DYNAMIC FLUID STRUCTURE INTERACTION:
WHAT IS GOING ON AT SWANSEA?

2pm Wednesday 7th May 2008

C2EC Lecture Theatre, School of Engineering, Swansea University

CONTEXT

The computational modelling of the dynamic interaction between fluids and structures is a significant challenge for a wide variety of reasons. Since Farhat's seminal work in the mid 1990's a number of researchers have attempted to develop strategies and software tools for dynamic fluid structure interaction (DFSI). Farhat's approach involved a segregated procedure which coupled a FV based flow solver to an FE based structural solver – i.e. involving the coupling between distinctive codes. Wall pursued a strategy which involved writing 2D FE code from scratch to enable an entirely coherent approach to DFSI.

It is not hard to imagine that the commercial CAE analysis market prefers Farhat's segregated approach as they can then re-use their existing fluids and structural codes. However, engineering a DFSI solution using such disparate codes is non-trivial. Even with assistance from code coupling tools such as MpCCI, the advertised DFSI couplings from commercial vendors tend to be at the 'loose' end. Closely coupled DFSI is still an open challenge!

In the C2EC at Swansea there are a number of groups who have worked on problems involving closely coupled DFSI. The objective of this workshop is to bring together those working on DFSI in Swansea, to share their approaches, the successes they have had and also the challenges they have had to overcome and still face. The idea of the workshop is to:

- have a number of presentations by those working on DFSI in Swansea University, and
- then have a moderated open discussion on the challenges and the way ahead.

A number of speakers have already agreed to contribute to this workshop. These include

- Dr Nick Croft
- Dr Wulf Dettmer
- Dr Antonio Gil
- Dr Avril Sloan
- Dr Raoul van Loon

If you would like to make a contribution and have not yet been contacted, please contact Dr. P.D. Ledger (p.d.ledger@swansea.ac.uk) as soon as possible. If you are a PhD student, please discuss this first with your supervisor.