



A.D. 1308

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DIPARTIMENTO  
DI INGEGNERIA  
CIVILE E AMBIENTALE  
DIPARTIMENTO DI ECCELLENZA

# CIVIL AND ENVIRONMENTAL ENGINEERING

DOCTORAL PROGRAM  
2021-2022



Simon Laflamme is the Waldo. W. Wegner Professor in Civil Engineering in the Department of Civil, Construction, and Environmental Engineering at Iowa State University, and holds a Courtesy Appointment in the Department of Electrical and Computer Engineering.

He received his Ph.D in Structures and Materials from the Massachusetts Institute of Technology in 2011, and was granted the Early Achievement in Research Award (2017) and the Mid-Career Achievement in Research Award (2022) by Iowa State University. Dr. Laflamme has amassed more than 9 million USD in research projects from various sources, including NSF, DOD, and USDOT. He is a member of various editorial boards including Mechanical Systems and Signal Processing, Measurement Science and Technology, and IOP SciNotes. His research yielded a textbook on Structural Motion Engineering, five U.S. patents, and more than 200 articles in the areas of Smart Structures and Systems, Structural Control, and Structural Health Monitoring.

## INTEGRATION OF MULTIFUNCTIONAL MATERIALS FOR STRUCTURAL HEALTH MONITORING – CHALLENGES AND OPPORTUNITIES

### Course description

This short course covers fundamental and advanced concepts in structural health monitoring, in particular relative to the fabrication and integration of multifunctional materials into civil structures in order to assess structural conditions. Examples of topics covered include: 1) challenges in designing and integrating structural health monitoring solutions; 2) multifunctional materials for structural health monitoring; and 3) data processing techniques for fusing multifunctional sensing data into useful information. At the end of the class, students will understand fundamental challenges and opportunities in leveraging multifunctional materials for structural health monitoring applications.

### Course Schedule

Day 1, November 11th: 12:30-13:30 AULA 7  
Day 2, November 16th: 9:00-13:00 AULA 7

### Location

Campus of Engineering of University of Perugia  
Latitude: 43.118177 Longitude: 12.357942

Room: AULA 7

