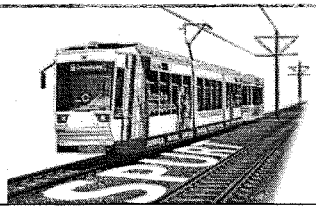

CONTRACT N°	**TST3-CT-2003-506401**
PROJECT N°	**FP6-PLT-506401**
ACRONYM	**SPURT**
TITLE	**S**eamless **P**ublic **U**rban **R**ail **T**ransport
Instrument	**STREP**
Thematic Priority	Sustainable Development, Global Change & Ecosystems
PROJECT CO-ORDINATOR	**Fraunhofer-Institut Betriebsfestigkeit und Systemzuverlässigkeit - LBF, Darmstadt**
PARTNERS	**TU-Darmstadt - Systemzuverlässigkeit im Maschinenbau - TUD**
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	Sociéte des Transports Intercommunaux de Bruxelles - STIB
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Period covered: from 01/12/2003 **to** 31/05/2007	
Duration: 42 months	
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Project co-ordinator name:	**Michael Kieninger**

1 Publishable executive summary

Rail mass transit vehicles, defined as 'trams, light rail and metros' do very often not behave as expected when running on the existing rail infrastructure, although the vehicles may well be fully compatible with the specifications of the buying authorities and they may well have passed the acceptance tests. **A major challenge** therefore was that a particular vehicle might perform well in one particular network and the same vehicle could show important problems in another network. Many operators have different types of vehicles and different types of track systems in their network. They all want the different existing and future vehicles to perform well in their complete existing and future network. This was one of the reasons why most vehicles today were been built to local specifications, which continued the incompatibility and interoperability issues. The SPURT project therefore focused on the development of solutions of this complex situation in the industry. **Six exploitable results** could be been developed with joint forces of the SPURT project partners, which are been summarised as:

- **new methodologies** considering the
  - material and component requirements to maximise lifetime of wheels and rails in operation; in combination with optimal maintenance procedures (best timing) and to minimise grinding off wheels in order to reduce lifecycle cost and maintain vehicle safety
  - infrastructure requirements (maximum acceptable irregularity levels) compatible with vehicle safety and corresponding reference data
- **comprehensive technical knowledge of**
  - **rolling contact fatigue phenomena** through experimental data and numerical results; this includes experimental data collection concerning the behaviour of specimens and to determine optimal material combinations
  - **flange-climb derailment mechanism** through experimental data and numerical results - with a numerical data collection concerning the response of tramcars to degraded track conditions
- **data collections** concerning
  - optimal **materials combinations** for wheel and rail based on the numeric model and the specimens´ results
  - the **sensitivity analysis on the influence of the main parameters** involved (tramway layout, track irregularity, wheel diameter, W/R profiles, vehicle speed & vehicle characteristics) on W/R dynamic loads
  - the **wheel-rail contact forces corresponding to one-year operation** and definition of the corresponding load spectra
- **one-year evaluation of vehicle operation** in Milano network concerning rolling contact fatigue

In the SPURT project report, the contractors set out in a detailed and verifiable manner, the terms of use and dissemination of the knowledge arising from the European project. This evolving document was been updated to give a cumulative overview of the project's undertaken and planned activities, and submitted. The final plan for using and disseminating the knowledge provides a complete picture of all activities undertaken. Most importantly, it provides information on the future route to full use (exploitation or use in further research) and dissemination of the knowledge.