

Post-doctoral research position at Laboratoire Roberval, FRANCE

About Laboratoire Roberval

The scientific research conducted at Laboratoire Roberval brings together research scholars, professors, technicians, as well as doctoral students at the University of Technology of Compiègne, and all those involved in research in applied mechanics, acoustics and vibrations, materials sciences and mechanical design.

About the project FUI/OASIS

In order to meet the global need for a reduction in CO₂-emissions, vehicle engineering currently focuses on the design of lighter, more fuel-efficient vehicles. The use of High-strength steels allows for an overall reduction in the thickness/weight of various mechanical sub-systems without compromising safety.

That being said, the production of these steels usually involves complex manufacturing processes with long and extensive design studies, and this is generally undesirable when developing newer automotive platforms.

Through this project, we intend to develop and implement a computational tool that would allow us to optimize the full set of process parameters involved in the press-forming of these steels (blank-holder load, blank shape, shape of the tools involved, etc) in order to reduce the design time for a range of stamping operations, and the overall manufacturing time associated with a typical high-strength steel product.

The OASIS project includes 9 industrial/technical partners : INRIA, UTC, ArcelorMittal, DeltaCAD, EDF, EURODECISION, NECS, Consortium Scilab, and ESILV.

Role of the post-doc

As part of the post-doctoral position, a novel method of field transfer from shell to solid elements will first and foremost be developed in order to accurately model the phenomenon of elastic recovery (a serious problem with high-strength steels) without severely compromising overall computation time.

Educational qualifications/expertise

Candidates must have a strong foundation in structural/solid mechanics, numerical modeling and finite element analysis.

Terms and conditions

- Post doctoral research contract with CNRS
- Duration : 12/24 months

Contact

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