


Requests for Collaboration

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Research Interests	
<ul style="list-style-type: none"> ● Ultrasonic monitoring of molding process of FRP ● Detection of debonding in fiber metal laminates by ultrasonic waves ● Nondestructive inspection of metals and composites by electromagnetic acoustic transducers (EMATs) 	
Creative Achievements in The Application of New and Existing Science and Technology	
<p>(1) EMATs were applied to process monitoring of resin transfer molding of FRP. Since amplitude of shear standing wave in the mold varies with condition of the resin on the inner surface, continuous measurement of the amplitude enables us to detect the resin flow front and to monitor the resin cure.</p> <p>(2) Flaw detectability of guided waves, such as Lamb waves, were investigated. For ferromagnetic materials, magnetostriction can be used in generation and detection of guided waves by EMATs. Provided that the static magnetic field can be adjusted to the optimum strength, the EMATs are applicable to the long-range inspection of plates, pipes and wires.</p> <p>(3) Acousto-ultrasonic parameters were used for detection of uncured region in FRP. A2 parameter, which represents the centroid of power spectrum, shows good correlation with the mechanical properties of GFRP plates.</p>	
Technology (Product, Process, Device, Service etc.) That I Want to Request for Collaboration	
<ul style="list-style-type: none"> ● High power generator of burst wave and receiver with high S/N ratio ● Signal processing for noise reduction ● Real time monitoring of resin cure using physical phenomena other than ultrasonic waves 	
A List of 5 Key Publications	
<ul style="list-style-type: none"> • Akihiro Wada, Tomohiro Yamasaki, Eiji Kitagawa and Hiroshi Ito, Fundamental Study on Ultrasonic Detection of Uncured Region in GFRP Plates, <i>J. Jpn. Soc. for Comp. Mater.</i>, 43-3 (2017), 112-119. (in Japanese) • Akihiro Wada, Tomohiro Yamasaki, Eiji Kitagawa and Hiroshi Ito, Ultrasonic Detection of Uncured Region in GFRP Laminates for Rehabilitation of Sewerage Pipes, <i>J. Jpn. Soc. for Comp. Mater.</i>, 41-4 (2015), 128-137. (in Japanese) • Tomohiro Yamasaki, Resin Cure Monitoring in RTM Process by Electromagnetic Acoustic Transducer, <i>Proc. the 4th Japan-US Symp. on Emerging NDE Capabilities for a Safer World</i>, (2010), 186-192. • Tomohiro Yamasaki and Hiromitsu Nishino, Detection of Resin Flow Front in RTM Process by Electromagnetic Acoustic Transducers, <i>Conf. Handbook of the 13th Asia-Pacific Conf. on Non-Destructive Testing</i>, (2009), 119. • Tomohiro Yamasaki and Yasuhiro Uno, High-Order Lamb Waves for Flaw Detection in Steel Plates by Electromagnetic Acoustic Transducers, <i>J. Solid Mech. and Mater. Eng.</i>, 1-3, (2007), 355-363. 	