

# 1<sup>st</sup> Workshop on Fatigue of Plain and Fiber-Reinforced Concrete (online)

**Sep. 22-23, 2022**

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The fatigue design of real structures can be rather complicated. On the one hand, the material characterization in the laboratory is cumbersome; on the other hand, the transferability of this material information to the design of real structures should be guaranteed.

We intend to organize a series of thematic seminars as the seed for a platform of knowledge exchange, experience sharing, and synergies among researchers interested in fatigue and fracture. In addition, this will lead to increased expectations through the creation of companies specialized in the subject and the promotion of commercial guidelines based on damage monitoring surveillance and prediction of life to reduce the risk of failure due to fatigue.

For this initial edition, we will first present some recent developments and findings to understand the fatigue behavior of plain and fiber-reinforced concrete. This includes the micro-structural consideration for the design of high-performance concrete, the design and characterization fiber-reinforced self-compacting concrete for applications in fatigue, the size effect, fatigue maturation. Next, we will encourage discussions on fatigue models which are mathematically sound and are capable of taking into account particular characteristics observed in the laboratory.

## Day 1 (Sep. 22, 2022)

- 9:15- 9:30 Opening
- 9:30-10:00 Size effect on fatigue of fiber-reinforced concrete  
Gonzalo Ruiz, University of Castilla-La Mancha
- 10:00-10:30 Concrete maturation induced by fatigue loads  
José J. Ortega, Polytechnic University of Madrid
- 10:30-11:00 Discussion
- 11:00-11:30 Micro-structural considerations for the design of high-performance concrete  
José L. García Calvo, Eduardo Torroja Institute for Construction Sciences
- 11:30-12:00 Design and characterization of fiber-reinforced self-compacting  
concrete  
Ángel Castillo, Eduardo Torroja Institute for Construction Sciences
- 12:00-12:30 The use of computerized axial tomography in the study of fatigue in  
concrete  
Miguel Á. Vicente, University of Burgos
- 12:30-13:15 Discussion

## Day 2 (Sep. 23, 2022)

- 9:30-10:00 Fatigue models in concrete based on compatibility and damage  
evolution  
Alfonso Fernández-Canteli, University of Oviedo
- 10:00-10:30 Practical sessions on parameter estimation using MATLAB  
Sergio Blasón, BAM, Berlin, Germany
- 10:30-11:00 Fatigue of concrete in the new Eurocode  
Carlos Ríos, IDEAM
- 11:00-11:30 Flexural thermal fatigue in ultra-high-performance  
fiber-reinforced concrete  
Héctor Cifuentes, University of Seville
- 11:30-12:15 Discussion
- 12:15-12:30 Closure

Day 1:  
<https://bit.ly/3t5CVjZ>



Day 2:  
<https://bit.ly/3N5bxua>

