



Structures behaving badly?

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Refreshments will be served after the presentation



We depend on our civil infrastructure to work properly: buildings for our protection, bridges for our transport, dams for our water, and so on. This infrastructure is often ageing but experiences greater demands from users and, apparently, more extreme climatic loading.

Usually civil structures just work but sometimes they 'fail' spectacularly, sometimes with loss of life but more often quietly with loss of face and money. Failure can range from catastrophic collapse to simply wobbling too much to be usable. In the first case it's too late to fix, in the latter there are solutions. An even bigger problem is failures waiting to happen. How can we identify incipient failure and what can we do to avoid it?

The talk shows some famous structural failures and some less famous, mentioning what went wrong and how engineering practice changed as a result. It moves on to describe the technology of 'structural health monitoring' that combines sophisticated remote sensing and instrumentation with clever mathematical tricks to diagnose structural defects from subtle changes in behaviour. While structural health monitoring has had some success in the aerospace industry it's proved to be extremely challenging for civil infrastructure but is key to enabling the resilience we demand.