

Session II: Railway Geomechanics

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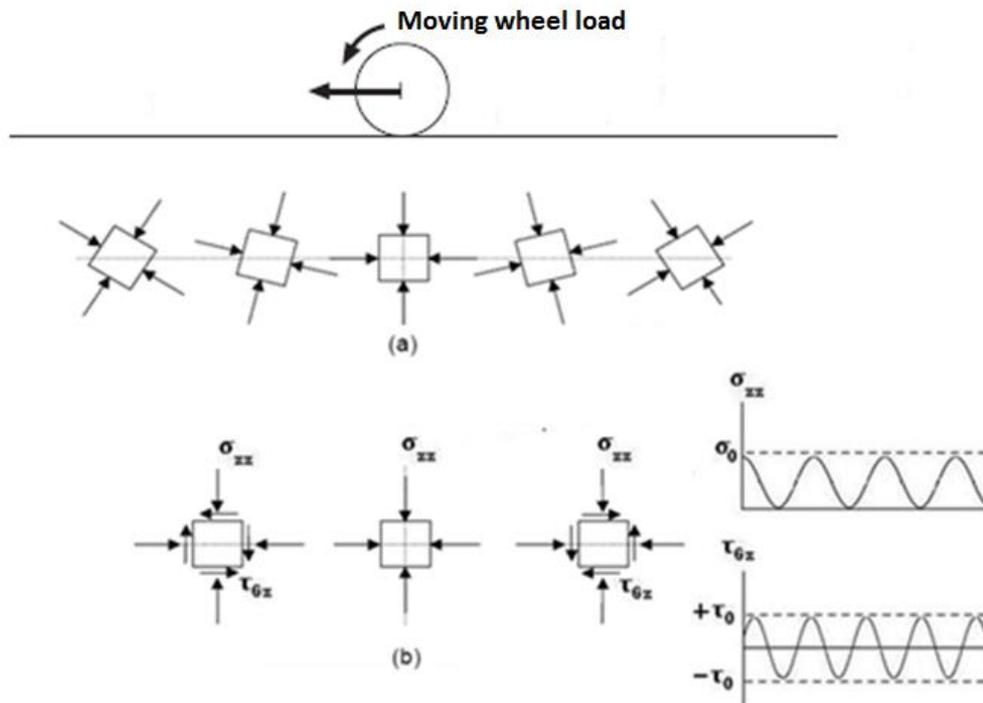
Why “Railway Geomechanics”?

Railways are an important part of the future.

- Ongoing investment across Europe to modernise and/or extend the network.
 - “Faster, heavier, more frequent trains.”
 - SHIFT2RAIL: a European rail joint technology initiative with industry and EU H2020 funding
- Geomechanics research to underpin (some of) these developments.

Example

- Cyclic loading with principal stress rotation:
Mechanics of the (unsaturated) subgrade.



(after Brown, 1996)

Example

- Embankment (serviceability) failure under seasonal wetting/drying cycles.



(Photo by Graham Birch)

But also...

- Mechanics and optimisation of railway ballast.
- Mechanics and optimisation of ballast/sleeper interactions.
- Predicting (differential) track settlement.
- Optimising the track system rather than its individual components.

(...etc...)