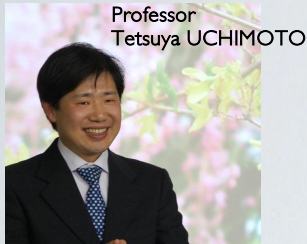


Toward Safety Society by Advanced Nondestructive Testing

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In order to achieve higher reliability and safety of next-generation transportation systems and energy plants, we conduct research activities on intelligent sensing.

- ✓ Characterization of material degradation and damage by electromagnetic nondestructive evaluation method.
- ✓ Development of high temperature sensors and their applications to online monitoring.
- ✓ Advanced sensing with sensor fusion and inverse analysis.



RESEARCH TOPICS

In lifecycle management of next-generation transportation systems and energy plants, evaluation of degradation and damage of structural materials induced by flow is one of key issues. Our laboratory is conducting research on sensing and monitoring that increase reliability and safety of these systems. Our activities include evaluation of degradation and damage in various materials by electromagnetic nondestructive testing methods, development of high temperature sensors, reliable sensing by sensor fusion, inverse approach, and so on. We aims at applying these sensors and testing methods to online monitoring.

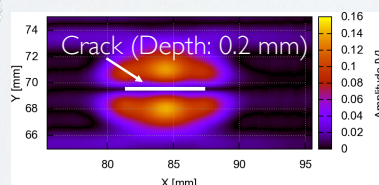
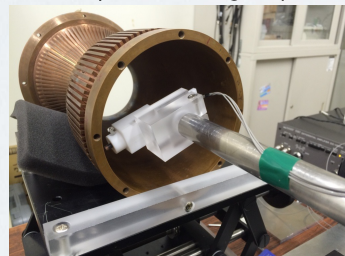
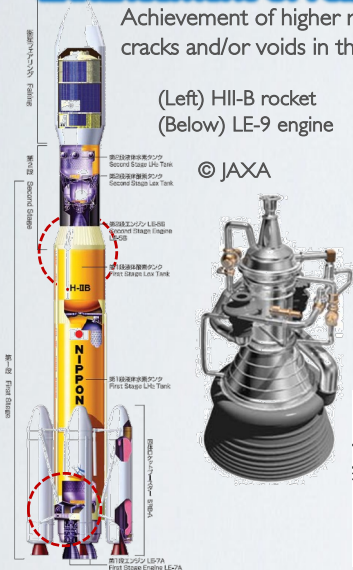
Enhancement of reliability of rocket engine

Achievement of higher reliability of launch of rocket by detecting cracks and/or voids in the combustion chamber

Eddy current testing setup

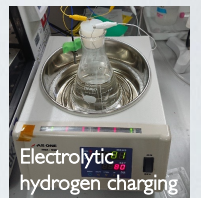
(Left) HII-B rocket
(Below) LE-9 engine

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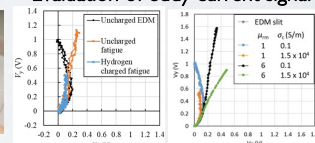


Risk assessment of hydrogen station

Investigation of the mechanism of hydrogen embrittlement which is an important issue to spread hydrogen station

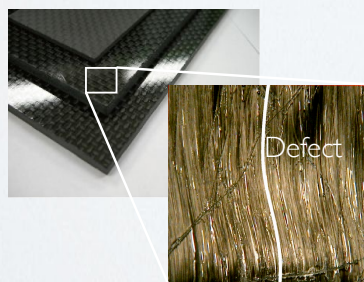
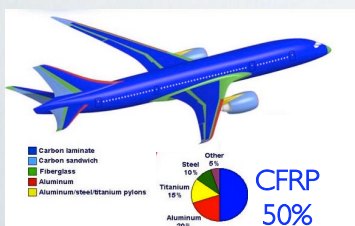


Evaluation of eddy current signal



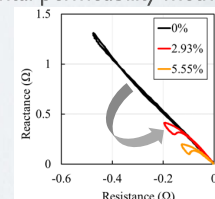
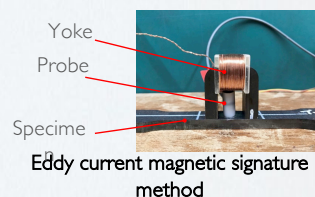
Quality assurance of CFRP

Development of technology to ensure the reliability of CFRP, which is used in aircrafts and vehicles as an advanced material.



Material degradation diagnosis by incremental permeability method

Evaluation of the microstructural change with the deterioration of magnetic materials using the incremental permeability method



Correlation between residual strain and eddy current magnetic signature

Degradation evaluation of edible ionic liquid polymer coating

Development of technology for nondestructive evaluation of the deterioration state of a new type of edible ionic liquid polymer coating

Don't hesitate to contact us !!

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