

Dillan Cellier, Marco Pipoly, Kai Hwang

Psychological and Brain Sciences, Iowa Neuroscience Institute, The University of Iowa

## Conclusions

- Delta (1-4 Hz) and theta-band (4-8 Hz) oscillatory power increased in frontal sensors when subjects performed task-switching between contexts.
- Task switching that occurs within the same context does not modulate delta-band power.

## Introduction

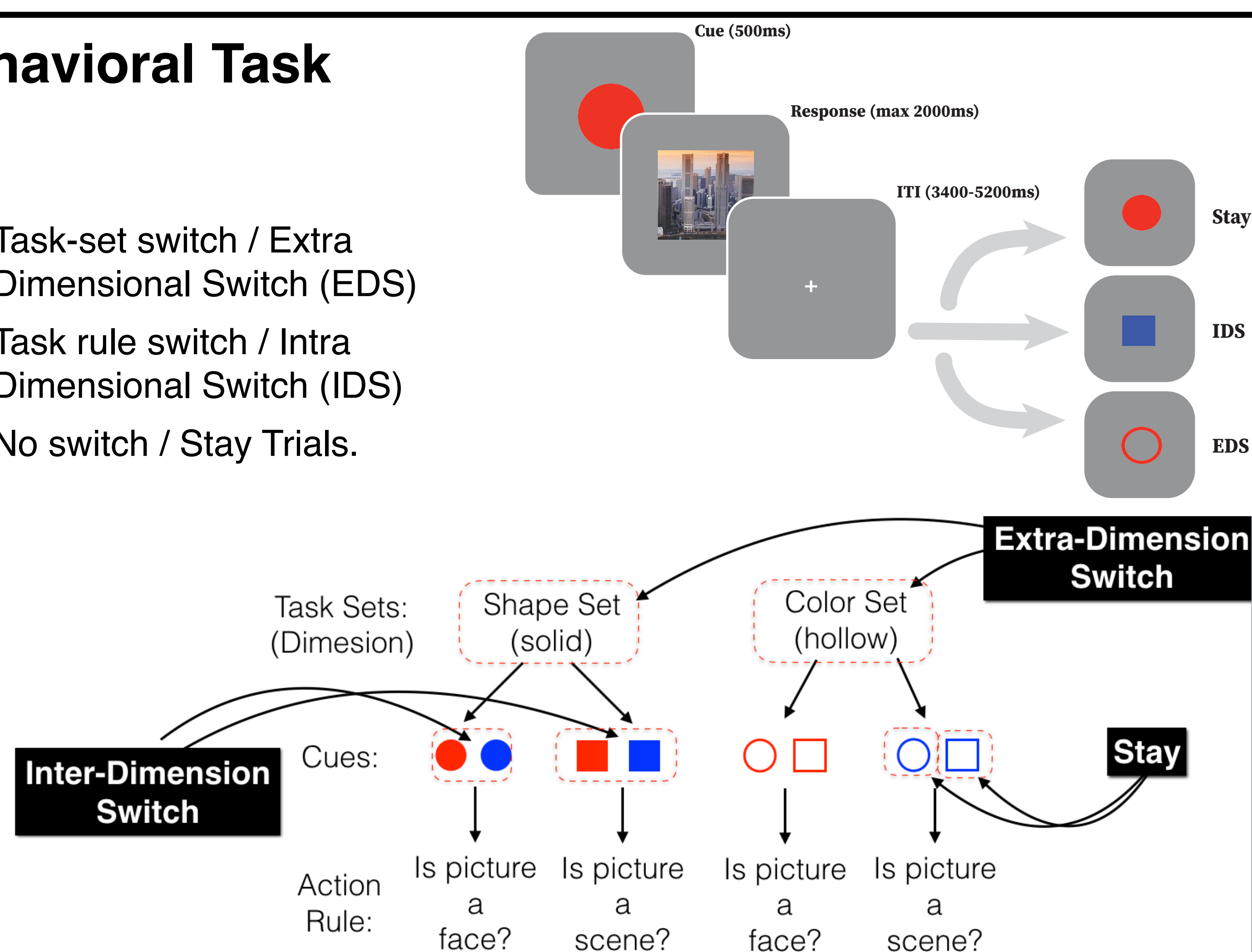
- Behavior is contextually flexible. When context shifts, behavior can be adjusted accordingly.
- Task rules guide behavior. Task-sets organize task-rules for different contexts.
- We aimed to characterize EEG signals that reflect shifting between different task-sets, or shifting between different task-rules within the same task-set.

## Methods

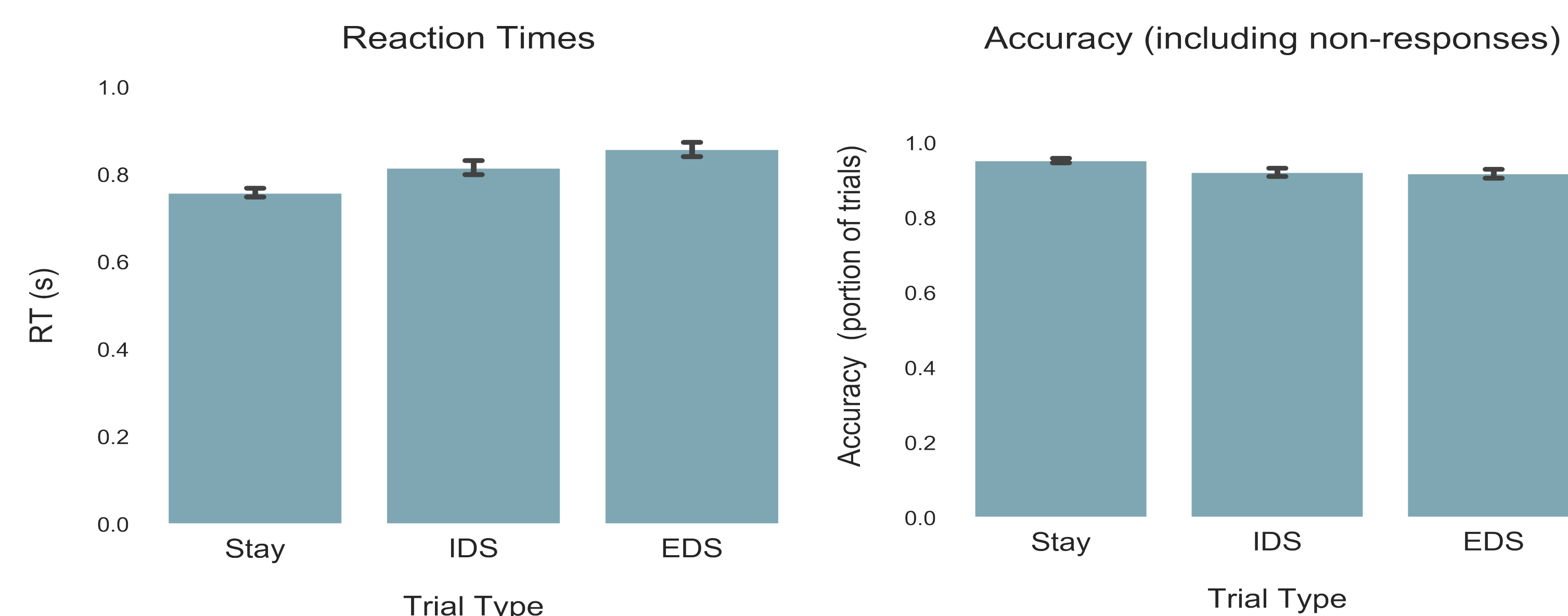
- 34 adult subjects, 18 females, age 18-35 years.
- EEG data recorded with 64-channel Biosemi Active-two EEG system.
- Epochs with artifacts rejected through visual inspection.
- Time-domain data convolved through Morlet wavelet, window size = 6 cycles.
- Power amplitude normalized to prestim baseline, convert to decibel scales (DB).

## Behavioral Task

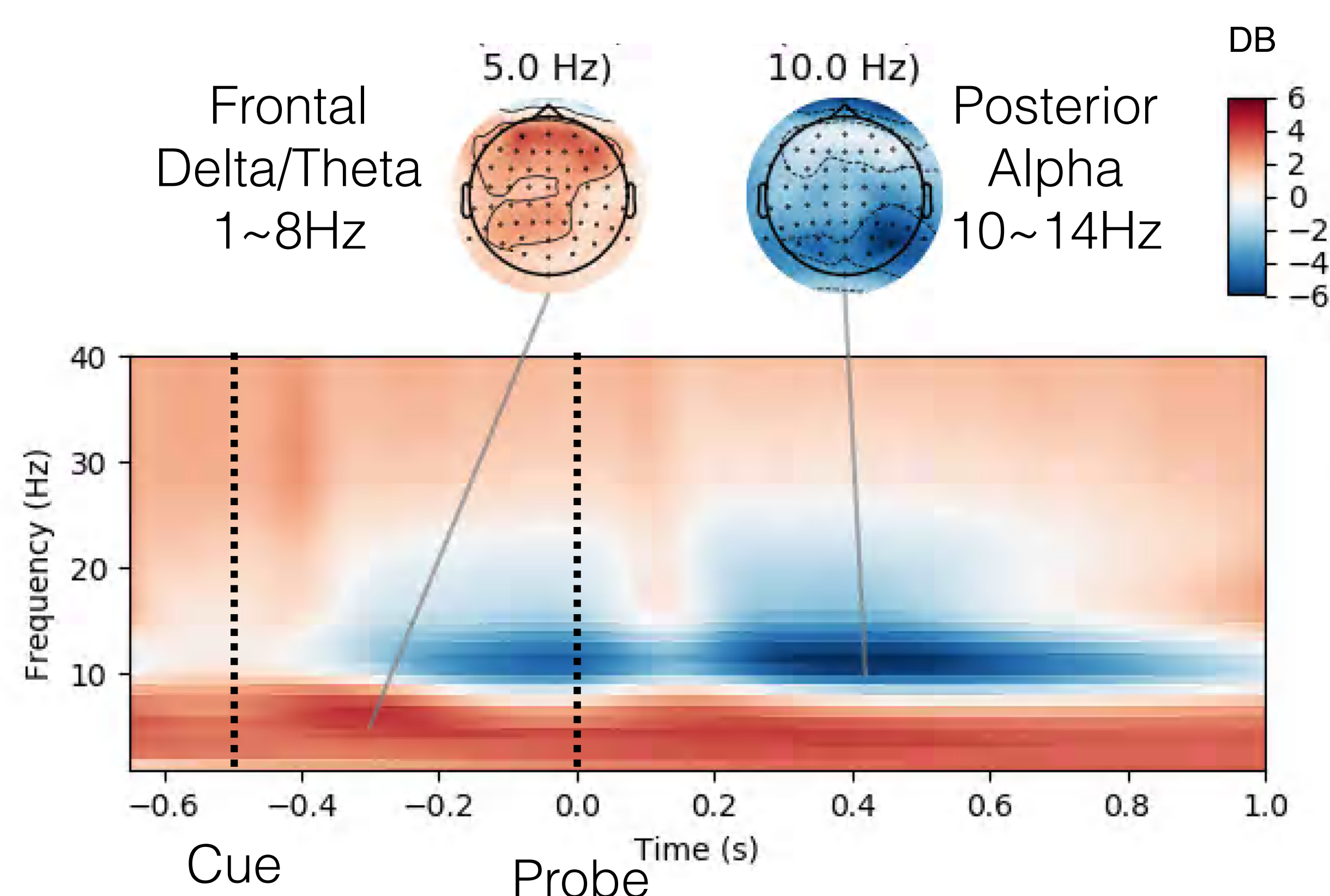
- Task-set switch / Extra Dimensional Switch (EDS)
- Task rule switch / Intra Dimensional Switch (IDS)
- No switch / Stay Trials.



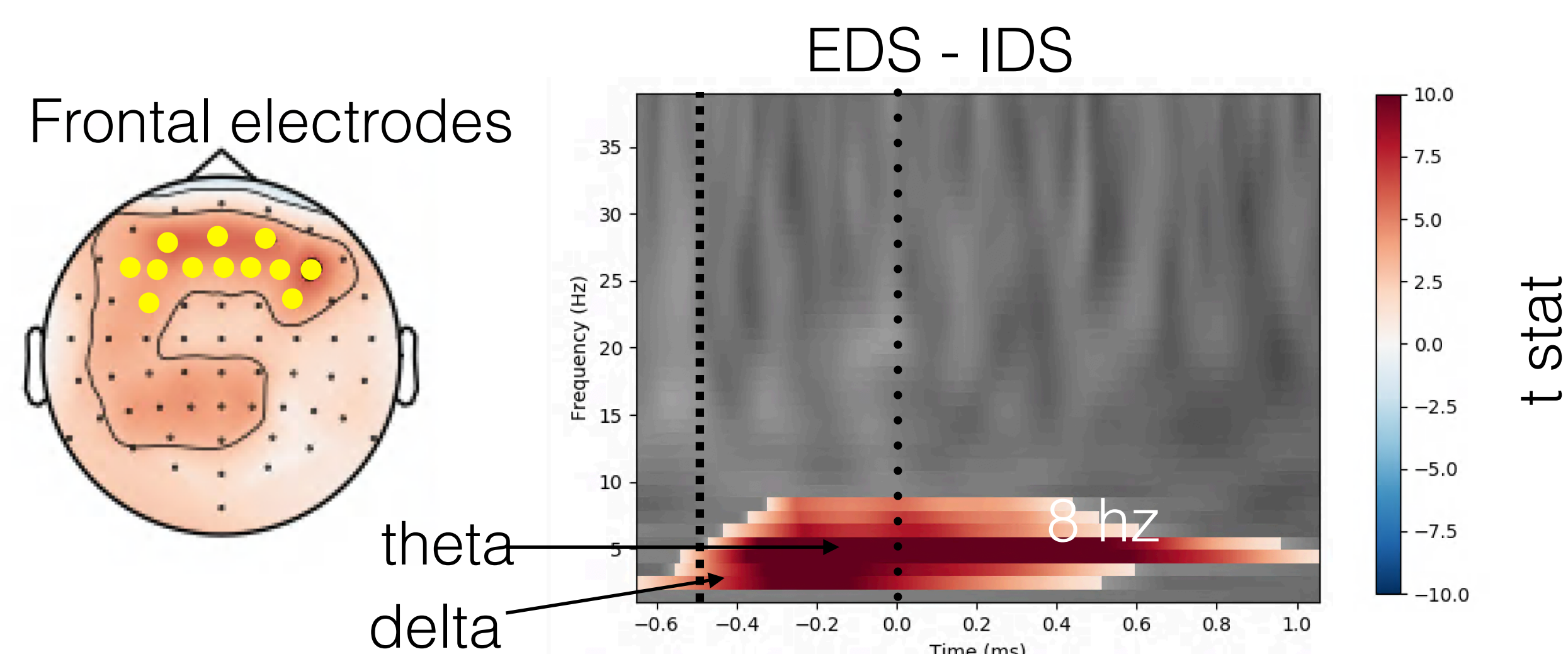
Reaction time when switch task-rules and switch task-sets (contexts).



Task-evoked oscillatory power in delta / theta / alpha band.



Set-switching modulates frontal delta / theta oscillatory power



Posterior alpha power not modulated by task manipulations

