Advanced load models for synchronous pedestrian excitation and optimised design guidelines for steel footbridges

Fact Sheet

Project Information

SYNPEX
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Coordinated by RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN

Objective

Steel footbridges may be susceptible to pedestrian-induced vibrations. Recently a synchronisation phenomenon of pedestrians on vibrating steel bridges (Millennium Bridge, Passerelle Solferino) were observed that results in resonant vibrations and endangers the safety of the structure and of individuals. The mechanism is not sufficiently investigated to be considered in design codes.

The over-all objective is the evaluation of advanced load models and optimised design guidelines for engineering practice that lead to economical, reliable and safe design of steel footbridges in the serviceability limit state. The type of pedestrian traffic combined with the probability of occurrence will be taken into account to fulfil the requirements of the present safety concepts.
Programme(s)

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