Professor Margaret G. Kivelson

Department of Earth and Space Sciences and Institute of Geophysics and Planetary Physics
University of California, Los Angeles.

Margaret Kivelson is Distinguished Professor of Space Physics in the Institute of Geophysics and Planetary Physics (Acting Director in 1999-2000) and the Department of Earth and Space Sciences (Chair from 1984-1987) at UCLA where she has served since 1967. Her research interests are in the areas of solar terrestrial physics and planetary science.

She is known for work on the particles and magnetic fields of interplanetary space and the wave excitations that couple them. Her research has focused on Earth, Jupiter, Saturn and Jupiter's Galilean moons. She was the Principal Investigator for the Magnetometer on the Galileo Orbiter that acquired data in Jupiter's magnetosphere for eight years and is a Co-I on various other investigations including the FGM (magnetometer) of the NASA-ESA Cluster mission.

Kivelson obtained her A.B. in 1950 and her A.M. and Ph.D. in 1952 and 1957, respectively, from Radcliffe College, Harvard University. Her honors include a Guggenheim Fellowship (1973-74), the Radcliffe Graduate Society Medal (1983), the Harvard University 350th Anniversary Alumni Medal (1986), several NASA Group Achievement Awards, and memberships in the American Academy of Arts and Sciences, the National Academy of Sciences and the American Philosophical Society, the oldest scholarly society in the United States. She is a Fellow of the American Geophysical Union, the American Physical Society, the International Academy of Astronautics, and the American Association for the Advancement of Science. She was awarded the Alfvén Medal of the European Geophysical Union and the Fleming Medal of the American Geophysical Union in 2005. She has served on numerous advisory committees including the Space Studies Board of the National Research Council and on scientific Visiting Committees at Harvard, various campuses of the University of California and the Jet Propulsion Laboratory.

Kivelson has published more than 290 research papers and is co-editor of a widely used textbook on space physics. She has presented numerous seminars and invited talks at scientific conferences. In addition, she lectures on space research to K-12 students and other general audiences. She has been active in efforts to identify the barriers faced by women as students, faculty and practitioners of the physical sciences and to improve the environment in which they function.

Organizing committee:

Professor Alv Egeland, Department of Physics, University of Oslo
Professor Tore Amundsen, Department of Physics, University of Oslo
Professor Reidun Sirevåg, Secretary General, the Norwegian Academy of Science and Letters
Ingegerd K. Rafn, Senior Vice President, Yara International ASA

The Birkeland Lecture is open for everybody. There is no registration. Free admission.

For more information about the Birkeland Lecture 2006:
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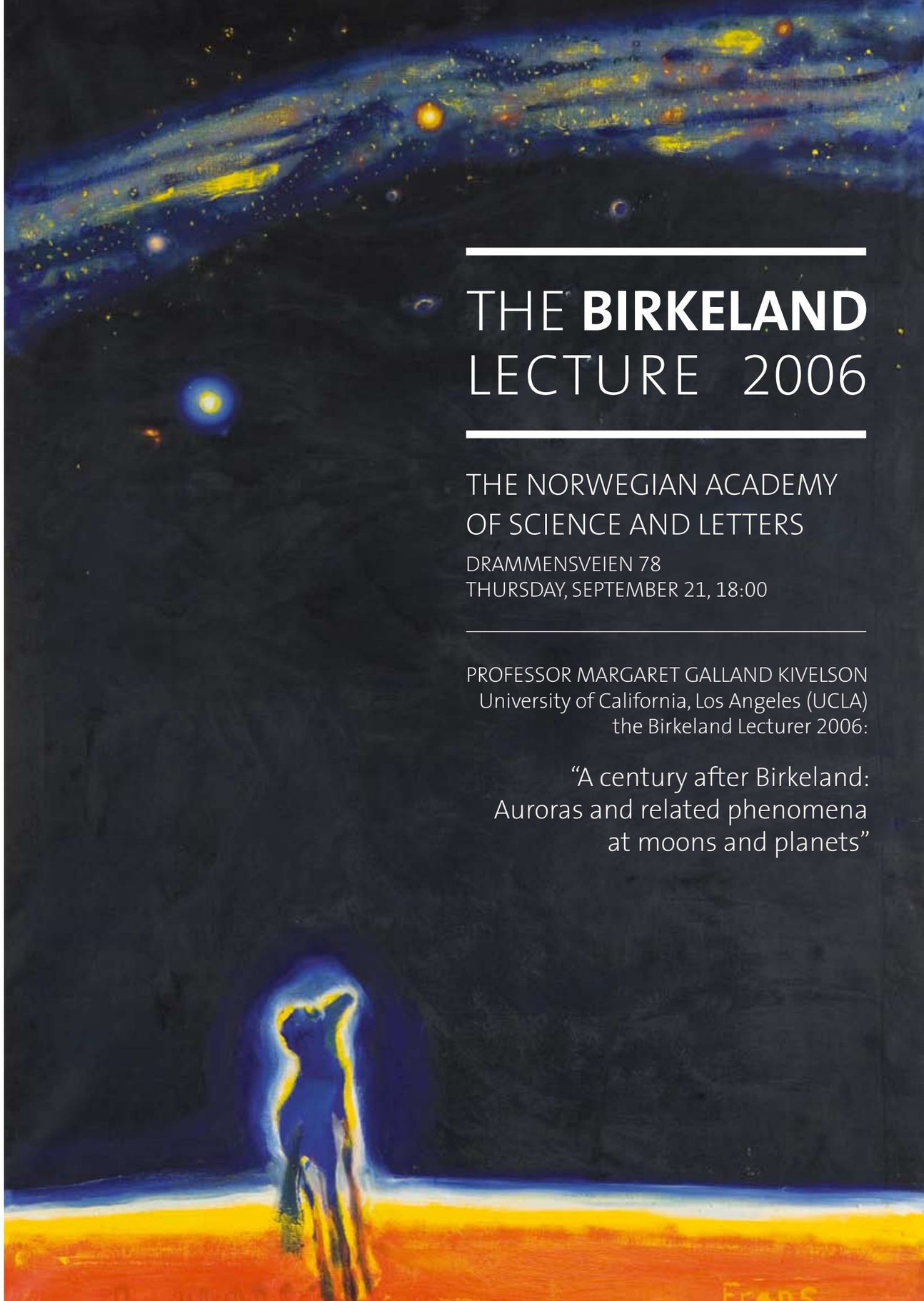


THE **BIRKELAND** LECTURE 2006

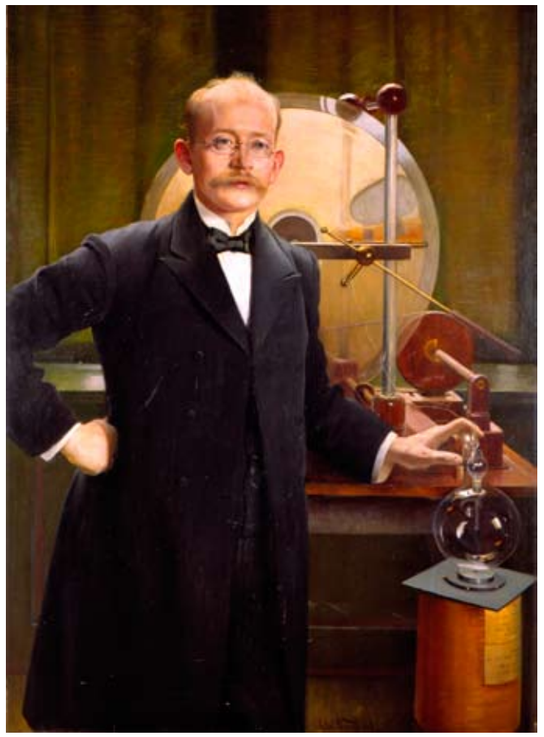
THE NORWEGIAN ACADEMY OF SCIENCE AND LETTERS

DRAMMENSVEIEN 78
THURSDAY, SEPTEMBER 21, 18:00

PROFESSOR MARGARET GALLAND KIVELSON
University of California, Los Angeles (UCLA)
the Birkeland Lecturer 2006:

"A century after Birkeland: Auroras and related phenomena at moons and planets"

This portrait of Professor Kristian Birkeland was painted by Asta Nørregaard in 1906. © Norsk Hydro



The Birkeland Lecture 1987-2006

The University of Oslo has since 1987 organized a Birkeland Lecture in cooperation with the Norwegian Academy of Science and Letters and the Norwegian company Norsk Hydro ASA (from 2004: Yara International ASA). The lecture takes place to commemorate the Norwegian scientist Kristian Birkeland.

Except for 1993 - when the lecture was given in Tokyo - the lectures have been given in Norway, most of them at the Academy in Oslo. Some years seminars have been organized in connection with the lectures, e.g. in 1993 when the lecture was part of a "Joint Japanese-Norwegian Workshop on Arctic Research", and in 1995 when the lecture was part of a seminar on Norwegian environmental research. Also in 2001, when professor D. Southwood from ESA gave the Birkeland Lecture, a workshop on Norwegian space research with emphasis on the Cluster programme was organized at the University of Oslo.

This cooperation with the Academy and Norsk Hydro (from 2004 Yara International ASA) has given the University of Oslo the opportunity to invite many outstanding scientists within the area of geophysical and space research to Oslo, areas which were central in Kristian Birkelands own research:

1987: Hannes Alfvén, Kungliga Tekniska Høgskolan, Stockholm, Sverige:
"The Auroral Research in Scandinavia"
(3 September 1987)

1988: Alex J. Dessler, Rice University, Housten, USA:
"I have it" – Birkeland's quest for research founding"
(Oslo, Norway, 1 June 1988)

1989: T.A. Potemra, The Johns Hopkins University, Applied Physics Laboratory, Laurel, Maryland, USA.:
"Satelite measurements of Birkeland currents" and
Naoshi Fukushima, Tokyo University, Japan:
"Birkeland´s work with the geomagnetic disturbances in relation to modern research"
(Oslo, Norway, 4 October 1989)

1990: James van Allen , University of Iowa, USA:
"On the future of space science and applications"
(Oslo, Norway, 11 October 1990)

1991: Syun-Ichi Akasofu , Geophysical Institute, Fairbanks, Alaska:
"Helio-magnetism"
(University of Oslo, Norway, 24 October 1991)

1992: W. Ian Axford , Max-Planck Institut, Lindauer, Tyskland:
"The origin of cosmic rays"
(University of Oslo, Norway, 24 September 1992)

1993: Takasi Oguti, Solar-Terrestrial Environment Laboratory, Tokyo, Japan:
"Sun-earth energy transfer"
(Tokyo University, Japan, 7 October 1993)

1994: Stanley W.H. Cowley, Imperial College, UK:
"The Solar wind – Magnetosphere-Ionosphere connection"
(The Norwegian Academy of Science and Letters, Oslo, Norway, 22 September 1994)

1995: Anthony L. Peratt, Los Alamos National Laboratory, USA:
"The legacy of Birkeland´s plasma torch"
(University College, Notodden, Norway, 21 September 1995)

1996: Gerard Haerendel, Max Planck Institute, Garching, Tyskland:
"Physics along auroral magnetic field lines"
(University of Oslo, Norway, 19 September 1996)

1998: No lecture, but a "Birkeland event" at Tokyo University 30 September with presentation of a Birkeland bust to Tokyo University, and a mini-seminar at the Norwegian Embassy.

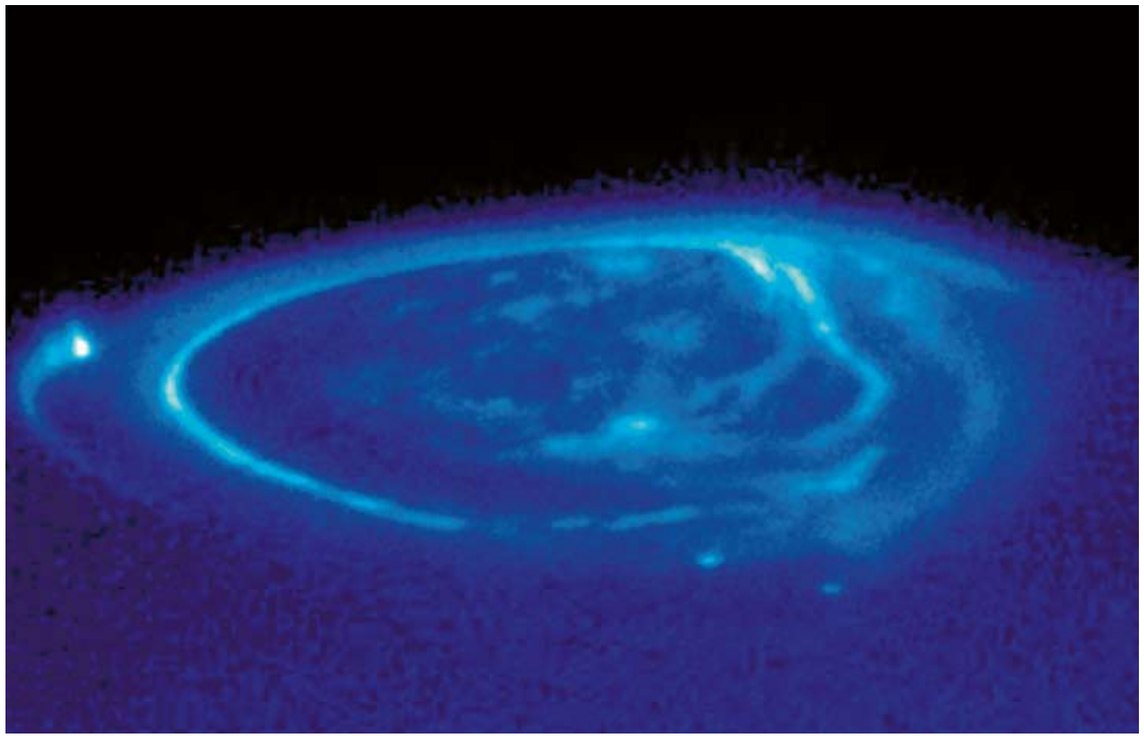
2001: David Southwood, Imperial College, London /
Director of Research ESA, Paris:
"Kristian Birkeland, Science Forever, Lessons for Today"
(The Norwegian Academy of Science and Letters, Oslo, Norway, 20 September 2001)

2002: Alain F. Roux, Centre dÊtude des Env. Terrestres et Planetaires, CETP, Paris:
"Role of Krtistian Birkeland curents in the dynamics of the geomagnetic tail"
(The Norwegian Academy of Science and Letters, Oslo, Norway, 19 September 2002)

2003: Lev M Zelenyi, Space Research Institute, IKI, Moscow, Russia:
"Space Weather"
(The Norwegian Academy of Science and Letters, Oslo, Norway, 19 September 2003)

2004: Catherine G. Coleman, NASA, Houston, USA:
"Our Earth seen from Space"
(University of Oslo, Norway, 23 September 2004)

2005: Wiliam J. Burke, Air Force Geophysics Laboratory, USA:
"Kristian Birkelands Message from the Sun – Its meaning then and now"
(University of Oslo, Norway, 22 September 2005)



A Close-Up of Aurora on Jupiter. Credit: © John T. Clarke (U. Michigan), ESA, NASA

"A century after Birkeland: Auroras and related phenomena at moons and planets"

Professor Margaret Galland Kivelson, UCLA

Kristian Birkeland, the great Norwegian scientist, puzzled over the links between northern lights (more generally, the aurora) and disturbances of the earth's magnetic field. Before the end of his career he had elucidated many features of the process through which electrons and ions gain energy through interactions with magnetic fields in near-Earth space and stream into the upper atmosphere where they excite particles whose glow we observe from the ground. How thrilled he would have been to have shared the discoveries of auroral excitations on other planets and their moons. Today we study auroral processes throughout the solar system using telescopes of great resolving power to provide images and spacecraft measurements to attempt to account for the details. This talk will consider similarities and differences among auroras observed at Earth, Jupiter, Saturn, and the large moons of the latter two. The differing auroral structures arise because there are many different mechanisms for transferring energy from the magnetic field to charged particles but the final step in the process excites atmospheric emissions, as Birkeland would have expected.

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