



Professor Alexander BOKSENBERG CBE FRS FInstP PhD Dhc(mult)

He is a Fellow of the Royal Society (the UK academy of science), Chair of the UK National Commission for UNESCO and Chair of its Natural Sciences Committee, Honorary Professor of Experimental Astronomy in the University of Cambridge, Extraordinary Fellow of Churchill College in Cambridge, Visiting Professor of Physics and Astronomy and Fellow of University College London, and Executive Editor of *Experimental Astronomy* (Springer).

Formerly Director of the Royal Greenwich Observatory and the Royal Observatory, Edinburgh, he was responsible for the design and construction of UK major astronomical telescopes and operation of the UK Observatory facilities in the Canary Islands and Hawaii. Concurrently he worked on the international Gemini Telescopes project and became its UK Director. Prior to his Directorship of the Royal Observatories he was Professor of Physics and Astronomy at University College London, developing new instrumentation of extraordinary sensitivity for space and ground-based astronomy, in particular the revolutionary Image Photon Counting System. He is responsible for the design of major astronomical instrumentation on the Hubble Space Telescope and the International Ultraviolet Explorer Satellite based on equipment he had invented, and for instrumentation of several other international space and ground-based observatories. From his extensive activities in astrophysics research and instrument development he established a new active area of cosmology that has yielded crucial information on the properties of the early Universe. In Cambridge he researches on the evolution of galaxies and the intergalactic medium using the 10-metre Keck Telescopes in Hawaii and the Hubble Space Telescope. He has over 240 publications in learned journals and books.

In 1999 he was nominated by the Royal Society as member of the Foundation Committee for establishing the UK National Commission, then becoming Chair of the Science Committee and member of Council. When the National Commission was terminated in 2003 he successfully led a large Campaign Group for its reinstatement, and in April 2004 became Chair of the new National Commission, with additional responsibility as Chair of the Natural Sciences Committee. He works closely with the UNESCO Natural Sciences Sector in Paris and has enabled cooperative action in science on many fronts with Departments of Her Majesty's Government and with other UK institutions. In the National Commission he has strongly promoted sustainable capacity building in Africa across all programme sectors. At the UNESCO General Conferences in 2003 and 2005 he represented the Sciences on behalf of the UK. He initiated a full review of the Natural Sciences and the Social & Human Sciences programmes, to be carried out with direct engagement of Member States, for effect in the term 2008-2013.

For UNESCO, he is a member of the Scientific Council of UNESCO's Regional Bureau for Science and Culture in Europe (BRESCE) and a member of its Science and Culture Working Group, and was a member of BRESCE's Task Force for Reconstruction of Scientific Cooperation in SE Europe and Chair of its Working Group on Restoring Human Potential. In 2003 and 2004 he toured institutions in SE Europe and the Ukraine on behalf of BRESCE and developed regional cooperative projects in science, particularly astronomy, linking eleven countries. He was a member of UNESCO's Committee of Experts for establishing the new International Basic Sciences Programme for capacity building in developing countries and of the group of International Experts for defining the UNESCO World Heritage Centre's new thematic programme *Astronomy and World*

Heritage. He is a member of the international joint panel of adjudicators for the UNESCO Science Prize and the Javed Husain Prize for Young Scientists. He is currently participating in the overall review of UNESCO's work in the sciences.

As Director of the Royal Observatories he was responsible for providing and developing leading astronomical research facilities, for the university communities in the UK and partner countries. This extended to four sites involving 350 staff. The underlying feature of his functions was their fundamentally formative nature, from re-organising the work and structure of the Observatories to gain utmost relevance, effectiveness, efficiency and sustainability, to construction of major new telescopes, instrumentation, ICT facilities, and civil infrastructure, to providing operational structure and capability, and staff training. He spent a term as President of the International Scientific Committee of the Canary Islands Observatories. Throughout his Directorship he maintained an active research interest.

During his prior time at University College London he pioneered research in ultraviolet astronomy from observatories above the atmosphere using high-altitude balloons, rockets and satellites, working with the European Space Agency (ESA) and NASA. Major successes were his stabilised balloon-borne telescope and instrumentation for high-dispersion stellar spectroscopy, the Galactic spectrum-scanning sky-survey telescope on the ESA satellite TD-1, the UK-NASA-ESA International Ultraviolet Explorer satellite observatory, and the NASA-ESA Hubble Space Telescope Faint Object Camera. The latter instrument was based on his invention the Image Photon Counting System (IPCS), which he conceived as a fundamentally new approach to the detection of optical and ultraviolet signals at the quantum level. This revolutionised the approach to astronomical instrumentation, its use vastly increasing the power of all telescope facilities. This or similar systems modelled on it were accepted as standard equipment by major observatories worldwide. With this he developed a new field of observational cosmology requiring high-dispersion spectroscopy of extremely distant, therefore faint, quasars, which revealed the content and physical properties of galaxies and the intergalactic medium back to a time near the beginning of the Universe. This became possible only because of the high sensitivity and spatial resolution and very low internal noise of the IPCS. This field has developed as a major contributor to understanding how the Universe evolved from the Big Bang to the present day.

He is a founding member of the Academia Europaea and the European Astronomical Society, Chair of the Royal Society South-East Asia Scientific Exchanges Panel dealing in scientific cooperation and human mobility, Chair of the UK-Japan N+N Board on Cooperation in Astronomy dealing in joint strategic issues, Chair of the Institute of Physics Ethics Committee and previously member of its Women in Physics Committee. He was Master of the Worshipful Company of Clockmakers (now Past Master) and President of the British Horological Institute. He has served on the Councils of the Royal Society, Royal Astronomical Society, Institute of Physics, Churchill College and the UK Science Research Council, and is past member or chair of more than sixty other Councils, Committees and similar bodies.

He has been awarded Docteur Honoris Causa by the Observatoire de Paris, Doctor of Science Honoris Causa by the University of Sussex, Commander of the Most Excellent Order of the British Empire (CBE), Asteroid Boksenberg as named by the International Astronomical Union, the Royal Society Hughes Medal, the Institute of Physics Glazebrook Medal and Prize, and the Royal Astronomical Society Jackson Gwilt Medal and Gift.

November 2006

Professor Alexander Boksenberg CBE FRS PhD Dhc(mult)

CURRICULUM VITAE

Present Appointments

- 1991- Honorary Professor of Experimental Astronomy, University of Cambridge
- 1996- Extraordinary Fellow of Churchill College, Cambridge
- 1995- Executive Editor of Experimental Astronomy (Springer)
- 1981- Visiting Professor of Physics and Astronomy, University College London
- 2004- Chairperson of the United Kingdom National Commission for UNESCO

Past Appointments (many concurrent)

- 1996-99 Research Professor, Institute of Astronomy, University of Cambridge and Particle Physics & Astronomy Research Council Senior Research Fellow, Universities of Cambridge and London
- 1993-96 Director of the Royal Observatories (Royal Greenwich Observatory, Cambridge; Royal Observatory, Edinburgh; Isaac Newton Group of Optical Telescopes, Canary Islands; Joint Astronomy Centre, Hawaii)
- 1993-96 UK Director of the international Gemini 8-metre Telescopes Project
- 1981-93 Director of the Royal Greenwich Observatory, Cambridge and Herstmonceux Castle
- 2000-01 Master of the Worshipful Company of Clockmakers
- 2000-01 President of the British Horological Institute
- 1981-89 Visiting Professor of Astronomy, University of Sussex
- 1978-81 Professor of Physics and Astronomy, University College London
- 1976-81 Science Research Council Senior Fellow
- 1975-78 Reader in Physics, University College London
- 1969-81 Chairman, New Industrial Concepts Ltd

- 1969-81 Head of the Ultraviolet and Optical Astronomy Research Group,
University College London
- 1965-75 Lecturer in Physics, University College London
- 1960-65 Postdoctoral Research Fellow, University College London

Fellowships of Academies, Honorary Appointments, Honours and Awards

- 2000 Institute of Physics Glazebrook Medal and Prize
- 1999 Royal Society Hughes Medal
- 1998 Royal Astronomical Society Jackson Gwilt Medal and Gift
- 1998 Fellow of the Institute of Physics (FinstP)
- 1996 Commander of the Most Excellent Order of the British Empire (CBE)
- 1996 37th Herstmonceux Conference "The Hubble Space Telescope and the
High Redshift Universe" in Honour of the 60th Birthday of Professor
Alec Boksenberg
- 1991 Fellow of University College London
- 1991 Doctor of Science Honoris Causa, University of Sussex
- 1988 Asteroid (3205) Boksenberg named
- 1982 Docteur Honoris Causa, Observatoire de Paris
- 1978 Fellow of the Royal Society (FRS)
- 1981-82 Sherman Fairchild Distinguished Scholar, California Institute of
Technology

Other Fellowships, Memberships and Appointments

- 1995- Honorary President of the Astronomical Society of Glasgow
- 1990- Member of the Athenaeum Club
- 1990- Founding Member of the European Astronomical Society
- 1989- Founding Member of the Academia Europaea
- 1984-95 Fellow of the Royal Society of Arts, Manufactures and Commerce
- 1978- President of the West of London Astronomical Society
- 1965- Fellow of the Royal Astronomical Society (FRAS)

Committees, Boards and Councils

- 2006- Member of the UNESCO International Review Committee of Experts for Overall Review of Major Programmes: Natural Sciences and Social & Human Sciences
- 2005- Member of the Universe Awareness International Steering Committee
- 2004- Member of the International Joint Panel of the UNESCO Science Prize and the Javed Husain Prize for Young Scientists
- 2004- Chairperson of the UK National Commission for UNESCO
- 2004- Chairperson of the Natural Sciences Committee of the UK National Commission for UNESCO
- 2004- Chairman of the Institute of Physics Ethics Committee
- 2004 Member of the ICSU Working Group on Basic Sciences and Research
- 2004 Member of the UNESCO World Heritage Centre Committee of International Experts on Astronomy and World Heritage
- 2003-04 Chairman of the Steering Committee of the UK National Commission for UNESCO Campaign Group
- 2003- Member of the University of Cambridge Language Centre Management Committee
- 2002-03 Member of the Institute of Physics Women in Physics Working Group
- 2002-03 Chairman of the Royal Astronomical Society Awards Committee A
- 2002-03 Chairman of the UNESCO Regional Bureau for Science in Europe Working Group on Restoring Human Potential in SE Europe
- 2002-04 Member of the UNESCO Committee of Experts for developing an International Basic Sciences Programme
- 2001- Member of the Scientific Council of the UNESCO Regional Bureau for Science in Europe
- 2001-03 Member of the Council of the Institute of Physics
- 2001-03 Member of the UNESCO Regional Bureau for Science in Europe Task Force for the Reconstruction of Scientific Cooperation in SE Europe
- 2000-03 Member of Council, Vice-President and Trustee of the Royal Astronomical Society
- 2000-03 Member of the Council of the UK National Commission for UNESCO

2000-03	Chairman of the UK National Commission for UNESCO Science Sector Committee
2000-	Chairman of the Royal Society SE Asia Scientific Exchanges Panel
1999-2000	Chairman of the Particle Physics & Astronomy Research Council VISTA Review Board
1999	Member of the UK National Commission for UNESCO Foundation Committee
1998-2003	Member of the Council of Churchill College, Cambridge
1997-98	Member of the Royal Society Technical Support Steering Group
1997-	UK Chairman of the UK-Japan N+N Board on Cooperation in Ground-Based Astronomy
1997-2000	Member of the International Astronomical Union Finance Committee
1996-	Member of the Cambridge Philosophical Society
1995-97	Member of the Council and Trustee of the Royal Society
1993-97	Member of the European Southern Observatory Visiting Committee
1993-94	Member of the USA Gemini Telescopes Oversight Committee
1992-93	Chairman of the UK Gemini Telescopes Steering Committee
1992-93	Chairman of the Gemini Telescopes Project International Expert Review Committee
1992-	Member of the Court of the Worshipful Company of Clockmakers
1991-95	Member of the Fachbeirat of the Max-Planck-Institut für Astronomie
1990-91	Member of the Hubble Space Telescope Users Committee
1989-92	Member of the Anglo-Australian Telescope Board (Deputy Chairman 1992)
1987-91	Member of the British Council Science Advisory Committee
1984-86	President of the International Scientific Committee of the Canary Islands Observatories
1980-81	Chairman of the Science Research Council Astronomy II Committee
1978-85	Member of the South African Astronomical Observatory Advisory Committee

- 1973-95 Member of the European Space Agency Hubble Space Telescope Faint Object Camera Instrument Definition Team
- 1970-2006 Past Member or Chairman of more than 40 other Boards, Councils, Courts, Committees or Panels

Lecture Tours

- 1989 Russia (Royal Society and Russian Academy of Sciences)
- 1995 China (Royal Society and Chinese Academy of Sciences)
- 1999 India (British Council - "Bright Sparks")
- 1999 Japan (Royal Society and Japan Academy)

Bibliography

Books:

Modern Technology and its Influence on Astronomy – Editor (1990)

Papers:

More than 240 contributions

November 2006