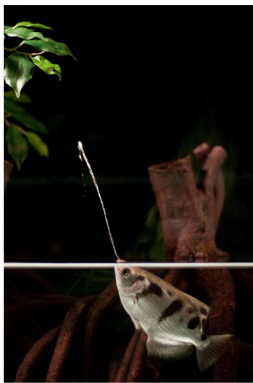# BLUMENBACH LECTURE

VORTRAGSREIHE DES
JOHANN-FRIEDRICH-BLUMENBACH-INSTITUTS
FÜR ZOOLOGIE UND ANTROPOLOGIE

High-speed decision making in hunting archerfish

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**Lehrstuhl für Tierphysiologie
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In their unique hunting technique, archerfish down aerial prey with precisely adjusted jets of water. However, in order not to lose all downed prey to other fish in their mangrove habitats, the fish compliment their hunting technique with a rapid and accurate motor decision: For any combination of initial speed, direction, and height of falling prey the fish quickly initiate a powerful C-start that turns the fish toward the final impact point and propels it off so that it arrives simultaneously with the falling prey. This decision is made very rapidly – in as little as 40 ms – and is driven only by information sampled after motion onset. Its flexibility requires the decision circuits to use some form of representation of the rules of ballistics. Because all fish consistently show precise start decisions in the laboratory and in the field, it is conceivable that the laws of ballistics are either evolutionarily inbuilt or are learned early during ontogeny. In my talk, I will introduce many fascinating aspects of the start-decisions and will then report on recent findings on when and how the fish acquire the laws of how their prey falls and whether their circuitry is wired to favour the representation of ballistic motion.

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**Thursday
July 6, 2023
17:15**

GEORG-AUGUST-UNIVERSITÄT
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