



**SFB 1372**

**Magnetoreception and Navigation  
in Vertebrates**

Carl von Ossietzky  
**Universität  
Oldenburg**

1<sup>st</sup> international symposium

# Moving beyond the sensory basis and mechanisms of animal navigation

**TUESDAY, FEBRUARY 18, 2025**

12:45 REGISTRATION

13:30 OPENING

Pauline Fleischmann, Miriam Liedvogel, Ilia Solov'yov | Scientific organisers

## **BEHAVIOUR, SENSES, CUE INTEGRATION**

Chair: Rabea Bartölke

**13:45 Neural mechanisms for robust navigation in naturalistic visual environments**

Hannah Haberkern | Julius Maximilian University Würzburg

**14:15 Australian Bogong moths use the stars and the Earth's magnetic field as compasses for long-distance navigation at night**

Eric Warrant | Lund University, SWE

**14:45 Ant visual route navigation: How the fine details of behaviour promote successful route performance and convergence**

Amany Azevedo Amin | University of Sussex, UK

15:00 COFFEE BREAK

**15:30 Viewing olfaction from within**

Hanne Stensola | University of Agder, NOR

**16:00 How microbes sense magnetic fields: Biosynthesis and function of the magnetosome organelle in magnetotactic bacteria**

Dirk Schüler | University of Bayreuth

**16:30 The third hypothesis: electromagnetic induction in pigeons**

David Keays | Ludwig-Maximilians-Universität Munich

**17:00-20:00 POSTER SESSION A**

Behaviour, senses, cue integration | Quantum effects

18:30-19:30 DINNER (during the poster session)

**WEDNESDAY MORNING, FEBRUARY 19, 2025**

## **QUANTUM EFFECTS**

Chair: Jonathan Hungerland

**9:00 From spin dynamics of molecular triads to thermally activated delayed fluorescence**

Christoph Lambert | Julius Maximilian University Würzburg

**9:30 Light-induced spin order by magnetic electron-nuclear interactions in flavin containing systems**

Guzel Musabirova | University of Leipzig

**10:00 Spreading magnetosomes on surfaces: Let's open the membrane for biophysical analyses**

Izabella Brand | University of Oldenburg

10:15 COFFEE BREAK

**10:45 Collective quantum phenomena of 2D magnets in optical cavities**

Christian Schneider | University of Oldenburg

**11:15 Spin-correlated radical pairs in cryptochromes: fit for purpose as biological compass?**

Till Biskup | University of Rostock

**11:30 Potential effects of weak radiofrequency radiation in biological systems based on the radical pair mechanism**

Luca Gerhards | University of Oldenburg

11:45 LUNCH (canteen 'Mensa' Haarentor)



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**WEDNESDAY AFTERNOON, FEBRUARY 19, 2025**

## **NEURAL CIRCUITS, ROBOTICS**

Chair: Franziska Curdt

**13:00 Neural mechanisms of vocal learning and production in songbirds**  
Daniela Vallentin | Max Planck Institute for Biological Intelligence, Seewiesen

**13:30 Identification of retinal circuits using volume electron microscopy**  
Anja Günther | Max Planck Institute for Neurobiology of Behaviour – caesar, Bonn

**14:00 Representation of space and the neural basis of navigation in goldfish**  
Ronen Segev | Ben-Gurion University of the Negev, IL

**14:15 A multimodal imaging approach reveals no evidence for magnetite magnetoreceptors in the mole-rat cornea and retina**  
Pascal Malkemper | Max Planck Institute for Neurobiology of Behaviour – caesar, Bonn

14:30 COFFEE BREAK

**15:00 Frames of reference, neural circuits and dancing bees**  
Barbara Webb | University of Edinburgh, UK

**15:30 Avian-inspired design**  
David Lentink | University of Groningen, NL

**16:00-18:00 POSTER SESSION B**  
Neural circuits, robotics | Environmental consequences

18:45 DINNER (Ratskeller, Markt 1, 26122 Oldenburg)

**THURSDAY, FEBRUARY 20, 2025**

## **ENVIRONMENTAL CONSEQUENCES**

Chair: Laura Ziegenbalg

**9:00 Ancient DNA from Azores extinct taxa provided insights on the evolutionary history of the Western Palearctic robins**  
Juan Carlos Illera | University of Oviedo, SP

**9:15 Large scale monitoring of migratory bird movements**  
Cecilia Nilsson | Lund University, SWE

**9:45 Animal Movement and Wildlife Conservation**  
Thomas Müller | Senckenberg Biodiversity and Climate Research Centre, Frankfurt/Main

10:15 COFFEE BREAK

**10:45 Effects of artificial light at night on avian migratory flights**  
Baptiste Schmid | Swiss Ornithological Institute, Sempbach, CH

**11:00 Lost in light: How light pollution disrupts moth orientation**  
Jacqueline Degen | Julius Maximilian University Würzburg

**11:30 The seasonal migration of the Southern Ocean key species, Antarctic Krill, in a fisheries management context**  
Bettina Meyer | Alfred Wegener Institute, Wilhelmshaven

12:00 CLOSING REMARKS  
Henrik Mouritsen | Spokesperson of the SFB 1372