Animal navigation from behaviour and cognition to molecular mechanisms (continuation)

Initiative: Lichtenberg - Professuren

Bewilligung: 24.11.2011

Laufzeit: 3 Jahre

The professorship is focused on understanding the behavioural, molecular, physiological and cognitive mechanisms underlying migration and long-distance navigation. What mechanisms enable birds with a brain weighing less than a gram to circumnavigate the globe with a precision unobtainable by human navigators before the emergence of GPS satellites? How do young birds find the species specific wintering quarter on their own, even though they have never been there before? How does experience influence their spatiotemporal orientation strategies? What is the physiological basis for sensing the relevant cues? How do animals sense the Earth's magnetic field? How is navigational information processed in the brain? What genes are involved? To successfully answer these questions, a wide range of multidisciplinary approaches are needed. Therefore, neurobiology, neuroanatomy, molecular biology, mathematical modelling and simulations, physics and newly developed laboratory equipment in combination with behavioural experiments and analyses of field data will be used to achive a better understanding of mechanism enabling animals to navigate over thousands of kilometres.

Projektbeteiligte

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