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Recent advances in wind turbine technologies and sensing for structural health monitoring

A significant amount of interest exists in performing wind turbine structural health monitoring, characterization, and evaluation. The presentation highlights some recent advances in optical sensing, acoustic methods, infrared, UAV sensing, and radar technologies that can be applied to characterize wind turbine structural health, structural dynamics, damage, and embedded defects. Non-contacting, full-field surface dynamic measurements are presented that leverage three-dimensional (3D) digital image correlation (DIC), point tracking (PT), and motion magnification methods. The approaches are able to obtain full-field geometry data, in three dimensions. Information about the change in geometry of an object over time can be

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