



POLITECNICO
MILANO 1863

Beltrami Room, Building 5, Leonardo Campus
July 26, 2019 – 14:30

Optical fiber sensors and their applications to structural health monitoring

Prof. Hong-Nan Li

*Dalian University of Technology
Dalian, P.R. China*

In the past decade much attention has been paid to the research, development and application of structural health monitoring worldwide. Sensors based on the fiber Bragg grating (FBG) technology have the special advantage of being lightweight and small in size, inert and corrosion-resistant, immune to electromagnetic interference (EMI), easily multiplexed and multifunctional (they can measure strain, temperature, pressure and vibration), which make them promising candidates for structural health monitoring.

This presentation serves as a tutorial to introduce the optical fiber sensors developed by our research group, in particular FBG sensors for structural health monitoring, presenting their operating principles, types, major components and merits.

In addition, a new acquisition device demodulating electrical and optical signals has been developed. Finally, the-state-of-the-art of FBG sensors applications and new devices for structural health monitoring in practical projects will also be introduced.

Reference: **Prof. Fabio Biondini** (fabio.biondini@polimi.it)

Biosketch



Dr. Hong-Nan Li is a Chang Kong Scholar's professor of Faculty of Infrastructure Engineering, Dalian University of Technology (DUT), China. He got the Ph.D., M.S. and B.S. in 1990, 1987 and 1982, respectively. He is an ASCE fellow and member of EU Academy of Science. He serves as Vice Chairman of China Panel, International Association for Structural Control and Monitoring; and Vice Chairman of Advanced Materials and Structures, ASCE Aerospace Division; Chairman of Panel of the National Natural Science Foundation of China (NSFC). He is the editor-in-chief of Structural Monitoring and Maintenance, An International Journal and associate editor-in-chief of ASCE Journal of Aerospace Engineering.

His research interests are in the structural control and monitoring, disaster prevention and reduction and earthquake engineering. He obtained more than 30 research funds from governments and companies and applied to more than 50 practical engineering projects with his new techniques and methods. He got 50 patents, published 7 books and more than 400 peer-review journal papers. Dr. Hong-Nan Li won 3 national awards of Science and Technology and 10 provincial awards. In addition, he is active in the international cooperation with the United States, Japan, Australia, Korea et al.