

## **Research Opportunity open to MechE UROP in the Impact and Crashworthiness Lab (ICL)**

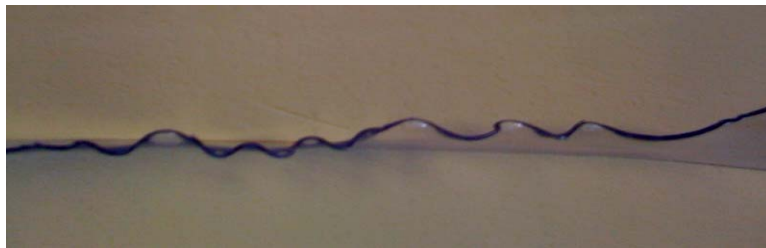
Fall 2009  
(with a possibility to continue)

ICL is launching a new research initiative concerned in applying the current fracture technology to the Oil and Gas industry. The lab has developed extensive contacts throughout this industry and is planning to launch a new industrial consortium related to response of pipelines to extreme loads. One of the issues that this industry is facing is the prevention of a catastrophic fracture that could destroy miles of offshore and onshore pipelines. Full-scale controlled tests have been performed by the industry and the photograph of the damaged pipeline is shown below.



**Unzipping a pipe leaves a wavy crack edge**

The challenge for the research community is to predict this type of response through the numerical simulation and scale model experiment. A simple tearing test has just been performed showing similar type of edge fracture as in the full-scale testing in pipes.



**Photo of a scale test conducted at ICL**

A UROP is sought to help in planning, conducting and analyzing a comprehensive series of tests similar to the one shown above. It is proposed that the same student will be involved in preparation of specimens and conducting calibration experiments on a material block cut from a real pipe and sent to us directly from industry.

This research could result to either a term project or a Bachelors Thesis for an interested student.