



Cambridge Society for the Application of Research

Churchill College
Storey's Way
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www.csar.org.uk

Evolution of Biological Complexity

Professor Ray Goldstein

Schlumberger Professor of Complex Physical Systems
Department of Applied Mathematics and Theoretical Physics
University of Cambridge

7.30 p.m., **MONDAY** 7th March, 2011
At **THE MØLLER CENTRE**, Storey's Way, Cambridge

Please note that this lecture will take place in the **MØLLER CENTRE** (not in the Wolfson Lecture Theatre, as stated on the CSAR Year Card).

The Møller Centre is at the **far end** of **Churchill Road**

See <http://www.mollercentre.co.uk/location/index.html> for a map and directions.



About this lecture:

Professor Goldstein writes:

"One of the most fundamental issues in biology is the nature of evolutionary transitions from single cell organisms to multicellular ones.

Not surprisingly for microscopic life in a fluid environment, many of the processes involved are related to transport and locomotion, for efficient exchange of chemical species with the environment is one of the most basic features of life. This is particularly so in the case of flagellated eukaryotes such as green algae, whose members serve as model organisms for the study of transitions to multicellularity.

This talk will summarize recent theoretical and experimental work addressing aspects of evolutionary transitions in the Volvocine green algae, which range from unicellular *Chlamydomonas* to *Volvox*, with thousands of cells. A key focus will be the nature of collective behaviour exhibited by the flagella of these organisms and the synchronization of those organelles."

About the speaker:

Ray Goldstein received undergraduate degrees in physics and chemistry from MIT, and a Ph.D. in theoretical physics from Cornell University.

Following postdoctoral work at the University of Chicago and faculty positions in physics and applied mathematics at Princeton University and the University of Arizona, he moved to Cambridge as the Schlumberger Professor of Complex Physical Systems in 2006.

His research interests span from statistical physics to nonlinear dynamics and geophysics, with particular emphasis on biological physics, both theoretical and experimental.

His work has been recognized by a Sloan Foundation Fellowship, a Presidential Faculty Fellowship from the National Science Foundation, the Stephanos Pnevmatikos Award in Nonlinear Science, and Fellowship in the American Physical Society, the Institute of Physics, and the Institute of Mathematics and its Applications.

The Organising Secretary adds....

This looks scary stuff; but Professor Goldstein is noted for delivering especially interesting and engaging lectures to all sorts of audiences. And CSAR audiences are well used to wrestling with the likes of astrophysics, radio astronomy and the Large Hadron Collider.

So do please come along. See <http://www.damtp.cam.ac.uk/user/gold/> for yet more.

Once again, this lecture will take place in the **lecture room** at the **Møller Centre**, located on the left at the **far end** of Churchill Road.

Both the lecture and our coffee beforehand may be found in the octagonal building of the Møller Centre, near the main entrance. **Coffee** will be on the **second floor**, in the bar; the **lecture** is off the **first floor**; both are up the **curved staircase**! There is lift to all levels, just past Reception, and plenty of car parking outside the main entrance

Please watch our website for any last-minute changes (for example, due to inclement weather). This is now updated in near-real-time, thanks to the diligence of our new webmasters Dr Nigel Bennée and Mrs Eileen Bennée. Nigel is also our Membership Secretary.

Best Regards

Richard Freeman

Organising Secretary

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