



**SAVe – Funktions- und Verkehrssicherheit im automatisierten und vernetzten Fahren, Teilvorhaben: Gesellschaftliche Akzeptanz / Functional and transport safety in automatized and networked driving, subproject: Social acceptance.** (2018 – 2020; PI: Prof. Dr. Jens Hogleve, Prof. Dr. Andreas Riener, Prof. Dr. Marco Steinhauser; funded by BMVI, Federal Ministry of Transport and Digital Infrastructure) [--> more information](#)

**Causes and consequences of errors in dual-tasking II.** (2018 – 2021; PI: Prof. Dr. Marco Steinhauser; funded by DFG, German Research Foundation) [--> more information](#)

**Adaptive control of working memory.** (2018 – 2021; PI: Prof. Dr. Marco Steinhauser, Prof. Dr. Miriam Gade; funded by DFG, German Research Foundation) [--> more information](#)

**Mensch in Bewegung – Teilvorhaben: Akzeptanz automatisierten Fahrens/Subproject: Acceptance of automated driving.** (2018 – 2021; PI: Prof. Dr. Andreas Riener, Prof. Dr. Marco Steinhauser; funded by BMBF, Federal Ministry of Education and Research) [--> more information](#)

**Interplay of cognitive control in behavioral and neurophysiological correlates: Towards an understanding of control in human behavior.** (2016 – 2019; PI: Dr. Alodie Rey-Mermet; funded by SNF, Swiss National Science Foundation) [--> more information](#)

## Completed projects

**Causes and consequences of errors in dual-tasking I.** (2015 – 2018; PI: Prof. Dr. Marco Steinhauser; funded by DFG, German Research Foundation) [--> more information](#)

**The influence of top-down control on feedback processing and reinforcement learning in decision tasks.** (2014 – 2017; PI: Prof. Dr. Marco Steinhauser; funded by DFG, German Research Foundation) [--> more information](#)

**Evaluation of error source in human performance monitoring: Validating a model using behavioral, electrophysiological and patient studies** (2014 – 2017; PI: Dr. Martin Maier; funded by DFG, German Research Foundation) [--> more information](#)

**INEMAS - Grundlagen interaktions- und emotionssensitiver Assistenzsysteme/Basics of interaction- and emotion-sensitive assistance systems.** (2015 – 2018; PI: Prof. Dr. Marco Steinhauser; funded by BMBF, Federal Ministry of Education and Research) [--> more information](#)

**Verbal and non-verbal control settings in action control: Configuring the cognitive system for present and future task performance.** (2016 – 2018; PI: PD Dr. Miriam Gade; funded by DFG, German Research Foundation; continued at the Medical School Berlin) [--> more information](#)

## Recent Publications

### 2019/in press

Flaisch, T., Steinhauser, M., & Schupp, H. T. (in press). Adaptive cognitive control attenuates the late positive potentials to emotional distractors. *NeuroImage*.

Steinhauser, R., & Steinhauser, M. (2019). Error-preceding brain activity links neural markers of task preparation to cognitive flexibility and stability. *NeuroImage*, 197, 344-353.

Reinmüller, K., & Steinhauser, M. (2019). Adaptive front collision warnings: The impact of imperfect technology on warning effectiveness and acceptance. *Accident Analysis & Prevention*, 128, 217-

Gbadeyan, O., Steinhauser, M., Hunold, A., Martin, A. K., Haueisen, J., & Meinzer, M. (in press). Modulation of adaptive cognitive control by prefrontal high definition transcranial direct current stimulation in older adults. *Journal of Gerontology: Psychological Sciences*.

Di Gregorio\*, F., Ernst\*, B., & Steinhauser, M. (in press). Differential effects of instructed and objective feedback reliability on feedback-related brain activity. *Psychophysiology*. (\*shared first authorship)

Rey-Mermet, A., Gade, M., Souza, A. S., von Bastian, C. C., & Oberauer, K. (in press). Is executive control related to working memory capacity and fluid intelligence? *Journal of Experimental Psychology: General*.

Schuch, S., Dignath, D., Steinhauser, M., & Janczyk, M. (2019). Monitoring and control in multitasking. *Psychonomic Bulletin & Review*, *26*, 222-240.

Gade, M., & Steinhauser, M. (in press). The impact of cue format and cue transparency on task switching performance. *Psychological Research*.

Maier, M. E., Ernst, B., & Steinhauser, M. (2019). Error-related pupil dilation is sensitive to the evaluation of different error types. *Biological Psychology*, *141*, 25-34.

Rey-Mermet, A., Gade, M., & Steinhauser, M. (2019). Sequential conflict resolution under multiple concurrent conflicts: An ERP study. *NeuroImage*, *188*, 411–418.

Steinhauser, M., & Andersen, S. K. (2019). Rapid adaptive adjustments of selective attention following errors revealed by the time course of steady-state visual evoked potentials. *NeuroImage*, *186*, 83-92.

## 2018

Steinhauser, K., Leist, F., Maier, K., Michel, V., Pärsch, N., Rigley, P., Wurm, F., & Steinhauser, M. (2018). Effects of emotions on driving behavior. *Transportation Research Part F: Traffic Psychology and Behaviour*, *59*, 150-163.

Steinhauser, R., Wirth, R., Kunde, W., Janczyk, M., & Steinhauser, M. (2018). Common mechanisms in error monitoring and action effect monitoring. *Cognitive, Affective, & Behavioral Neuroscience*, *59*, 1159-1171.

Rey-Mermet, A., Gade, M., & Oberauer, K. (2018). Should we stop thinking about inhibition? Searching for individual and age differences in inhibition ability. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *44*(4), 501–526.

Reinmüller, K., Köhler, L., & Steinhauser, M. (2018). Adaptive warning signals adjusted to driver-passenger conversation: Impact of system awareness on behavioral adaptation. *Transportation Research Part F: Traffic Psychology and Behaviour*, *58*, 242-252.

Steinhauser, R. & Steinhauser, M. (2018). Preparatory brain activity in dual-tasking. *Neuropsychologia*, *114*, 32-40.

Ernst, B. & Steinhauser, M. (2018). Effects of feedback reliability on feedback-related brain activity: A feedback valuation account. *Cognitive, Affective, & Behavioral Neuroscience*, *18*, 596-608.

Wirth, R., Steinhauser, R., Janczyk, M., Steinhauser, M., & Kunde, W. (2018). Long-term and short-term action-effect links and their impact on effect monitoring. *Journal of Experimental Psychology: Human Perception & Performance*, *44*, 1186-1198.

Di Gregorio, F., Maier, M. E., & Steinhauser, M. (2018). Errors can elicit an error positivity in the absence of an error negativity: Evidence for independent systems of human error monitoring. *Neuroimage*, 172, 427-436.

Rey-Mermet, A., & Gade, M. (2018). Inhibition in aging: What is preserved? What declines? A meta-analysis. *Psychonomic Bulletin & Review*, 25(5), 1695–1716.

#### *Full conference papers*

Wintersberger, P., Riener, A., Schartmüller, C., Frison, A. K., & Weigl, K. (2018). Let me finish before I take over: Towards attention aware device integration in highly automated vehicles. In *Proceedings of the 10th International Conference on Automotive User Interfaces and Interactive Vehicular Applications* (pp. 53-65). New York, NY: ACM. doi:10.1145/3239060.3239085

Kundinger, T., Riener, A., Sofra, N., & Weigl, K. (2018). Drowsiness detection and warning in manual and automated driving: Results from subjective evaluation. In *Proceedings of the 10th International Conference on Automotive User Interfaces and Interactive Vehicular Applications* (pp. 229-236). New York, NY: ACM. doi:10.1145/3239060.3239073

#### **2017**

Steinhauser, M., Maier, M. E., & Ernst, B. (2017). Neural correlates of reconfiguration failure reveal the time course of task-set reconfiguration. *Neuropsychologia*, 106, 100-111.

Rey-Mermet, A., & Meier, B. (2017). How long-lasting is the post-conflict slowing after incongruent trials? Evidence from the Stroop, Simon, and flanker tasks. *Attention, Perception, & Psychophysics*, 79, 1945-1967. <https://doi.org/10.3758/s13414-017-1348-z>

Ernst, B., Reichard, S. M., Riepl, R. F., Steinhauser, R., Zimmermann, S. F., & Steinhauser, M. (2017). The P3 and the subjective experience of time. *Neuropsychologia*, 103, 12-19.

Maier, M. E., & Steinhauser, M. (2017). Working memory load impairs the evaluation of behavioral errors in the medial frontal cortex. *Psychophysiology*, 54, 1472-1482.

Ernst, B. & Steinhauser, M. (2017). Top-down control over feedback processing: The probability of valid feedback affects feedback-related brain activity. *Brain & Cognition*, 115, 33-40.

Steinhauser, M., Ernst, B., & Ibal, K. W. (2017). Isolating component processes of post-error slowing with the psychological refractory period paradigm. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, 43, 653-659.

Garofalo, S., Timmermann, C., Battaglia, S., Maier, M. E., & di Pellegrino, G. (2017). Medial frontal negativity signals unexpected timing of salient outcomes. *Journal of Cognitive Neuroscience*, 29, 718-727.

Steinhauser, R., Maier, M. E., & Steinhauser, M. (2017). Neural signatures of adaptive post-error adjustments in visual search, *Neuroimage*, 150, 270-278.

#### **2016**

Bastian, C. C. von, Souza, A. S., & Gade, M. (2016). No Evidence for Bilingual Cognitive Advantages: A Test of Four Hypotheses. *Journal of Experimental Psychology: General*, 145, 246-258. doi: 10.1037/xge0000120.

Di Gregorio, F., Steinhauser, M., & Maier, M.E. (2016). Error-related brain activity and error awareness in an error classification paradigm. *Neuroimage*, 139, 202-210.

Flaisch, T., Steinhauser, M., & Schupp, H.T. (2016). Emotional aftereffects: When emotion impairs subsequent picture recognition. *Emotion*, 16, 987-996.

Gbadeyan, O., McMahon, K., Steinhauser\*, M., & Meinzer\*, M. (2016). Stimulation of dorsolateral prefrontal cortex enhances adaptive cognitive control: A high-definition transcranial direct current stimulation study. *Journal of Neuroscience*, 36, 12530-12536. (\*shared senior authorship)

Gbadeyan, O., Steinhauser, M., McMahon, K., & Meinzer, M. (2016). Safety, tolerability, blinding efficacy and behavioural effects of a novel MRI-compatible high-definition tDCS set-up. *Brain Stimulation*, 9, 545-552.

Maier, M. E., & Steinhauser, M. (2016). Error significance but not error expectancy predicts error-related negativities for different error types. *Behavioral Brain Research*, 297, 259-267.

Maier, M. E., Scarpazza, C., Starita, F., Filogamo, R., & Làdavas, E. (2016). Error monitoring is related to processing internal affective states. *Cognitive, Affective, & Behavioral Neuroscience*, 16, 1050-1062.

Pfister R., Wirth R., Schwarz K., Förster, A., Steinhauser, M., & Kunde, W. (2016). The electrophysiological signature of deliberate rule violations. *Psychophysiology*, 53, 1870-1877.

Pfister, R., Wirth, R., Schwarz, K., Steinhauser, M., & Kunde, W. (2016). Burdens of non-conformity: Motor execution reveals cognitive conflict during deliberate rule violations. *Cognition*, 147, 93-99.

Rey-Mermet, A., & Gade, M. (2016). Contextual within-trial adaption of cognitive control: Evidence from the combination of conflict tasks. *Journal of Experimental Psychology: Human Perception and Performance*, 42, 1505-1532. <https://doi.org/10.1037/xhp0000229>

Steinhauser\*, M., Flaisch\*, T., Meinzer, M., & Schupp, H. T. (2016). Cognitive control modulates preferential processing of affective stimuli. *Neuropsychologia*, 91, 435-443. (\*shared first authorship)

## 2015

Dundon, N., Làdavas, E., Maier, M. E., & Bertini, C. (2015). Multisensory stimulation in hemianopic patients boosts orienting responses to the hemianopic field and reduces attentional resources to the intact field. *Restorative Neurology and Neuroscience*, 33, 405-419.

Achtziger, A., Alos-Ferrer, C., Hügelschäfer, S., & Steinhauser, M. (2015). Higher incentives can impair performance: Neural evidence on reinforcement and rationality. *Social Cognitive and Affective Neuroscience*, 10, 1477-1483.

Borhani, K., Làdavas, E., Maier, M. E., Avenanti, A. & Bertini, C. (2015). Emotional and movement-related body postures modulate visual processing. *Social Cognitive & Affective Neuroscience*, 10, 1092-1101. doi: 10.1093/scan/nsu167.

Ernst, B., & Steinhauser, M. (2015). Effects of invalid feedback on learning and feedback-related brain activity in decision-making. *Brain and Cognition*, 99, 78-86.

Gade, M. (2015). On tasks and cognitive constructs for the bilingual (non-) advantage. *Cortex*. [doi.org/10.1016/j.cortex.2015.07.017](https://doi.org/10.1016/j.cortex.2015.07.017)

Maier, M. E., Di Gregorio, F., Muricchio, T., Di Pellegrino, G. (2015). Impaired rapid error monitoring but intact error signaling following rostral anterior cingulate cortex lesions in humans. *Frontiers in Human Neuroscience*, 9, 339, doi: 10.3389/fnhum.2015.00339.

Steinhauser, M., Gade, M. (2015). Distractor onset but not preparation time affects the frequency of task confusions in task switching. *Frontiers in Psychology*, 6:1671. doi: 10.3389/fpsyg.2015.01671