Experimental and numerical study on the penetration resistance of concrete to high velocity projectile impact

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This project focuses on the penetration resistance of concrete subjected to high velocity projectile impact. Different grades of concrete will be considered. Experiments will be conducted in a gas gun test chamber, and experimental results (e.g. penetration depth, failure characteristics) extracted.

Numerical simulations will be carried out with LS-Dyna. Particularly, we are looking at K&C material model, though other models can be explored. The model parameters have to be determined from previous works, and the predictions of the model benchmarked against the new series of experimental data. An assessment on the predictive capability of the adopted model(s) has to be done.

We also seek to implement a nonlocal / gradient enhancement for the dynamic failure of concrete.

The Research Fellow should have a PhD in solid mechanics, mechanical engineering or any related field. Prior experience in at least one of the following areas is required:

- Experience with the concrete models in LS-Dyna
- Dynamic modelling of concrete failure
- Nonlocal / gradient enhanced continuum models for dynamic fracture

The contract is for an initial period of 12 months, with possibility of extension. Salary package and benefits are competitive and commensurate with experience, see
http://www.nus.edu.sg/careers/whatyougettoenjoy.html

To apply, please send a single pdf file including cover letter, CV, a full list of publications and the contact details of 2 references, to ceeplh@nus.edu.sg