

## ***Rheology of bituminous materials: theory and practice with DSR***

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*PhD on Rheology of bituminous mastics and mortars*

The mechanical performance of an asphalt mixture is largely dependent on the properties of its constituents and by the way they reciprocally interact in the bituminous layer. In particular, the stress-strain response of the road pavements is closely related to the rheological behavior of the bituminous binder. Therefore, it is important to study in the laboratory by means of advanced rheological tests, how the bituminous matrix react to dynamic loads and thermal stresses.

Based on these aspects the seminar will focus on:

- Description of the rheological models and main theories behind the linear viscoelasticity theory.
- Description of the main distressed phenomena of the road pavements.
- Classification of bitumen: from traditional tests to performance tests.
- Dynamic Shear Rheometer and operating principles.
- Laboratory tests with different configurations.

Pavement service life improvement will be targeted starting from its constituents. Focus will be on bitumen and its compounds with fillers and additives aiming to understand how they interact within the bituminous layer.

A practical session will be given with the Dynamic Shear Rheometer of LAS in the road section premises of DICAM.