

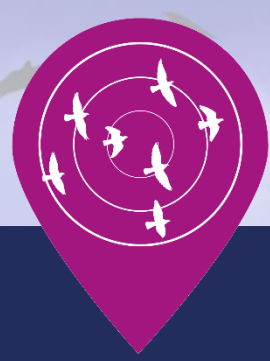


RIN
19

10th RIN Conference on Animal Navigation

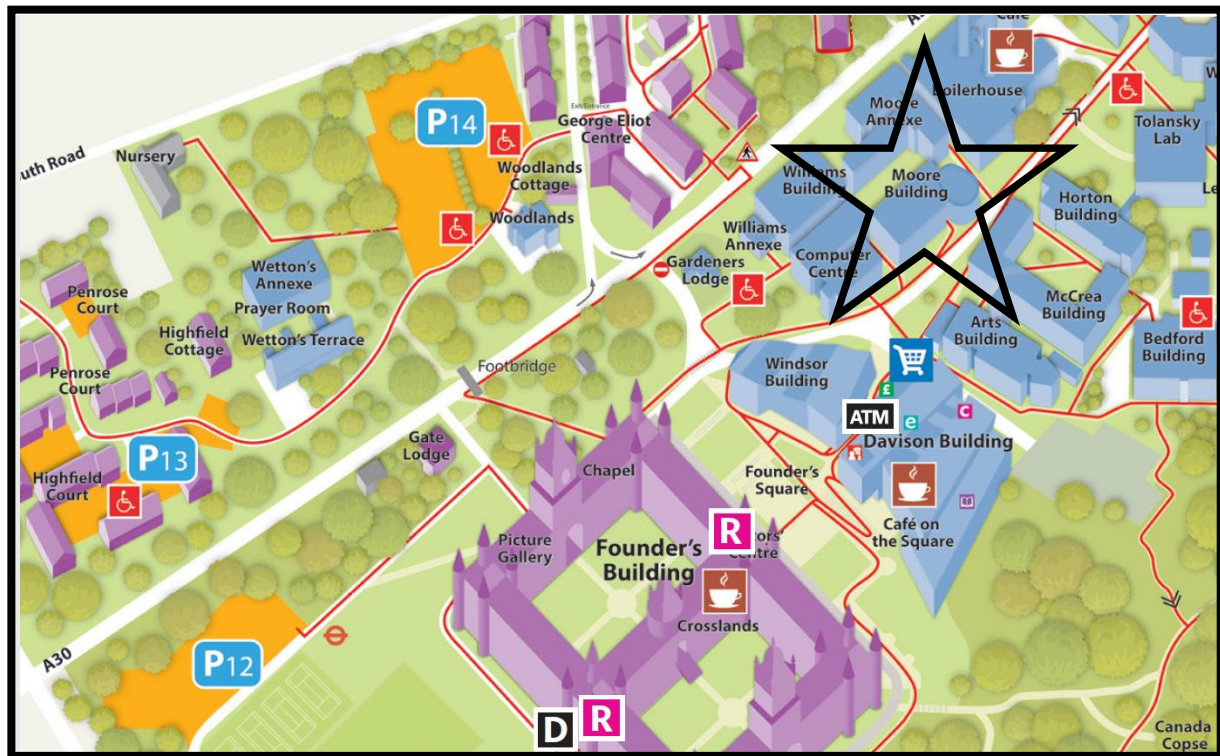
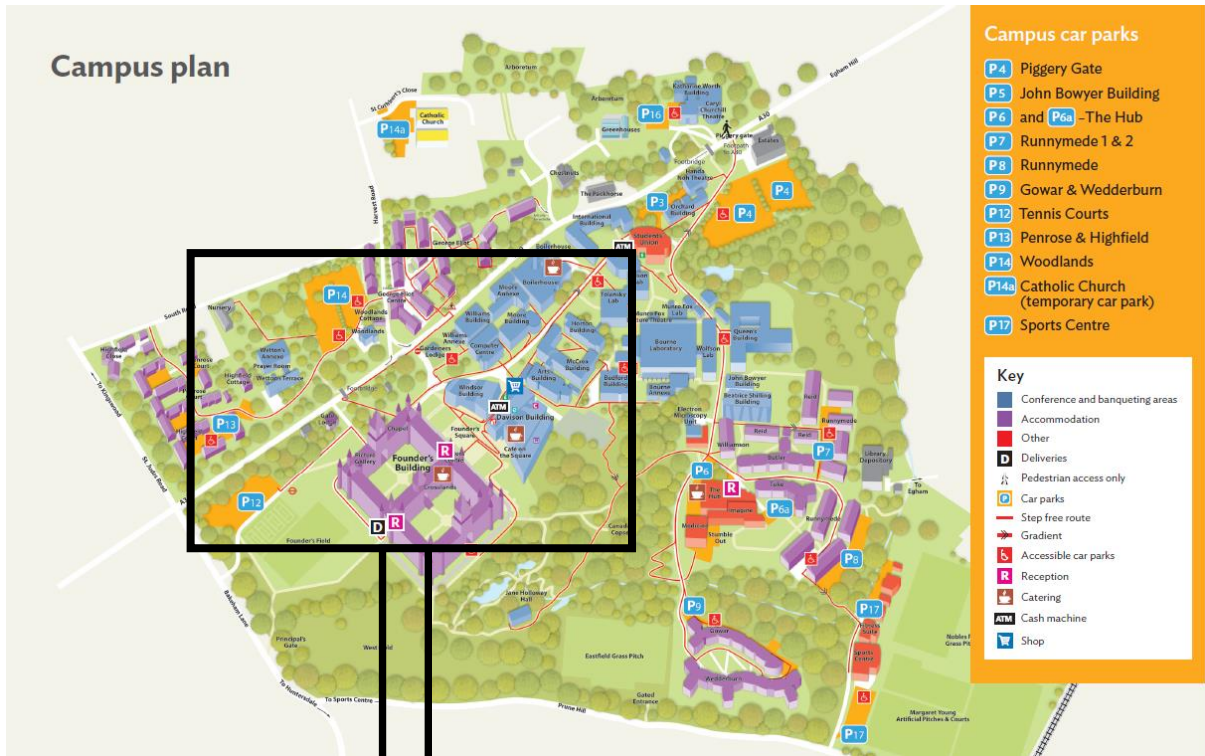
10-12 April 2019

Royal Holloway College, UK



Hosted by the Royal Institute of Navigation's Animal Navigation Group (ANG)

Maps



Organising Committee

Dr Miriam Liedvogel, Chair Animal Navigation Group

Dr Emily Baird, Honorary Secretary Animal Navigation Group

Group Captain David Broughton, Past Director RIN

John Pottle, Director RIN

Louisa Chanter, Events Organisation RIN

Dr Clare Stead, Communications Manager RIN

The Venue

The Tenth International Conference on Animal Navigation, hosted by the Animal Navigation Special Interest Group of the Royal Institute of Navigation (RIN) in the UK, will be held at Royal Holloway College, Egham, Surrey, TW20 0EX, in the Runnymede borough of Surrey, UK, on 10-12 April 2019. No animals or pets are allowed on the site.



1000	Registration and coffee
1200	Buffet Lunch
1245	Welcome and housekeeping notices
Magnetic Compass	
1300	Magnetic compass orientation in the presence of RF fields: zebra finches can be trained to Larmor-frequency, but not broadband RF fields Rachel Muheim, Lund University
1315	The sensitivity threshold of magnetic orientation of a long-distant migrant bird to radio-frequency magnetic fields Kirill Kavokin, St. Petersburg State University
1330	Garden warblers are not disoriented by oscillating magnetic fields applied to their eyes Julia Bojarinova, St. Petersburg State University
1345	Magnetic declination as a map tool in songbird migrants Nikita Chernetsov, Biological Station Rybachy, Zoological Institute RAS
Other Compasses	
1400	Experimental Systems Analysis - Understanding the factors that drive navigation in Homing Pigeons Ingo Schiffner, Bangor University
1415	Anosmic migrating songbirds demonstrate a compensatory response following long-distance translocation: a radio-tracking study Dmitry Kishkinev, (1) Bangor University, UK; (2) Zoological Institute of Russian Academy of Sciences
1430	Stellar compass of European robins <i>Erithacus rubecula</i> is time-independent Anna Anashina, Biological Station "Rybachy" ZIN RAS
1445	Reliance on familiar visual landmarks by anosmic pigeons Anna Gagliardo, University of Pisa
1500-1600	Coffee break
1600-1700	Flash talks
1700-1830	Poster session with reception
1900	Dinner

Thursday 11th April - morning

Cryptochromes	
0900	Magnetic Compass in Animals: Why is it so fragile to noise and what is the role of cryptochromes? Thorsten Ritz, University of California, Irvine
0915	Retinal horizontal cells express Cry4: a new take on the avian light-dependent magnetic compass Atticus Pinzon-Rodriguez, Lund University
0930	The pigeon cryptochrome interactome Tobias Hochstoeger, Research Institute of Molecular Pathology (IMP)
0945 (joint talk)	Experimental Confirmation of Radical-pair-based Magnetic Field Effects in an Avian Cryptochrome Lauren Jarocha, University of Oxford Jingjing Xu, University Oldenburg
1005	Studying cryptochromes through the computational microscope Iliia Solov'yov, University of Southern Denmark
1020	Double-cone localisation and seasonal expression pattern suggest a role in magnetoreception for European robin cryptochrome 4 Angelika Einwich, University Oldenburg
1035-1130	Coffee break
What if not Cryptochromes?	
1130	What if it's not cryptochrome? John B. Phillips, Virginia Tech
1145	Exploring the minimal functional unit of magnetoreceptor (MagR) and a roadmap to MagR2.0 Can Xie, Peking University
1200	Antibiotics effect migratory restlessness orientation in a migrating passerine: first experimental support for the symbiotic magnetoreception hypothesis Yuval Werber, Tel-Hai College
1215	Magnetic compass in pigeon retina: electroretinographic study Luba Astakhova, Sechenov Institute of Evolutionary Physiology and Biochemistry RAS
1230-1330	Buffet lunch

Brain	
1330	Different structure same function: avian hippocampus and spatial memory Uwe Mayer, Center for Mind/Brain Sciences, CIMEC- University of Trento
1345	Cluster N activity in migrating nocturnal birds: Circadian control or facultative regulation? Verner Bingman, Bowling Green State University
1400	The cortival visual pathway is necessary for landmark anchoring of head direction cells in the rat James Street, University College London
1415	Evidence for a separate brain pathway processing magnetic map information in migratory birds Dmitry Kobylkov, University Oldenburg
Genetics Approaches	
1430	The molecular signatures of magnetite-based magnetoreception: evidence from transcriptomics Robert Fitak, Duke University
1445	Whole brain clearing and imaging reveals magnetically activated brain regions in the mouse Lukas Landler, Research Institute of Molecular Pathology
1500	The chromatin accessibility landscape in the brain of a migrant songbird Juan Sebastian Lugo Ramos, Max Planck Institute for evolutionary biology
1515-1600	Coffee break
Independent Replication & New Technologies	
1600	The importance of independent replication: a study of magnetic field effects on <i>Drosophila melanogaster</i> Marco Bassetto, University of Oxford
1615	No evidence for a magnetite-based magnetoreceptor in the lagena of pigeons Erich Pascal Malkemper, Research Institute of Molecular Pathology
1630	New technologies to address old questions of magnetic orientation in free-roaming animals Michael Painter, Czech University of Life Sciences
1645	Global analysis of immediate early gene expression in the pigeon brain Gregory Nordmann, Research Institute of Molecular Pathology
1700-1800	Jubilee talk – 10th conference in the RIN ANG series
1900	Conference dinner

It's Not All About Birds (Insects)	
0900	Virtual reality exploration of bumblebees' scanning behaviour in a 3D flight arena during object discrimination Vince Gallo, Queen Mary University of London
0915	The Earth's Magnetic Field and Visual Landmarks Steer Migratory Flight Behavior in the Nocturnal Australian Bogong Moth David Dreyer, University of Lund
0930	Interactions of navigational strategies during the learning of environmental information in ants Cornelia Buehlmann, University of Sussex, School of Life Sciences
0945	Resolving the heading-direction ambiguity in vertical-beam radar observations of migrating insects Zhenhua Hao, University of New South Wales
It's Not All About Birds	
1000	Biophysics of Magnetoreception Evidenced from Alpha Waves in the Human Brain Joseph Kirschvink, California Institute of Technology
1015	Planarians possess a light-independent, circadian time-dependent magnetic inclination compass Hervé Cadiou, French National Centre for Scientific Research
1030-1130	Coffee break
1130	Lassie come home: Homing strategies in hunting dogs Hynek Burda, Czech University of Life Sciences in Prague
1145	Tadpole transporting frogs use map-like spatial memory to navigate the rainforest Andrius Pašukonis, Stanford University
1200	Going home magnetically: geomagnetic imprinting in sea turtles and salmon Kenneth Lohmann, University of North Carolina at Chapel Hill
1215	Distance estimation in a coral reef fish, <i>Rhinecanthus aculeatus</i> Cecilia Karlsson, University of Oxford
1230	Diversification of the neural substrate of mental maps in primates David Vanier, Stony Brook University
1245	Closing remarks and end of conference

Posters

P1	<p>Sensory Transduction of Radio Waves by Biogenic Magnetite: An alternative to the Cryptochrome Quantum Compass Hypothesis of Magnetoreception</p> <p>Joseph Kirschvink, California Institute of Technology</p>
P2	<p>Blue light-dependent human magnetoreception in geomagnetic food orientation</p> <p>Kwon-Seok Chae, Kyungpook National University</p>
P3	<p>Compensation for wind drift in the Thrushes during autumn nocturnal migratory flight</p> <p>Alexandra Sinelschikova, St. Petersburg State University, Biological Station Rybachy</p>
P4	<p>A reinterpretation of “Homing pigeons’ flight over and under low stratus” based on atmospheric propagation modeling of infrasonic navigational cues</p> <p>J T Hagstrum, U.S. Geological Survey</p>
P5	<p>Gravity vector theory of pigeon navigation: predicted release sites entail severe homing problems as revealed by GPS tracking</p> <p>Hans-Peter Lipp, Institute of Evolutionary Medicine, University of Zurich</p>
P6	<p>How to dig a straight tunnel? Magnetic field as heading indicator in subterranean rodents?</p> <p>Hynek Burda, Czech University of Life Sciences</p>
P7	<p>Do songbird migrants use the magnetic field during the non-migratory season?</p> <p>Alexander Pakhomov, Biological Station Rybachy ZIN RAS</p>
P8	<p>Stay orientated: visual landmarks as dominant directional cues in the rat brain</p> <p>Ningyu Zhang, University College London</p>
P9	<p>Navigation in visually ambiguous environments</p> <p>Han Yin Cheng, Institute of Behavioural Neuroscience</p>
P10	<p>Alignment behaviour in dogs</p> <p>Richard Holland, Bangor University</p>
P11	<p>Wind conditions affect nocturnal departure directions of Northern Wheatears (<i>Oenanthe oenanthe</i>) during autumn migration</p> <p>Florian Packmor, Bangor University</p>
P12	<p>The use of spatial and local cues for orientation in domestic chicks (<i>Gallus gallus</i>)</p> <p>Anastasia Morandi Raikova, CIMeC, University of Trento</p>
P13	<p>A quantum needle can provide a highly sensitive and highly robust magnetic compass</p> <p>Shawn Strausser, Department of Physics and Astronomy, University of California, Irvine, Ca 92697, USA</p>

Posters

P14	Does magnetic conditioning work on zebrafish? Laura Ziegenbalg, Department of Sensory Biology of Animals, IBU, University Oldenburg, D-26111 Oldenburg
P15	Unified Animal Navigation Theory and Einstein's Unified Field Theory Valerii Kanevskiy, High Technologies Institute, ltd
P16	Physical properties of a magnetoreceptor based on electromagnetic induction Daniel Kagerbauer, Institute of Molecular Pathology
P17	Characterization of Pigeon Cry 4: a putative light-sensitive magnetosensor Dante Maestre, Institute of Molecular Pathology
P18	In vivo 2-photon calcium imaging in the pigeon brain Simon Nimpf, Institute of Molecular Pathology
P19	The earth's magnetic field is an early compass in desert ants Robin Grob, JMU Wuerzburg
P20	Does the anatomy of higher processing centres in the lepidopteran brain reflect navigational prowess? Andrea Adden, Lund University
P21	Radiofrequency noise modifies the insect sense of time Martin Vacha, Masaryk University
P22	The neurogenomics of avian migration Gillian Durieux, Max Planck Institute for Evolutionary Biology
P23	From IscA to MagR: Origin and Dual-facet of Animal Magnetoreception Siyang Qin, Peking University
P24	Exploring the minimal functional unit of magnetoreceptor (MagR) and a roadmap to MagR2.0 Peilin Yang, School of Life Sciences, Peking University
P25	Magnetic response of the bird's lagena Marianna Zhukovskaya, Sechenov Institute of Evolutionary Physiology and Biochemistry, Russian Academy of Sciences
P26	Species and sex differences in wild poison frog homing ability Andrius Pašukonis, Stanford University
P27	Do mole-rats use the daily fluctuations of the geomagnetic field (GMF) as a zeitgeber? Sabine Begall, University of Duisburg-Essen
P28	Using brain clearing to study magnetoreception in the mole-rat Christin Osadnik, University of Duisburg-Essen
P29	Protein-protein interaction of the putative magnetoreceptor cryptochrome expressed in the avian retina Haijia Wu, University of Oldenburg

Posters

P30	Is Access to Celestial Cues in a Burrow-Nesting Seabird Essential for Fledging? Joe Wynn, University of Oxford
P31	Analyzing the non-homing pigeon - a FlowR bundle for standardized quantitative dissection of pigeon GPS tracks Hans-Peter Lipp, University of Zurich, Institute of Evolutionary Medicine
P32	Magnetically induced immediate early gene activation in the fish brain Susanne Schwarze, University Oldenburg, Institute of Biology and Environmental Science, AG Sensory Biology of Animals
P33	Studying V-formation through the help of conservation and satellites Elisa Perinot, Waldrappteam/University of Veterinary Medicine Vienna
P34	A magnetic pulse disrupts the magnetic sense of Chinook salmon Lewis C. Naisbett-Jones, University of North Carolina
P35	Formation of foraging ground attachments Kayla Goforth, University of North Carolina
P36	Ready for takeoff? A novel experimental assay to investigate the senses for navigation in migratory bats Oliver Lindecke, Leibniz Institute for Zoo and Wildlife Research
P37	How does Animal Navigation work? Richard Nissen, Editor