

Two PhD Studentships on SPH for Solid Mechanics at The University of Hertfordshire, UK

The PhD projects will be in the area of advanced numerical modelling techniques for modelling the failure of solid materials due to extreme loading based on the Smoothed Particle Hydrodynamics (SPH) Method. The SPH method has some very attractive features for these types of problems due to its ability to deal with large deformations and treatment of crack formation and propagation. This has a wide range of applications: from manufacturing process simulations, aerospace and automotive impact and crashworthiness, hypervelocity impact on satellites to planetary impact scenarios.

Specifically, these projects will focus on the development of new algorithms for dealing with failure, damage and crack formation, and propagation in brittle and ductile materials. Within this framework a range of PhD research topics is possible:

- Development of these algorithms for the treatment of contact and failure suitable for massively parallel (Exascale) hydrodynamics simulations
- Development for high velocity impact loading of brittle metallic materials applications.
- Development for impact loading on composite aerospace /automotive structures applications

Applications are invited from individuals with a 1st or 2:1 in Mechanical/Aeronautical Engineering, Physics, Mathematics or a relevant related discipline. A Master's degree or equivalent industrial experience is highly desirable. We are seeking applicants with good understanding of mechanics and/or numerical modelling, strong analytical, mathematics, and, ideally, good programming skills.

Please contact Dr Tom De Vuyst by emailing t.de-vuyst@herts.ac.uk for informal enquiries.