# DIE FAKULTÄT FÜR PSYCHOLOGIE LÄDT EIN ZUM

## *VORSTELLUNGSVORTRAG VON*

## Herrn PD Dr. Gerhard Jocham
### -ERC Consolidator Preisträger-
### (Otto-von-Guericke Universität Magdeburg)

## "Neural mechanisms for reward-guided learning and decision making"

In the first part of the talk, I will focus on different learning mechanisms and their role in economic decision making. In real-life situations, consequences of our decisions often occur after a substantial delay, with many intervening actions. Even worse, many outcomes are not even related to our own actions. This makes it quite challenging to identify which of our action(s), if any, are to credit or blame for a particular outcome. This problem is termed the credit assignment problem. Our data show that humans deploy several learning mechanisms operating in parallel to solve the credit assignment problem. Of these, only one mechanism relied on known rules imposed by the task structure. Next, I will show that during economic decision making, human participants' choices are often suboptimal, violating normative principles. Behavioural and neuroimaging data suggest that these biases may naturally arise as the signature of a particular learning mechanism. This mechanism learns option values in a relative, not absolute frame of reference. Neural signatures in the striatum also displayed key characteristics of an update signal for learning relative values. The second part of the talk is intended to present research lines recently initiated in my lab. Briefly, these revolve around two main themes: (1) the mutual interaction between decision making and associative memory mechanisms and (2) the relationship between neuromodulatory systems (GABA, glutamate, dopamine, acetylcholine), cortical oscillations and decision making.

## Termin: Mittwoch, 16. Mai 2018

## Zeit: 14 Uhr c.t.
## im GAFO 03/252