Wind Turbine Research, Education, and Condition Monitoring Using SpectraQuest Test Rigs

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ABSTRACT

Wind Energy is one of the fastest growing renewable form of energy source in the world. The maintenance of this growth requires cost reduction and optimization of operations & maintenance performance. SpectraQuest has Wind Turbine Simulator (WTS) system to address the needs of the wind industry. The WTS is a scale model of a utility size wind turbine designed for both the R&D and education markets.

This seminar will present an overview of SpectraQuest Machinery Fault Simulation products with emphasis on Wind Turbine Simulator and condition monitoring technology. I will present results of studies on blade crack detection, drive train component health monitoring, and induction motor fault detection using vibration and motor current signature analysis. It will also cover an introduction to the state-of-the-art in industrial condition monitoring as well as current academic research efforts. A brief evolution of condition monitoring and futuristic scenario will be also included. I will conclude the seminar with challenges and opportunities in this important field.

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Bio-Data

Dr. Ganeriwala is founder and president of Spectra Quest, Inc. He has over thirty five years of industrial and academic experience in machinery fault diagnosis, signal processing, vibration analysis and viscoelastic material characterization. He has expertise in advanced signal processing and machine diagnostics techniques, modal analysis and finite element modeling, and has implemented condition monitoring and diagnostics programs in industrial settings. He has been speaker in several international conferences around the world. Suri has developed a unique method of instruction using the SpectraQuest Machinery Fault Simulator (MFS) which is his brainchild from concept to completion. These devices have been sold in over fifty countries around the world and have become standard for research and training. He has authored over seventy papers, technical reports and articles in journals, magazines, and books. He obtained a Ph.D. in Mechanical Engineering from The University of Texas at Austin.