

# Preface

*Topics in Experimental Dynamics Substructuring and Wind Turbine Dynamics* represents one of six volumes of technical papers presented at the 30th IMAC, A Conference and Exposition on Structural Dynamics, 2012 organized by the Society for Experimental Mechanics, and held in Jacksonville, Florida, January 30 – February 2, 2012. The full proceedings also include volumes on Dynamics of Civil Structures; Nonlinear Dynamics; Model Validation and Uncertainty Quantification; and Modal Analysis, I & II.

Each collection presents early findings from experimental and computational investigations on an important area within Structural Dynamics. The current volume on *Topics in Experimental Dynamics Substructuring and Wind Turbine Dynamics* presents research in two areas of great importance. Recent advances in experimental techniques, sensor/actuator technologies, novel numerical methods, and parallel computing have rekindled interest in substructuring in recent years leading to new insights and improved experimental and analytical techniques.

Governments around the world have set ambitious goals of meeting 20% of energy requirements by 2020 through renewable energy sources including wind energy. This presents challenges, including the growing size and complexity of the wind turbine structure, necessitating the need for designers to better understand and characterize the dynamics of the wind turbine. Despite well-established techniques (Experimental and Operational Modal Analysis) for dynamic characterization of structures, their application to wind turbines is not straight forward due to the complexities involved on account of considerable aeroelastic interaction and time-varying nature of wind turbines, when in operation. This volume showcases research activities with regards to application of modal analysis to wind turbines, preparing and updating numerical models, instrumentation and sensing on wind turbine blades, and structural health monitoring as applied to wind turbines.

The organizers would like to thank the authors, presenters, session organizers, and session chairs for their participation in this track.

Albuquerque, NM, USA  
The Netherlands  
Albuquerque, NM, USA  
The Netherlands  
Skodsborgvej, Denmark  
The Netherlands  
Madison, WI, USA

R. Mayes  
D. Rixen  
D.T. Griffith  
D. De Klerk  
S. Chauhan  
S.N. Voormeeren  
M.S. Allen

Topics in Experimental Dynamics Substructuring and  
Wind Turbine Dynamics, Volume 2

Proceedings of the 30th IMAC, A Conference on  
Structural Dynamics, 2012

Mayes, R.; Rixen, D.; Griffith, D.T.; De Klerk, D.; Chauhan,  
S.; Voormeeren, S.N.; Allen, M. (Eds.)

2012, VIII, 358 p., Hardcover

ISBN: 978-1-4614-2421-5