

## **Steel Bridge Condition Assessment & Monitoring**

J. Watson, Physical Acoustics Ltd, Cambridge (United Kingdom)

### Research and Testing

- Fatigue AE signal characterisation
- Attenuation and AE signal propagation studies
- Fatigue tests on I beams, plate girders, box girders, shear studs and reinforcement bars
- Quantification of active crack damage
- Advanced location of active damage
- Development of monitoring strategies
  - Global
  - Semi-global
  - Local
- Trial applications on real bridges including bearings, box and I girders and shear studs

### The Project

- Development of commercially viable Acoustic Emission (AE) bridge testing
- 11man years of academic research at Cardiff University, UK, costing \$840k USD
- Technology Transfer from Physical Acoustic's successful oil and gas business
- Laboratory fatigue testing and field trials on bridges
- Working with industry and the UK Highways Agency on real structure with real problems
- Providing real monitoring and assessment solutions for Civil and Structural Engineers worldwide