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LICHFIELD **GARRICK**
Theatre & Studio

PRESIDENT

Professor Rex Harris

FREng., FIMMM, FInstP.

8:00 pm on Wednesday 15th October 2014
in the Studio Theatre of the Lichfield Garrick, Castle Dyke, Lichfield

"INSIDE WATER"

Dr Patricia Hunt
Imperial College
London

Water is all around us, it forms the oceans, lakes and rivers, it forms clouds in the atmosphere, and our bodies are almost all water. Because water is part of our everyday lives we are normally unaware of how special water is, how it differs from the many other (pure) liquids we come into contact with (such as oils, solvents, fuels) or the more specialized liquids used in the chemistry lab or more technological, pharmacological or industrial processes.

Dr Hunt's interest is in the molecular structure of water, that is, at the level of the atoms that form water molecules. This talk will explore how individual molecules of water interact, how they move and rearrange, and how other molecules perturb water's liquid environment.

Understanding the structure of water at the atomic level will lead us to a better understanding of the more familiar (macroscopic) properties of water. These include the very high boiling point of water, the extremely good solvating ability of water, the peculiar characteristics of frozen water and the very strong surface tension of water. Understanding the hidden molecular level aspects of water is of key importance for a large range of applications: climate models, drug development and delivery, producing and maintaining clean water, and the solubility of salts, proteins, drugs, metals and chemicals in water.

Dr Patricia Hunt has a BSc in chemistry and quantum mechanics from New Zealand, and a PhD in theoretical chemistry. She also has a BA in philosophy, principally in theories of knowledge (epistemology) and existentialism. She has held positions at King's College London and Cambridge University, and for the last 10 years has been based at Imperial College where she is currently a Reader in Theoretical and Computational Chemistry. From 2003-2011 she held a prestigious Royal Society Research Fellowship. Her research spans the study of liquids and solvents, catalytic processes and modern bonding theories (particularly hydrogen bonding). Her recently published article "Linking electronic and molecular structure: insight into aqueous chloride solvation" was highlighted as a hot article in the Journal of Physical Chemistry Chemical Physics. Patricia is committed to communicating science, and supporting more women to take up careers in science. She has recently appeared as an invited expert on Radio 4's *In Our Time*, talking about water.

For further information, please see our website at www.LSES.org.uk

Visitors £5.00 Tickets are not issued in advance: please pay at the door.
Students and Members must sign in.

This lecture is expected to finish by 10.00 pm.