

The MIRCE Akademy 2013 Annual Lecture



18.30, Woodbury Park, Exeter, UK, 3rd December 2013

Blue skies: bird magneto-detection and the blue cone receptor.

Dr Jennifer Clare Brookes

Abstract

It is extra-ordinary that birds are able to detect the strength and orientation of very weak magnetic fields (200-600 milligauss) especially given humans cope mainly obliviously with ranges of factors from 10-10,000's times higher, e.g., pacemakers can operate up to 5 gauss, a fridge magnet is 50 gauss and MRI operates at 94 kilogauss. I will discuss the idea that the visual blue cone receptor in the bird's eye may host a magneto-sensitive mechanism, which may possibly be innate in humans but that birds have specially adapted for their navigational purposes in migration.

Jenny earned the First Class Honours Bachelor of Science Degree in Physics and Philosophy at the King's College London in 2004, United Kingdom. She obtained Master of Science Degree with Distinction in Physics, in 2005 at the University College London (UCL), UK, where she received the Philosophy Doctor Degree in Theoretical Physics in 2008 for the research on *A microcopic model of signal transduction mechanisms: olfaction*, which proved the physical feasibility and potential of a novel and generic signalling model, and in particular looks at those processes in olfaction. This work was funded by the Interdisciplinary Research Collaboration (IRC) in Nanotechnology and the Engineering and Physical Sciences Research Council (EPSRC). In October 2009, Dr Brookes become Sir Henry Wellcome Postdoctoral Fellow, funded by the UK charity the Wellcome Trust, for 4 years duration. This is an independent research award for the proposal "for the determination of small molecule messages: the enigma of signalling in olfaction". This work has taken her to Professor Shuguang Zhang's lab at Massachusetts Institute of Technology, Center for Biomedical Engineering, and Professor Alan Aspuru-Guzik's lab in Chemistry and Chemical Biology, Harvard, both in Cambridge, Massachusetts, USA.

Admission Free, all welcome, R.S.V.P. by 2nd December