

Title: Noncontact sensing technology for structural health monitoring and nondestructive testing

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Abstract: Noncontact sensing techniques is gaining prominence for structural health monitoring (SHM) and nondestructive testing (NDT) due to (1) their noncontact and nonintrusive natures, (2) their spatial resolution much higher than conventional discrete sensors can achieve, (3) their less dependency on baseline data obtained from the pristine condition of a target structure (reference-free diagnosis), (4) cost and labor reduction in sensor installation and maintenance. In this talk, a suite of noncontact sensing techniques particularly based on laser and thermography technology will be presented for SHM and NDT of aircraft, wind turbine blades, high-speed trains, nuclear power plants, bridges, automobile manufacturing facilities and semiconductors.

Bio: Hoon Sohn received his B.S. (1992) and M.S. (1994) degrees from Seoul National University, Seoul Korea and Ph.D. (1999) from Stanford University, California, USA, all in Civil Engineering. He worked at Los Alamos National Laboratory (LANL) from 1999 to 2004 as a Technical Staff Member and in the Civil and Environmental Engineering Department at Carnegie Mellon University for 2004-2006 as an Assistant Professor. He is now Professor at KAIST (Korea Advanced Institute of Science and Technology), and the Director of ICT Bridge Research Center sponsored by the Ministry of Land, Infrastructure and Transport in Korea (about 25 Million USD over 5 years). Over last twenty years, his research interest has been in the areas of structural health monitoring, nondestructive testing and sensing technologies. His research interests include guided waves, noncontact laser ultrasonics, structural health monitoring, nondestructive testing, smart materials and sensing, and statistical pattern recognition to name a few. He has published over 120 refereed journal articles, over 270 conference proceedings, and 10 book & book chapters. He was selected as one of 100 most promising individuals in Korea in 2012 by Donga Daily Newspaper, which is one of the three major newspapers in Korea. He was also the recipient of SHM Person-of-Year Award at 2011 International workshop on SHM and 2008 Young Scientists Award in Korea, which is similar to the Presidential Early Career Award from US National Science Foundation (PECASE Award). His work has been funded by the Boeing Company, Samsun Electronics, US Air Force Research Laboratory, US Air Force Office of Scientific Research (US AFOSR), US National Science Foundation, National Research Foundation of Korea, Korea Agency for Defense Development, Hyundai & KIA Motors, Hyundai Heavy Industry, Bombardier, POSCO, Daewoo Construction.