

**UNIVERSITY OF THESSALY**  
**School of Engineering - Department of Civil Engineering**

**Series of Scientific Lectures**  
**Academic Year 2021-2022**

**Integrated Structural and Energy Retrofitting of Existing  
Structures with Advanced Materials**

***Prof. Thanasis Triantafillou***

Department of Civil Engineering  
University of Patras

Wednesday **25/5/2022**, Time: **11:00**

Hybrid Seminar: **Room A1**, [MS Teams](#)

Live Streaming: [DIAVLOS](#), [YouTube](#)

**Abstract:**

The scope of the seminar is to present the properties, applications and the great potential of a relatively new generation of composite materials in the field of structural engineering. This new generation of materials comprises inorganic matrices (cementitious or non) reinforced with high-strength textiles (e.g. carbon, glass or basalt fiber textiles), which are either externally bonded on the surfaces of existing structures' structural elements as a means of enhancing their properties (e.g. strength, ductility), or they are used as internal reinforcement in new structures.

Focus will be given on the applications of textile-reinforced mortars in existing reinforced concrete structures when the target is to increase the flexural or the shear capacity of structural elements, or to enhance the local ductility of structural members through confinement. An overview of applications of textile-reinforced mortars in strengthening masonry structures (for in-plane or out-of-plane actions) is also included. Finally, an integrated structural and energy retrofitting system based on the use of textile-reinforced mortars will be presented.