stringer bonded structure

Remote AE Measurement with Fiber-optic Ultrasonic Sensor System

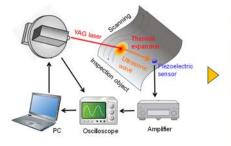


Remote sensing method to measure AE waves at high temperature

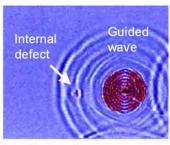


Classification of damage types that generated AE signals based on machine learning

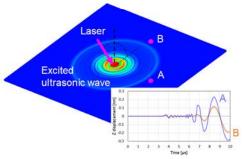
Non-destructive Inspection Based on Laser Ultrasonics for Composites



Laser ultrasonic visualizing inspector (LUVI-CP, Tsukuba Technology Co., Ltd.)



Visualization of wave propagation



Numerical simulation of laser ultrasonics