

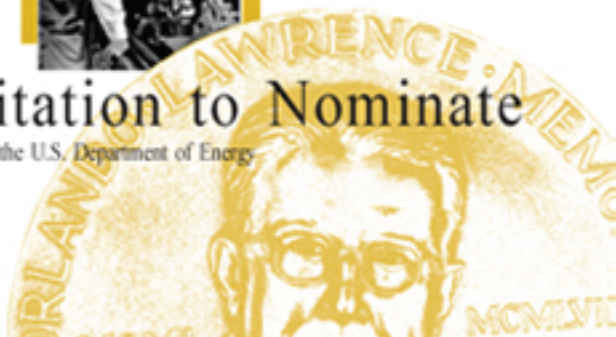
# LOS ALAMOS NATIONAL LABORATORY

## CALL FOR NOMINATIONS

THE ERNEST ORLANDO LAWRENCE AWARD



Invitation to Nominate  
Awarded by the U.S. Department of Energy



### DEADLINES —

submit to LANL Awards Office,  
[awards@lanl.gov](mailto:awards@lanl.gov) or contact  
Cindy Boone at 667-1229

- December 12, 2005  
– submit "[candidates for consideration](#)" form
- December 19, 2005  
– candidates selected
- January 6, 2006  
– nomination package
- January 27, 2006  
– nominations submitted to DOE

## Los Alamos is seeking candidates for nomination to the 2006 E. O. Lawrence Award competition

The E. O. Lawrence Awards honor scientists and engineers at mid-career who have shown promise for the future, for exceptional contributions in research and development supporting the DOE and its mission to advance the national, economic, and energy security of the United States.

Awards are given in the following fields:

Chemistry, Materials Research, Environmental Science and Technology, Life Sciences (including Medicine), Nuclear Technologies, National Security and Non-Proliferation, and High-Energy and Nuclear Physics.

Recipients receive a citation signed by the Secretary of Energy, a 14 karat gold medal bearing the likeness of E. O. Lawrence and a \$50,000 honorarium.

Candidates must be within 20 years of receiving a Ph.D. and a citizen of the United States. Nominations will be judged primarily on the scientific and technical significance of the work to the field rather than for leadership ability.

Names of candidates for consideration are due to the LANL Awards Office by **December 15, 2005**. If your candidate is selected in one of the categories listed above, we will ask you to prepare a nomination package to include a letter of justification that will be sent to DOE under the Director's signature, a curriculum vitae, and a bibliography of significant publications due to the Awards Office no later than **January 6, 2006**.

THE ERNEST ORLANDO LAWRENCE AWARD



Awarded by the U.S. Department of Energy

# Invitation to Nominate





# NOMINATION AND SELECTION PROCEDURES

The Ernest Orlando Lawrence Awards honor scientists and engineers, at mid-career, showing promise for the future, for exceptional contributions in research and development supporting the Department of Energy and its mission to advance the national, economic and energy security of the United States.

## ONE LAWRENCE AWARD IS GIVEN IN EACH OF THE FOLLOWING SEVEN FIELDS:

- Chemistry • Materials Research • Environmental Science and Technology • Life Sciences (including Medicine)
- Nuclear Technologies (Fission and Fusion) • National Security and Non-Proliferation • High Energy and Nuclear Physics

## THE OBJECTIVES OF THE ERNEST ORLANDO LAWRENCE AWARDS ARE:

- to encourage excellence in nuclear science and technology;
- to inspire people of all ages through the examples of Ernest Orlando Lawrence and the Lawrence Award laureates;
- to highlight for the general public the accomplishments of the U.S. scientific community.

## LAWRENCE AWARD RECIPIENTS RECEIVE:

- a citation signed by the Secretary of Energy,
- a 14 karat gold medal bearing the likeness of E.O. Lawrence, and
- a \$50,000 honorarium.

## CRITERIA

- Recipients must be in their mid-careers (defined as within 20 years of receiving a Ph.D.).
- The award is given for a relatively recent achievement (rather than for a lifetime of achievements).
- Recipients must be citizens of the United States.
- Nominations will be judged primarily on the scientific and technical significance of the work to its field (rather than for leadership ability).

## NOMINATION MATERIALS

- Nomination is made by a letter of justification, curriculum vitae, and a bibliography of significant publications. Please omit secondary publications and meetings. Do not include complete articles by the nominee.
- Indicate clearly the field for which the person is being nominated: Chemistry; Materials Research; Environmental Science and Technology; Life Sciences (including Medicine); Nuclear Technologies (Fission and Fusion); National Security and Non-Proliferation; and High Energy and Nuclear Physics.
- A few letters supporting the nomination from individuals who are familiar with the work are helpful. (Please limit to no more than six).

## DEADLINE FOR SUBMISSION

- Nominations should be sent no later than January 31, 2006.
- Send nominations to: Mr. Peter M. Lincoln, SC 1-1, U.S. Department of Energy, 1000 Independence Avenue S.W., Washington, DC 20585.
- If you have questions, contact Mr. Lincoln at the above address, by telephone at (202) 586-9010, or by email at [peter.lincoln@science.doe.gov](mailto:peter.lincoln@science.doe.gov)
- Nominations are not active for more than the current award cycle.

## SELECTION

Approximately 4000 research organizations and individuals are invited to nominate candidates for the Lawrence Awards. The recipients are chosen in a multi-step review process. For each award category, a screening panel of esteemed scientists and engineers representing National Laboratories, universities, and private-sector research organizations reviews the nominations and makes recommendations to the Interagency Awards Committee. The Committee, comprised of senior science executives from major Federal research organizations, reviews the screening panel's recommendations and, in turn, makes recommendations to the Secretary of Energy through the Director, Office of Science. The Secretary of Energy gives the award on behalf of the Department of Energy.

## THE ERNEST ORLANDO LAWRENCE AWARD



October 2005

Dear Colleague:

The Department of Energy invites you to nominate candidates for the Ernest Orlando Lawrence Awards, among the oldest and most prestigious science and technology awards given by the U.S. Government.

The Lawrence Awards honor U.S. scientists and engineers, at mid-career, showing promise for the future, for exceptional contributions in research and development supporting the Department of Energy and its mission to advance the national, economic and energy security of the United States.

Nominees must be U.S. citizens in mid-career and show promise for continued exceptional achievements. We encourage the nomination of women and minority candidates. Detailed information about the nomination procedure is included in this brochure.

The Award consists of a citation signed by the Secretary of Energy, a gold medal, and a \$50,000 honorarium. An award is given in each of the following fields: Chemistry, Materials Research, Environmental Science and Technology, Life Sciences (including Medicine), Nuclear Technologies (Fission and Fusion), National Security and Non-Proliferation, and High Energy and Nuclear Physics.

The Lawrence Award was established in 1959 by the Atomic Energy Commission and President Dwight D. Eisenhower in honor of a scientist who helped elevate American physics to world leadership. Over the past forty-six years, there have been 194 recipients, who are all listed in this brochure. These men and women are among this country's most brilliant and productive scientists and engineers. To learn more about them and their work, please visit the Ernest Orlando Lawrence Award home page at: <http://www.science.doe.gov/lawrence>

Nominations for the award should be sent no later than January 31, 2006. You will find procedures and background information in this brochure.

Thank you for participating in this prestigious awards program.

Sincerely,

Raymond L. Orbach

Director, Office of Science

# ERNEST ORLANDO LAWRENCE



Shortly after E.O. Lawrence's death in August 1958, John A. McCone, Chairman of the Atomic Energy Commission, wrote to President Eisenhower suggesting the establishment of an Ernest O. Lawrence Memorial Award. The President replied, "Such an award would seem to me to be most fitting, both as a recognition of what he has given to our country and to mankind, and as a means of helping to carry forward his work through inspiring others to dedicate their lives and talents to scientific effort." The Ernest Orlando Lawrence Memorial Award was established in November 1959.

## E.O. LAWRENCE

PHYSICIST, ENGINEER, STATESMAN OF SCIENCE\*

“E rnest Orlando Lawrence’s scientific accomplishments and influence on science are almost unique in his generation and rank among the most outstanding in history. His cyclotron was to nuclear science what Galileo’s telescope was to astronomy. A foremost symbol of the rise of indigenous American science in the 20th century, Lawrence, perhaps more than any other man, brought engineering to the laboratory, to the great benefit of scientific progress. He originated a new pattern of research, of the group type and on the grand scale, which has been emulated the world over. Rarely, if ever, has any person given so many others, in such a small span of years, the opportunity to make careers for themselves in science. Lawrence was a leader in bringing the daring of science to technology, in wedding science to the general welfare, and in integrating science into national policy.”

Lawrence was born in Canton, South Dakota, on August 8, 1901, the son of educated Norwegian immigrants. He received his B.A. degree from the University of South Dakota and his M.A. in physics from the University of Minnesota. He continued his studies at the University of Chicago for two years, then transferred to Yale, where he received his Ph.D. in 1925. In 1928, Lawrence went to the University of California as an associate professor and in 1930, at the age of 29, he became the youngest full professor on the Berkeley faculty. His doctoral thesis was in photoelectricity. Later, he made the most precise determination, to that time, of the ionization potential of the mercury atom. With J.W. Beams, he devised a method of obtaining time intervals as small as three billionths of a second, and he applied this technique to study the early stages of electric spark discharge. He originated a new and more precise method for measuring  $e/m$  which was perfected by F.G. Dunnington.

“In 1929 young Lawrence, who for some time had been contemplating the problem of accelerating ions, chanced while scanning the literature, upon a sketch in a German publication. He forthwith formulated, within minutes, the principles of the cyclotron and the linear accelerator and so set himself upon a course that was to influence, fundamentally, scientific research and human events. Between the brilliant, simple concept and operating machines lay engineering barriers not previously encountered. Lawrence’s willingness to tackle new engineering problems and his success in solving them, as he reached for successively new energy ranges, was a departure in scientific research that is an important part of his contribution. The hard road he chose was recognized when W.D. Coolidge, presenting the National Academy of Science’s valued Comstock Prize in 1937, said in part, ‘Dr. Lawrence envisioned a radically different course ... [which] called for boldness and faith and persistence to a degree rarely matched.’ By 1936 the scale of research and supporting engineering development was so large that the Radiation Laboratory was created at the University of California ... The prototype of the big laboratory had been born.”

Lawrence championed interdisciplinary collaboration: he strongly encouraged physicists to work with biologists, and he set up his own radioisotope distribution system, supplying isotopes to hundreds of doctors and numerous institutions in the prewar period. With his brother John, director of the University’s medical center, he used the cyclotron to irradiate malignant tissues with neutrons.

In July 1958, Lawrence traveled to Geneva to take part in developing an agreement on means for detecting nuclear weapon tests. In the midst of negotiations, he became ill and was forced to return to Palo Alto, California, where he died following surgery for ulcerative colitis on August 27, 1958.

Lawrence received many awards, including the Nobel Prize for 1939, the Hughes Medal of the Royal Society, the Medal for Merit, the Faraday Medal, the American Cancer Society Medal, the Enrico Fermi Award, and the first Sylvanus Thayer Award. He was a member of the National Academy of Sciences and the American Philosophical Society and recipient of many honorary degrees and memberships in foreign societies.

\* This sketch was excerpted from “E.O. Lawrence-Physicist, Engineer, Statesman of Science,” by Glenn T. Seaborg, *IEEE Nuclear and Plasma Sciences Society News*, June 1992.

# ERNEST ORLANDO LAWRENCE AWARD RECIPIENTS



2004

Nathaniel J. Fisch  
Bette T. Korber  
Claire E. Max  
Fred N. Mortensen II  
Richard J. Saykally  
Ivan Schuller  
Gregory W. Swift

2002

C. Jeffrey Brinker  
Claire M. Fraser  
Bruce T. Goodwin  
Keith O. Hodgson  
Saul Perlmutter  
Benjamin D. Santer  
Paul J. Turinsky

1998

Dan Gabriel Cacuci  
Joanna S. Fowler  
Laura H. Greene  
Steven E. Koonin  
Mark H. Thiemens  
Ahmed H. Zewail

1996

Charles Roger Alcock  
Mina J. Bissell  
Thom H. Dunning  
Charles V. Jakowatz, Jr.  
Sunil K. Sinha  
Theofanis G. Theofanous  
Jorge Luis Valdes

1994

John D. Boice, Jr.  
E. Michael Campbell  
Gregory J. Kubas  
Edward William Larsen  
John D. Lindl  
Gerard M. Ludtka  
George F. Smoot  
John E. Till

1993

James G. Anderson  
Robert G. Bergman  
Alan R. Bishop  
Yoon Chang  
Robert Moyzis  
John W. Shaner  
Carl Weiman

1991

Zachary Fisk  
Richard Fortner  
Rulon Linford  
Peter Schultz  
Richard Smalley  
J. Pace VanDevender

1990

John J. Dorning  
James N. Norris  
S. Thomas Picraux  
Wayne J. Shotts  
Maury Tigner  
F. Ward Whicker

1988

Mary K. Gaillard  
Richard T. Lahey, Jr.  
Chain T. Liu  
Gene H. McCall  
Alexander Pine  
Joseph S. Wall

1987

James W. Gordon  
Miklos Gyulassy  
Sung-Hou Kim  
James L. Kinsey  
J. Robert Merriman  
David E. Moncton

1986

James J. Duderstadt  
Helen T. Edwards  
Joe W. Gray  
C. Bradley Moore  
Gustavus J. Simmons  
James L. Smith

1985

Anthony P.  
Malinauskas  
William H. Miller  
David R. Nygren  
Gordon C. Osbourn  
Betsy M. Sutherland  
Thomas A. Weaver

1984

Robert W. Conn  
John J. Dunn  
Peter L. Haglestein  
Siegfried S. Hecker  
Robert B. Laughlin  
Kenneth N. Raymond

1983

James F. Jackson  
Michael E. Phelps  
Paul H. Rutherford  
Mark S. Wrighton  
George B. Zimmerman

1982

George F. Chapline  
Mitchell J. Feigenbaum  
Michael J. Lineberry  
Nicholas J. Turro  
Raymond E. Wildung

1981

Martin Blume  
Yuan T. Lee  
Fred R. Mynatt  
Paul B. Selby  
Lowell L. Wood

1980

Donald W. Barr  
B. Grant Logan  
Nicholas P. Samios  
Benno P. Schoenborn  
Charles D. Scott

1977

Dean A. Waters  
F. William Studier  
John L. Emmett  
Gareth Thomas  
James D. Bjorken

1976

A. Phillip Bray  
James W. Cronin  
Kaye D. Lathrop  
Adolphus L. Lotts  
Edwin D. McClanahan

1975

Evan H. Appleman  
Charles E. Elderkin

William A. Lokke  
Burton Richter  
Samuel C.C. Ting

1974

Joseph Cernev  
Harold P. Furth  
Henry C. Honeck  
Charles A. McDonald  
Chester R. Richmond

1973

Louis Baker  
Seymour Sack  
Thomas E.  
Wainwright  
James R. Weir  
Sheldon Wolff

1972

Charles C. Cremer  
Sidney D. Drell  
Marvin Goldman  
David A. Shirley  
Paul F. Zweifel

1971

Thomas B. Cook  
Robert L. Fleischer  
Robert L. Hellens  
P. Buford Price  
Robert M. Walker

1970

William J. Bair  
James W. Cobble  
Joseph M. Hendrie  
Michael M. May  
Andrew M. Sessler

1969

Geoffrey F. Chew  
Don T. Cromer  
Ely M. Gelbard  
F. Newton Hayes  
John H. Nuckolls

1968

James R. Arnold  
E. Richard Cohen  
Val L. Fitch  
Richard Latter  
John B. Storer

1967

Mortimer M. Elkind  
John M. Googin  
Allen F. Henry  
John O. Rasmussen  
Robert N. Thorn

1966

Harold M. Agnew  
Ernest C. Anderson  
Murray Gell-Mann  
John R. Huizenga  
Paul R. Vanstrum

1965

George A. Cowan  
Floyd M. Culler  
Milton C. Edlund  
Theodore B. Taylor  
Arthur C. Upton

1964

Jacob Bigeleisen  
Albert L. Latter  
Harvey M. Patt  
Marshall N. Rosenbluth  
Theos J. Thompson

1963

Herbert J.C. Kouts  
L. James Rainwater  
Louis Rosen  
James M. Taub  
Cornelius A. Tobias

1962

Andrew A. Benson  
Richard P. Feynman  
Herbert Goldstein  
Anthony L. Turkevich  
Herbert F. York

1961

Leo Brewer  
Henry Hurwitz  
Conrad L. Longmire  
Wolfgang K.H. Panofsky  
Kenneth E. Wilzbach

1960

Harvey Brooks  
John S. Foster, Jr.  
Isadore Perlman  
Norman F. Ramsey  
Alvin M. Weinberg

THE ERNEST ORLANDO LAWRENCE AWARD



U.S. DEPARTMENT OF ENERGY  
WASHINGTON D.C. 20585

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