

Japan-UK Science, Technology & Innovation Symposium 2013 in London

Lithium Ion Battery The Inception, Development, and Future

Symposium by the inventor of the lithium ion battery; Doctor Akira Yoshino (Asahi Kasei Corporation, Japan) and Professor Anthony R. West (The University of Sheffield, UK) on Tuesday, March 5th, 2013, at Embassy of Japan in the United Kingdom

Doctor Akira Yoshino



Professor Anthony R. West



At this symposium, Dr. Yoshino will lecture on “*The course of development of the lithium-ion battery and outlook for the future*”, and Professor West will lecture on “*Overview of materials development for lithium battery applications in Li-ion batteries*”.

The symposium is focused on highlighting the development and future of the lithium-ion battery (LIB), gaining perspective on the key to success in research and development, know-how in launching a new business, and how to forecast future market developments.

The current commercial LIB was invented by Dr. Yoshino in 1985. With its small size and light weight, the LIB rapidly became the mainstream in mobile phones, laptop computers, and many other portable electronic devices which have extended access to information throughout society. The global LIB market has grown to some seven billion UK pounds (one trillion Japanese yen), and the research is increasingly concentrated on application of the LIB to large-scale systems including transportation, load-leveling in smartgrids, and stationary power storage.

Co-hosts Embassy of Japan in the UK / The Chemical Society of Japan / Asahi-Kasei Corporation

Supported by Royal Society of Chemistry

Date: Tuesday, March 5th, 15:00-17:15, followed by Reception Party

Venue: Embassy of Japan in the UK

101-104 Piccadilly, London W1J 7JT

<http://www.uk.emb-japan.go.jp/en/embassy/index.html#locmap>

Registration: RSVP no later than February 28th through

<http://www.rsc.org/ConferencesAndEvents/conference/alldetails.cfm?evid=112885>

***Note that all visitors to the Embassy are required to show your Photo ID as well as the registration form to this Symposium at the entrance.**

***Dress code for this event is lounge suits.**

Fee: Registration of the Symposium and reception party is free.

Symposium Programme

14:30-15:00	Registration
■ 15:00-15:05	Master of Ceremony Mr. Atsushi Oku, First Secretary ; Embassy of Japan in the UK
15:00-15:05	Welcome Mr. Nobuyuki Kawashima, Executive Director, The Chemical Society of Japan
15:05-15:15	Opening Remarks H.E. Mr. Keiichi Hayashi, Ambassador of Japan
■ 15:15-16:15	Chairman Dr. Fumiaki Kawakami, General Manager; Asahi Kasei Corporation
15:15-16:15	Dr. Akira Yoshino, Asahi Kasei Corporation <i>'The course of development of the lithium-ion battery and outlook for the future'</i>
16:15-17:15	Professor Anthony R. West, The University of Sheffield <i>'Overview of materials development for lithium battery applications'</i>
17:15-17:30	Closing Remarks
17:30-	Reception Party

Profile of Dr. Akira Yoshino

Akira Yoshino (born in 1948 in Osaka) is a Japanese chemist. In 1972 he received an M.S. from the Department of Petrochemistry, Graduate School of Engineering, Kyoto University, and entered Asahi Kasei Corp. In 2003 he became a Fellow at Asahi Kasei Corp. In 2005 he received a Dr. Eng. from the Graduate School of Engineering, Osaka University, and became General Manager, Yoshino Laboratory, Asahi Kasei Corp. In 2010 he became President of the Lithium Ion Battery Technology and Evaluation Center (LIBTEC). In 2011 he became Adjunct Professor, Graduate School of Engineering, Kyoto University. In 2012 he became a Fellow of the Chemical Society of Japan.

Abstract

The course of development of the lithium-ion battery and outlook for the future

The lithium ion battery (LIB) is defined as "a nonaqueous secondary battery using transition metal oxides containing lithium ion such as LiCoO_2 as a positive electrode and carbonaceous material as a negative electrode."

The LIB is widely used in the power supply of mobile phones, laptop computers, and various other portable electronic devices, and its use is now expanding into electric vehicles and stationary power storage applications. Many twists and turns occurred between 1981, when the development of the lithium-ion battery began, and the present day. The lecture describes the course of development, including several anecdotes about interesting incidents which occurred along the way. Based on this experience, Dr. Yoshino offers his perspective on the key to success in research and development, know-how in launching a new business, and how to forecast future market developments.

Major Awards

- 1999 Fiscal 1998 Chemical Technology Prize, from the Chemical Society of Japan
- 1999 Battery Division Technology Award, from The Electrochemical Society
- 2001 Ichimura Prizes in Industry—Meritorious Achievement Prize, from the Ichimura Foundation
- 2004 Medal with Purple Ribbon, from the Government of Japan
- 2011 Yamazaki-Teiichi Prize, from the Foundation for Promotion of Material Science and Technology of Japan
- 2011 C & C Prize, from the NEC C & C Foundation
- 2012 IEEE Medal for Environmental and Safety Technologies, from the Institute of Electrical and Electronics Engineers

Profile of Professor Anthony R. West

Personal Details:

Anthony Roy WEST, married, two children, date of birth 21/01/47.

Work: The University of Sheffield, Department of Materials Science and Engineering, Mappin Street, Sheffield, S1 3JD,
tel: 0114 222 5501, fax: 0114 222 5943, e-mail: a.rwest@sheffield.ac.uk.

Further details are available here: <http://www.shef.ac.uk/materials/staff/arwest01.html>

Education:

Harvey Grammar School, Folkestone, 1957-64; University College, Swansea, 1964-8, BSc; University of Aberdeen, 1968-71, PhD;
University of Aberdeen, 1984, DSc.

Current Post:

Professor of Materials Science and Engineering, Department of Materials Science and Engineering, University of Sheffield,
since 1999 (Head of Department 1999-2007).

Previous Posts:

Professor of Chemistry, University of Aberdeen, 1989-1999; previously lecturer (from Apr 1971), senior lecturer and reader.
Visiting positions at: Universidad Carlos III de Madrid, 2008, NIRIM, Japan, 2001, UNS, Argentina, 1997, Universidad de
Barcelona, 1996, Tokyo Institute of Technology, 1992, Moscow State University, 1991, Science University of Tokyo, 1989,
University of Stockholm, 1986, GIRIO, Osaka, 1985, UNAM Mexico City, 1976 and 1983.

Society Fellowships:

Royal Society of Edinburgh, FRSE; Institute of Materials, Minerals and Mining, FIMMM; Royal Society of Chemistry, FRSC,
CChem; Institute of Physics, FInstP, CPhys.

Honours and Awards:

Catedra de Excelencia, Universidad Carlos III de Madrid, 2008/9; Griffiths Medal and Prize, Institute of Materials, Minerals and
Mining, 2008; Epsilon de Oro award, Spanish Society of Ceramics and Glass, 2007; The Chemical Record Lecturership, Chemical
Societies of Japan, 2006; Royal Society of Chemistry Industrial Award in Solid State Chemistry, 1996; Royal Society of Edinburgh
Research Support Fellowship, 1988-1989.

Society Activities:

Royal Society of Chemistry: Founding scientific editor and editorial board chairman of Journal of Materials Chemistry,
launched in 1991 on my initiative. Founding Chairman of the Materials Chemistry Forum, also launched on my initiative and
which now has Divisional status within the RSC. Organiser of the First International Conference on Materials Chemistry, MC1,
Aberdeen 1995 and the First Materials Discussion MD1, Bordeaux 1998;

International Union of Pure and Applied Chemistry, IUPAC: President of Division II, Inorganic Chemistry, 2004-7;
previously Vice President and Titular Member

Current Editorial Board Memberships: Materials Research Bulletin, The Chemical Record (Japan), Solid State Sciences,
Journal of Electroceramics.

Research: Supervision:

Principal supervisor of 45 PhD graduates with 6 current PhD students. Supervisor of >20 postdoctoral researchers on research
grants. Host for >50 self-funded, overseas research visitors for period of 3 months – 2 years.

International Conference Organiser

- 3rd Zing Conference on Solid State Chemistry, Lanzarote, Spain, February 2012.
- 10th European Conference on Solid State Chemistry, ECSSCX, Sheffield, August 2005.
- 1st Materials Chemistry Discussion, MD1, Bordeaux, September 1998.
- 1st International Conference on Materials Chemistry, MC1, Aberdeen, July 1995.

Publications:

More than 445 publications in refereed international journals, including 6 Letters to Nature. Two books: "Solid State
Chemistry and its Applications", Wiley 734pp, (1984); "Basic Solid State Chemistry", Wiley 480pp, 1988, 1999, both of which are
standard University-level texts, worldwide and are translated into several languages. H-index: 49. Citations currently >700 pa.