MATH0488 Elements of Stochastic Processes, March 12, 2013

Traffic-induced Vibration
Project Description

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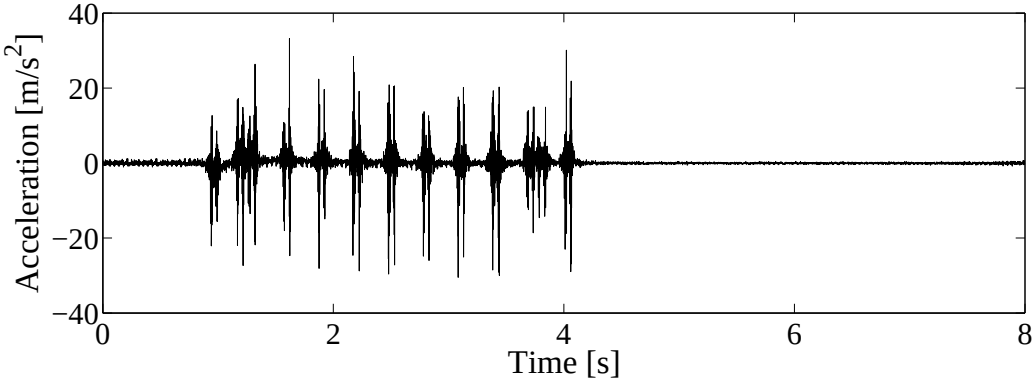
Motivation



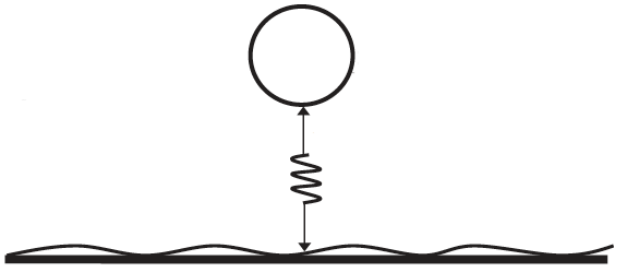
Vibrations and noise are generated as rough wheels roll over rough supports.

Motivation

- We will consider different types of traffic:

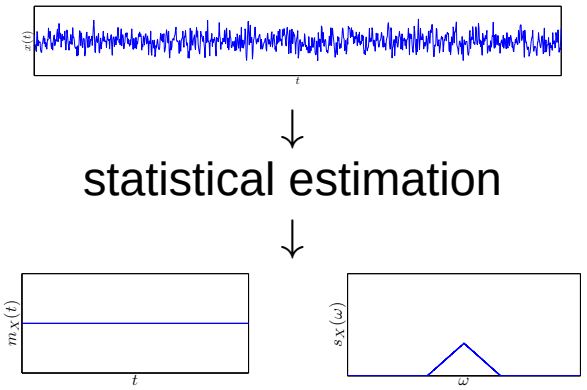
- We will organize the ”Travaux Dirigés" as follows:

TD 1



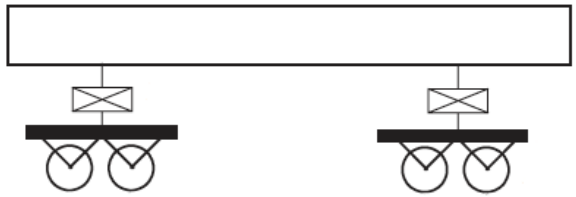
Study of main principles using 1DOF model

TD 2



Characterization of roughness using experimental data

TD 3



Prediction of vibration using MDOF model

Agenda

1	**2**	**3**	4	**5**	6	7
12/03	**19/03**	**26/03**	16/04	**23/04**	30/04	07/05
canceled	**TD 1**	**TD 2**	discussion	**TD 3**	discussion	discussion

- Your presence is mandatory for the three TDs:
  - Tuesday March 19, 10h45-12h45: TD 1 “Study of main principles using 1DOF model.”
  - Tuesday March 26, 10h45-12h45: TD 2 “Characterization of roughness using data.”
  - Tuesday April 23, 10h45-12h45: TD 3 “Prediction of vibration using MDOF model.”
  - We will be meeting in building B37 amphi 2 .

- If you should need some help, please feel free to contact M. Arnst (maarten.arnst@ulg.ac.be) or L. Dell’Elce (lamberto.dellelce@ulg.ac.be) or attend the discussion sessions:
  - Tuesday April 16 10h45-12h45, B37 amphi 2.
  - Tuesday April 30 10h45-12h45, B37 amphi 2.
  - Tuesday May 7 10h45-12h45, B37 amphi 2.

- The project report must be sent in PDF format by email to M. Arnst before/on Wednesday May 8.

- Project presentations are scheduled on Wednesday May 15 at a time and location to be set later.

Grading

- Please work in groups of 2 or 3 people. We will maintain the same groups for the 3 TDs.

- **Report** :
  - The report should collect your solutions to all the exercises that you worked on.
  - One report per group is required. The group is responsible for ensuring that work is fairly distributed among group members and that a high-quality report is written.
  - The report must be neat, well organized, and professionally presented. All graphs must be computer plots. Label all graph axes and include proper units.
  - Please include a list of all the references that you will have consulted.
  - Length of 15 to 30 pages (including figs. and list of refs., single spacing, font size of 11 pt).
  - The report must be sent in PDF format by email to M. Arnst before/on Wednesday May 8. Please attach to your email a file with any Matlab or other code that you will have written.

- **Presentation** :
  - The presentation (Wednesday May 15) should collect only those solutions that you consider the most important ones. It should emphasize the understanding and insight that you gained.
  - Length of 9 slides, namely, 1 title slide with the group members names, 1 slide that outlines the problem you worked on, 2 slides for each of the 3 TDs, and 1 slide with conclusions.