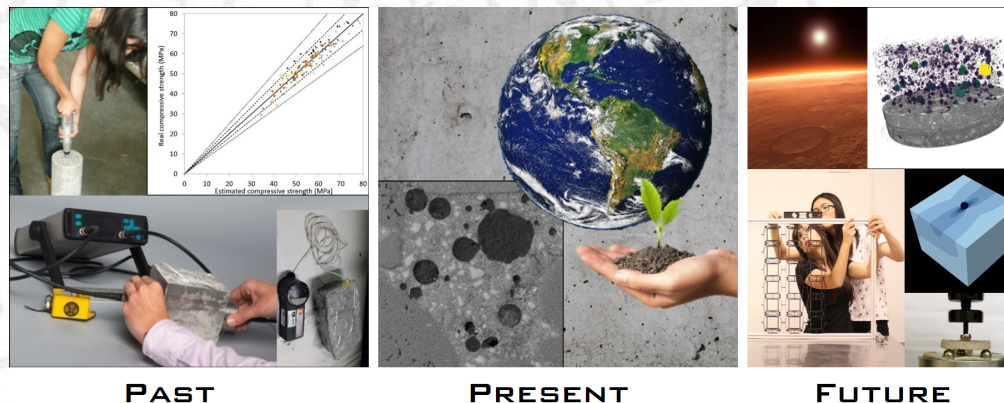


SEMINAR

**Past, present and future: Forensic engineering,  
eco-concretes and construction materials for a new age**

This seminar will show an overview of the research of Velay Research Group, at Purdue University. Professor Mirian Velay always likes to say that her research is focused on studying the past, the present and the future of our construction materials. For that reason, the talk will be divided in three parts: past, present and future. In the first part (“the past”) she will show how her research can help to extract more accurate estimates of the mechanical properties of existing structures by using non-destructive testing (NDT). She found that curing temperature, which had been overlooked before, has a significant effect on the correlations between compressive strength and the NDT results. This finding allowed her to propose a new estimation model, applicable to many different concretes, that is very accurate and improves the results of current models. Her discussion about “the present” of construction materials will focus on sustainable materials research. She will discuss the different ways to make a material more sustainable. She will show part of her research on the potential use of waste materials and nanoparticles to produce high-performance, sustainable and multifunctional concrete, with particular emphasis in high durability and mechanical properties. The seminar will finish by looking at “the future” of construction materials. She will present her ongoing studies on nanofiber-based materials, multifunctional materials and the challenges of construction outside the Earth.



**Prof. Mirian Velay-Lizancos**  
Civil Engineering Department, Materials Area  
Purdue University

**May 8<sup>th</sup>, 15:30 (sharp)**  
**Aula MS1, DICAr**  
Via Ferrata, 3 – Pavia