RAILWAY BRIDGES FOR HIGH SPEED LINES AND EUROCODES.

DIDIER MARTIN
Infrastructure Division -
Engineering Structures
Department
Group Manager, Metal
Structure and Analysis
SNCF
France

ABSTRACT

High speed railway bridges can now be designed using the new European standards “Eurocodes” for the construction.

Many rules and recommendations concerning Service Limit States, Actions and calculations are given in two main parts of Eurocodes:
- Eurocode EN 1990 Annex A2
- EN 1991 part 2 section 6 « railway bridges ».

These two standards resume research works based upon the experience in the high speed field of different European railway companies (among them SNCF an DB) unified in the UIC organisation. These works have been put together and published into UIC codes (UIC leaflets). This lecture give some background information concerning some rules that are proposed in these codes:
- why static calculations are no more sufficient to model the effects of a train running across a railway bridge? how to decide whether dynamic analysis is required?
- what resonance effects have to be taken into account and how?
- what are the interactions phenomena between vehicles, track and bridges that can’t be neglected.

This background information is mainly based upon SNCF experience.

Some other dynamic model problems are presented and, in conclusions, future research topics are identified.