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.
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...)