

MASTER ON NUMERICAL METHODS IN ENGINEERING

THESIS PROPOSAL

Name of the student	Yuyang Wang
Title of the Master's thesis	Development of a numerical model for the transport of dust

Name of the supervisor	BAIGES AZNAR, JOAN; CODINA ROVIRA, RAMON
Department	Department of Civil and Environmental Engineering

Name of the external supervisor	
Company/Institution	

Starting date:	Final date:
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Summary:

Implementation and validation of some gravitational models for the transport of particles in a fluid. This would be related to a project for the simulation of ventilation in tunnels, with some practical applications.

Main tasks:

- 1) Literature review about existing methods to model the transport of dust particle. Comments on these methods.
- 2) Based on the existing methods, try to develop a new mathematical model. This process may require the student to know how to solve transient convection-diffusion equation and Navier-Stokes equations through stabilized finite element methods.
- 3) Validate the proposed model with some numerical tests
- 4) Apply this model to an real application such as the dust transport in wind tunnel

Additional remarks:

Date:

Student's signature

Yuyang Wang

Supervisor's signature

Ramon Codina
Joan Baiges

