Innovation in Smart Materials
and Structural Health Monitoring
for Composite Applications

F. Mustapha, A. Hamdan, Nisreen N. Ali Al-Adnani, K.D. Mohd Aris

Handbook

Structural health monitoring (SHM) is an automated approach to
determine any changes in the integrity of mechanical system. The SHM
system gives information in real time and online. Hence it provides
advantages in damage detection, damage localization, damage
assessment, and life prediction as well compare to Non-destructive test
(NDT) which is conducted offline.

Keyword: Smart Materials, Composites, Structural Health Monitoring,
Non-destructive Test, Composite Aircraft Structures, Root Mean Square Deviation (RMSD) , Wind
Turbine System, Biocomposite Turbine Blade, Vertical Axis Wind Turbine, Micro Energy Harvester

Publication Date: 2017 (5/5/2017)
Direct URL: http://www.mrforum.com/product/Structural-Health-Monitoring-Composite-Applications
184 pages, color print, paperback, USD 125.00
Materials Research Foundations Vol. 13
BISAC Subject Classification code: TEC021000
BIC/Thema Subject Classification code: TGM, TGMT
Imprint: Materials Research Forum LLC, publisher’s sales rights are Worldwide
Product Form: bc

Summary:

Structural health monitoring (SHM) is an automated approach to determine any changes in the integrity of
a mechanical system. The SHM system gives information in real time and online.

The knowledge on Root Mean Square Deviation (RMSD) techniques is employed and presented in this
writing. Besides that, SHM system in wind turbine system is becoming very important. This book places
emphasize on the application of biocomposite turbine blades for vertical axis wind turbines. The dynamics
characterization of mechanical system on biocomposite turbine blades is determined with several
techniques. The SHM for biocomposite turbine blades is enhanced in order for it to become a micro
energy harvester.