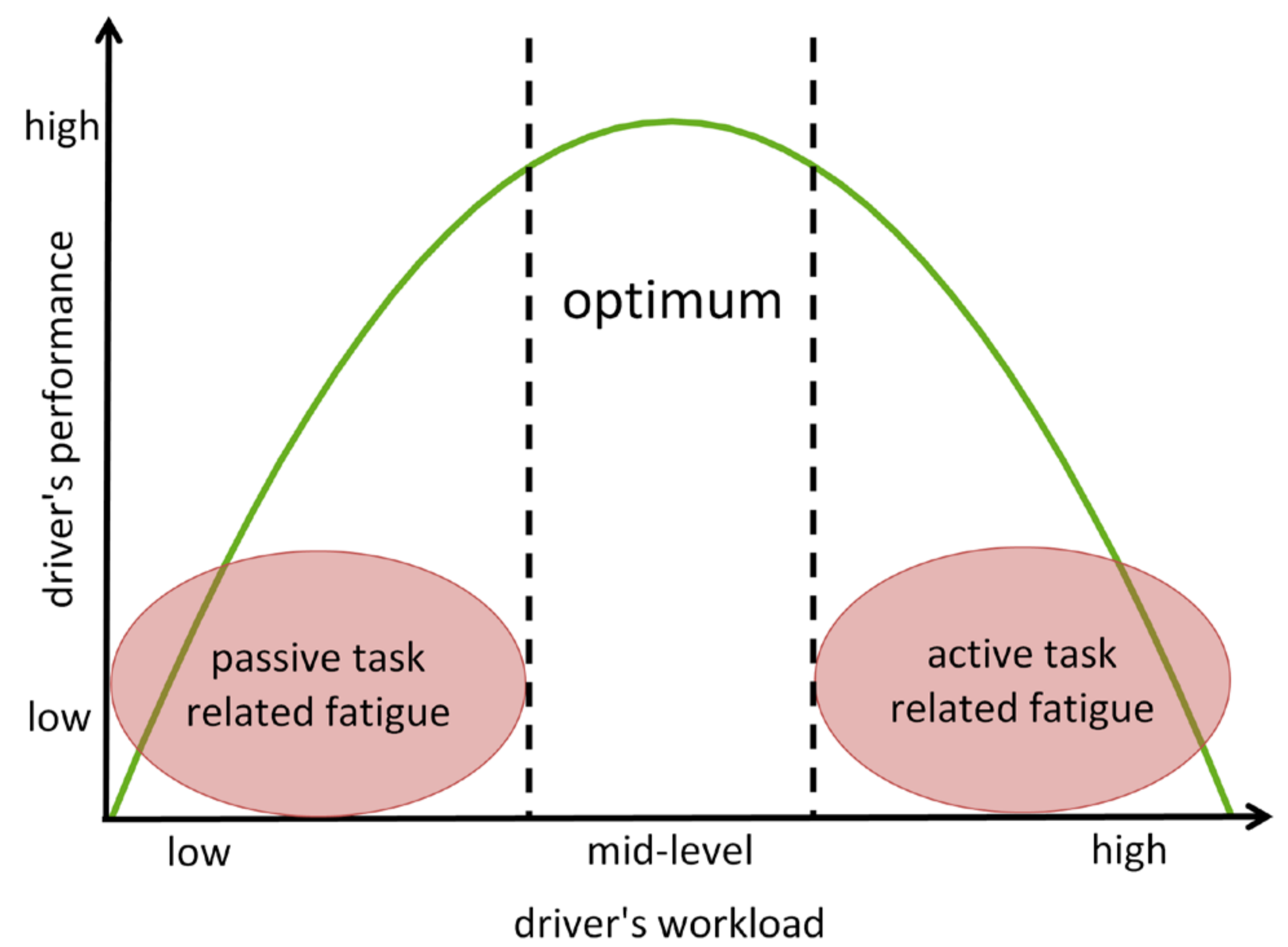


Monitoring Automated Driving: Measurement of Humans' Fatigue

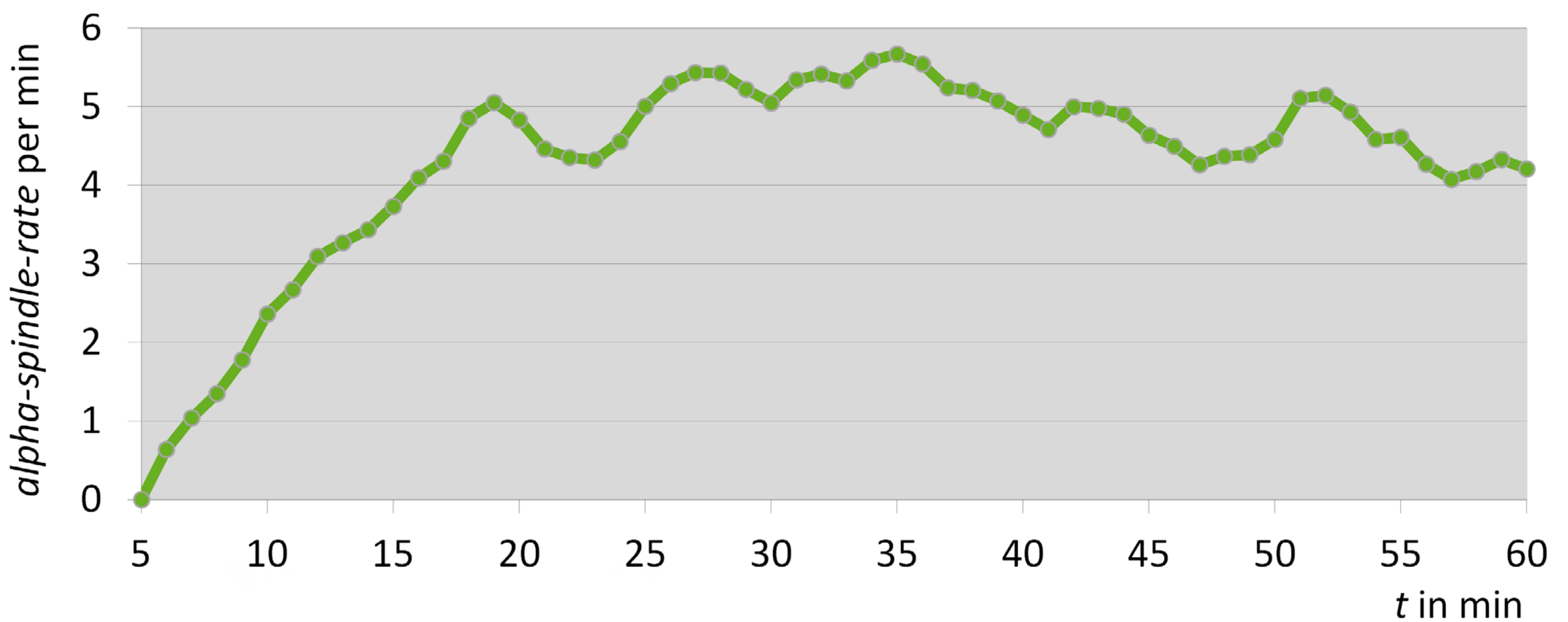
RESEARCH QUESTIONS

- Does monitoring of automated driving in a highly monotonous environment cause fatigue-related effects? → **Study a)**
- How is it possible to deal with or to reduce the fatigue level? → **Study b)**



METHOD

- Wizard-of-Oz Vehicle (WoOz) on a test track (highly monotonous oval course)
- Recording of psycho physiological data: EEG- "alpha spindles" (assumed as neuronal correlates of humans' fatigue level); cooperation: Daimler AG
- **Study a)** $N = 36$: long automated periods (approx. 60 min.) constantly monitored by participants (regarding longitudinal and lateral control)
- **Study b)** $N = 19$: changes between monitoring and performing self-paced tasks unrelated to driving (each automated period of approx. 30 min. incl. several takeover requests to manual driving)



FIRST RESULTS

- Because most data is currently under analysis, you initially see preliminary results of EEG-data of **Study a)**
- The fatigue development of 19 participants classified as "got tired" is plotted
- Interestingly, the fatigue level monotonously increases up to a mean maximum of about six spindles per minute (relative to a baseline), and remains constant with some oscillation

