



c/o Scientific Generics Limited

Harston Mill

Harston

Cambridge CB2 5GG

Telephone: +44 (0) 1223 875200

Facsimile: +44 (0) 1223 875201

(Organising Secretary's Home Number: 01799 525 948)

email: [richard.freeman@genericsgroup.com](mailto:richard.freeman@genericsgroup.com)

CAMBRIDGE SOCIETY FOR THE APPLICATION and  
APPRECIATION of RESEARCH

**DON'T FORGET:** CSAR SUMMER VISIT TO THE SANGER  
CENTRE, MONDAY AFTERNOON (also 22<sup>nd</sup> May)

**“AN ALTERNATIVE  
to the  
INFERNAL COMBUSTION ENGINE?”**

**Modern Fuel Cells**

Prof. John A. Kilner  
Department of Materials  
Imperial College, London SW7 2AZ

**7.30 p.m., Monday 22<sup>nd</sup> May, 2006**

The Wolfson Lecture Theatre, Churchill College, Storey's Way, Cambridge

**Chair:** Prof Tony Kelly, Dept. of Materials Science and Metallurgy, University of  
Cambridge

**Vote of Thanks:** Michael Priestnall, CMR Fuel Cells Limited, Harston

**About the lecture** (Professor Kilner writes.....)

“A fuel cell is a device for the electrochemical conversion of chemical to electrical energy, similar to a battery, where the reactants are continuously replenished. The term fuel cell covers a range of related devices, each with distinct advantages and disadvantages and with different application areas. Fuel cells have been known for over 150 years but modern fuel cells are attracting particular attention because they offer the possibility of efficient, clean and scalable power units, using a variety of fuels, for applications ranging from mobile electronics (mW to W), and motive power for automobiles (kW), to stationary power generation on the MW scale.”

**COUNCIL**

**Prof. Sir Sam Edwards FRS**  
*President*  
(Dept. of Physics, Cavendish Laboratory)

Prof. Haroon Ahmed ScD FREng  
(Dept. of Physics, Cavendish Laboratory)  
Prof. Derek Burke CBE, DL  
(former VC of the University of East Anglia)  
Prof. Brian J Ford CBiol, FIBiol, FLS, NESTA  
Fellow and Fellow of the Cardiff University

**Dr. Richard Jennings** *Vice President*  
(Research Services Division)  
**Mr. Robin Bligh FCA** *Corporate Secretary*

Dr. David Fyfe  
(Cambridge Display Technology)  
Prof. Elizabeth (Lisa) Hall FRSC  
(Institute of Biotechnology)  
Prof. Laurie Hall FRS(Can), FRSC (Life Fellow,  
Emmanuel College)

**Dr. Richard Freeman FRSA FIFST**  
*Organising Secretary*  
(Scientific Generics)  
**Elizabeth Platts** (Organising Sec<sup>c</sup>(Visits).)  
Prof. Anthony Kelly CBE FREng FRS  
(Materials Science & Metallurgy Dept)  
Mr. Ian Kent  
(Innovata plc, Ardana plc and Intercytex plc)  
Mr. Chris Smart  
(IDG Ventures Europe)

Readers may learn more about fuel cells from the following  
<http://www.nae.edu/NAE/bridgecom.nsf/weblinks/CGOZ-6KJTS3?OpenDocument>  
[http://inventors.about.com/od/fstartinventions/a/fuel\\_cell\\_plant.htm](http://inventors.about.com/od/fstartinventions/a/fuel_cell_plant.htm)  
[http://www.utcpower.com/fs/com/bin/fs\\_com\\_Page/0,9235,03557,00.html](http://www.utcpower.com/fs/com/bin/fs_com_Page/0,9235,03557,00.html)

### **About the Speaker** (J. A. Kilner FIMMM FInstP.)

John Anthony Kilner received his Ph.D. from the Dept. of Physical Metallurgy & Science of Materials, University of Birmingham, in 1975. He then served as a Research Fellow at the University of Leeds, and later became Lecturer and Reader in Materials at Imperial College prior to his appointment as Professor of Materials at in 1995. He is currently a co-director of the UK Energy Research Centre (UKERC) and has also served as Head of the Department of Materials from 2000 to 2005 and Dean of the Royal School of Mines from 1998 to 2000.

Throughout his career John Kilner has attempted to mix together fundamental studies of mass transport in oxide ceramics with the technological development of devices. Early in his career he had to develop techniques for measuring oxygen transport in ceramic materials. This has led him to the development of the SIMS technique for this purpose. His current research is on fundamental studies directed towards the development of materials for two main technological goals: Intermediate Temperature Solid Oxide Fuel Cells (ITSOFC's) and Ceramic Oxygen Generators (COG's).

John Kilner is co-founder, consultant and shareholder of CeresPower Ltd. a spin out company formed at Imperial College to commercialise intermediate temperature fuel cell technology. In conjunction with Ceres Power he is involved in the development of intermediate temperature fuel cells operating at 550°C based on metal supported ceramic membranes.

For his contributions to the field of solid oxide fuel cells John received the Christian Friedrich Schönbein Gold Medal of Honour in 2004, as well as the IOMMM Verulam prize and medal and the Royal Society Armourers and Brasiers award in 2005.

### **The Organising Secretary adds.....**

Fuel cells are one of these intriguing electrochemical devices which are always promising to save the planet, but no-one can ever quite say 'when'. The only example I know of where fuel cells are actually used as a primary source of power is on space shuttle; where they do have the raw fuels in somewhat abundance (hydrogen and oxygen); see references, above. But who knows, one day.....

Our Vote of Thanks will be Dr Priestnall, formerly of Scientific Generics and now director of CMR Fuel Cells - a Generics spin-out company. Michael will know all about the problems with making practical, working fuel cells, and I am sure will be available to answer questions after Professor Kilner's lecture.

**Coffee available**, as usual, in the foyer outside the lecture theatre from ~7.00 p.m.

**As is now our custom, we shall charge non-members a nominal sum for entry.** These provide a valuable contribution to CSAR funds.

Richard Freeman  
CSAR Organising Secretary