

**FATIGUE RESISTANCE OF ASPHALT CONCRETES:
THEORETICAL AND EXPERIMENTAL APPROACH
THROUGH THE UNIBAS-M.P.T. DEVICE**

D. Ciampa

Ph.D. Student, University of Basilicata, IT

S. Olita*

Ph.D., Assistant Professor, University of Basilicata (DAPIT), IT

* DAPIT Department, Viale dell'Ateneo Lucano 10, 85100 Potenza (PZ), Italy,

Email: saverio.olita@unibas.it

ABSTRACT

The research in the road infrastructures field has always been addressed towards the need of adopting affective instrument for the rational design of road superstructures.

From this point of view, the knowledge of the fatigue response of asphalt concretes, or of the analysis of the cracking phenomenon caused by the application of repeated loads with time, is a critical factor.

In this paper the Authors propose an operative methodology able to describe the mechanical behaviour of such materials, with special interest for the analysis of the stress-stain state induced by the application of repeated cyclic deviatoric loads.

For this purpose the potentialities of the UNIBAS-M.P.T. triaxial press are used; this is an apparatus available at the laboratory of Roads Constructions of the University of Basilicata, with whom a complete series of pseudo-static and dynamic tests has been performed following specific operative modalities.

The results of these tests, opportunely elaborated with the use of an adequate finite element analysis software (ANSYS®), allowed the Authors to detect and calculate the parameters of the FEM model able to faithfully reproduce the experimental results. Starting from these outcomes it was possible to formulate a first theoretical-experimental approach for the definition of the fatigue response of the material.

KEY WORDS: UNIBAS MPT, fatigue, asphalt concrete, prony series, FEM.