

“Ultrasonic instrumentation for automated assessment of corrosion in sea vessels”

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12:00pm Thursday 16th February 2017

203 Tower Building

All Welcome

Continuous measurement of the thickness of a ship hull has the potential of reduce the maintenance and service costs associated with surface corrosion, provided that the cost of instrumentation and transducers is low enough for their permanent installation in situ, and the recorded echo waveforms can be interpreted to determine corrosion penetration.

Accelerated (uniform and pitting) corrosion and continuous ultrasonic monitoring is carried out using the reversed electroplating technique and the high accuracy ultrasonic waveform acquisition instrument, respectively. Time domain-simulation of acoustic wave fields, K-Wave, is applied for an ultrasonic wave propagating through a corroding sample. By conducting experiment and simulation, adaptive cross-correlation (AXC) technique is the first choice for the online thickness measurement when the thickness of the sample decreases uniformly with gradual change in RMS surface displacement.