



Australian Acoustical Society

A.C.N. 000 712 658  
NEW SOUTH WALES DIVISION

## TECHNICAL MEETING

# Bridge maintenance and repair – can you see the light?

**Date:** Thursday 27<sup>th</sup> October 2011

**Venue:** National Acoustics Laboratories

**Time:** 6:30 pm

**Speaker:** Joon-Pil Hwang ('JP') Senior Project Consultant, SLR Consulting

This presentation describes a method of quantifying physical damage to a pin mounting plate critical to a lifting span of a bridge. The results form the basis of subsequent non-linear finite element analysis in order to assess the stresses at the pin/plate joint interface plane. The quantification of deformation to the mounting plate was carried out by use of 'white light scanning' techniques, which are especially beneficial in accurate, in-situ determination of contact conditions between the deformed plate and the bearing pins. This would have been difficult to investigate using traditional methods. The finite element (FE) models were then used to assess changes to the loading conditions in both the pins as well as the plate. Changes to the loading conditions as a result of the observed damage were identified and stresses within the pins and plate were quantified using the FE models. The results of this study were then used to determine the most appropriate course of action in terms of repairs and maintenance work.

JP has been with Heggies/SLR Consulting for approximately 4 years in total, and has a wide range of experience encompassing fields such as wind/CFD to noise and vibration. He is currently a key member of SLR Consulting's Structural Dynamics group that focuses on investigation and assessment of complex structural dynamic issues such as vibration mitigation and fatigue life of structures using experimental and numerical methods.

**"Anyone" is welcome to attend refreshments will be provided**

**RSVP FOR CATERING PURPOSES BY**

Monday 24<sup>th</sup> October 2011 to Tracy Gowen by email

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