

Innovation and Networking for Fatigue and Reliability Analysis of Structures – Training for Assessment of Risk

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INFRASTAR aims to develop knowledge, expertise and skills for optimal and reliable management of structures. The generic methodology is applied to bridges and wind turbines in relation to fatigue offering the opportunity to deal with complementary notions (such as old and new asset management, unique and similar structures, wind and traffic actions) while addressing 3 major challenges: 1) advanced modelling of concrete fatigue behaviour, 2) new Non-Destructive Testing methods for early aged damage detection, and 3) probabilistic approach of structure reliability under fatigue.

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INFRASTAR aims to improve knowledge for optimising the design of new structures, for more realistic verification of structural safety and more accurate prediction of future lifetime of the existing structures. That is a challenge for a sustainable development because it reduces building material and energy consumption as well as CO₂ production. Indeed existing methods and current state-of-the art are based on excessive conservatism which produces high costs and hinders sustainability. Modern engineering methods, including probabilistic approaches, risk and reliability assessment tools, take into account the effective structural behaviour of existing bridges and wind turbines by exploiting monitored data.