

Recent Developments in Structural Health Monitoring

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Extended Abstract

This presentation will focus on the research and developments over last three to four decades on structural health monitoring and non-destructive testing techniques that include acoustic source localization, linear and nonlinear ultrasonic techniques for inspecting materials and structures at different scales - from microscopic fatigue crack detection to large scale civil structures made of metal, composite and concrete. In addition to the experimental results the mesh-free modelling technique called distributed point source method (DPSM) developed by us for solving elastic wave propagation problems will be discussed. Advantages of a recently proposed nonlinear ultrasonic technique called Sideband Peak Count – Index (SPC-I) technique, our DPSM modeling technique and acoustic source localization technique for structural health monitoring purpose will be highlighted in this presentation.