

Research Grants for PhD students from the China Scholarship Council

Information Form (please read the guidelines carefully on the website www-csc.utt.fr)

Supervisor's name : Given names :

Status (prof., assistant prof., ...):

Laboratory : Website address :

Institution : Website address :

Scientific competence of the supervisor:

Geomechanics / Soil mechanics / mechanical behavior of granular materials by experimental and numerical approaches (DEM) / Numerical simulation of viscoelastic granular materials (asphalt mixtures) / Mechanical behavior of railway ballast / Numerical modeling of structures damage in civil engineering.

Two major publications in the field proposed for the PhD :

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Website address of the personal page :

Supervisor's email :

Description of the research work proposed for a PhD **Topic # (see list) :**

Title :

Subject :

In a context where road networks are aging, and where resources for maintenance of these networks are decreasing, it is important to better control and understand the mechanisms of degradation of wearing courses in order to optimize their formulation and maintenance. Nowadays, only specifications for adhesion, texture, bonding are considered, but no standard or design method can define the mechanical characteristics, ensuring lifetime of this layer that directly supports traffic loads.

The aim of this project is to better understand the mechanical loads in asphalt roads under road traffic and to improve the prediction of lifetime for wearing courses, by studying and modeling the behavior under traffic loading of asphalt concrete, using the Discrete Element Modeling (DEM).

Two key points will be examined: the pull-out resistance of aggregates and the accumulation of plastic deformations, which lead to surface degradation and an acceleration in the formation of voids and rutting. The experimental results that will serve as a basis for comparing the numerical models developed will be based on reduced-scale trials conducted at IFSTTAR on the Triboroute device.

Keywords :

Expected collaborations :

Background required from the applicant :

Existence of a PDF file detailing the proposal ("yes" or "no") :

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