

## **BIOGRAPHICAL SKETCH OF HERMAN WINICK (September, 2010)**

Deputy Director (Emeritus); Stanford Synchrotron Radiation Lightsource (SSRL) Division  
SLAC National Accelerator Laboratory  
Professor (Research) Emeritus, Applied Physics & SSRL/SLAC, Stanford Univ.

A.B., Columbia College, 1953    Ph.D. Columbia University, 1957  
<http://home.slac.stanford.edu/photonScienceFacultySearch.html#Winick>

### **1. OVERVIEW**

During his scientific career Herman Winick played a strong leadership role in the development of synchrotron radiation sources and research at Stanford University and around the world. Now in retirement he continues these activities, combined with activism in matters relating to international science (particularly in developing countries), academic freedom and human rights.

Scientifically he is now focusing largely on SESAME, a project he began together with Gus Voss (DESY) in 1997. SESAME is an independent international institution, with nine Member countries, constructing a 2.5 GeV third generation synchrotron light source in the Middle East under the auspices of UNESCO. His work on SESAME is in close collaboration with UNESCO, scientists in the Middle East and with Herwig Schopper, President of the SESAME Council from 1999-2008 and Chris Llewellyn-Smith, President starting late 2008. He is also working with scientists to develop regional projects in other parts of the world.

His human rights activities started in the 1980's. He has worked on behalf of dissidents from the China, Iran, the Soviet Union, and other countries. In 1992 he chaired the American Physical Society (APS) Committee on International Freedom of Scientists (CIFS). In 2007 he was chair of the APS Forum on International Physics (FIP). In 2009 he was elected to represent FIP on the APS Council. In 2005 he received the Heinz R. Pagels Human Rights of Scientists Award from the New York Academy of Sciences. In 2010 he received the Andrei Sakharov Prize from the American Physical Society. Currently he is focusing his efforts on several dissidents in danger in their countries, and working to bring scholars at risk to Stanford University.

### **2. SCIENTIFIC CAREER**

He received his PhD in high energy physics at Columbia University in 1957, with experimental work at the Nevis Cyclotron Laboratory. After a postdoc at the University of Rochester (1957-59) he continued work in high energy experimental physics and accelerator development at the Cambridge Electron Accelerator at Harvard University (1959-73), serving as head of the Operations Department and Assistant Director. He came to Stanford in 1973 to lead the technical design of the Stanford Synchrotron Radiation Project (SSRP), now SSRL, and served as Deputy Director of the laboratory until his semi-retirement in 1998 ([www-ssrl.slac.stanford.edu](http://www-ssrl.slac.stanford.edu)). He has taught physics courses at Columbia, Rochester, Harvard, MIT, Northwestern, University of Massachusetts, and Stanford.

His professional work includes more than 100 scientific articles, co-editing "Synchrotron Radiation Research" (Plenum Press, 1980) and editing "Synchrotron Radiation Sources - a Primer" (World Scientific, 1994). He has served on advisory and review committees for several synchrotron radiation facilities around the world. For about 20 years, until 2007, he served on the editorial board of Nuclear Instruments & Methods. He is a Fellow of the American Physical Society (APS) and the American Association for the Advancement of Sciences (AAAS), and Foreign Corresponding Member of the Bologna Academy of Sciences.

He is best known for his leadership role, starting in the mid-1970's, in the development of wiggler and undulator insertion devices as advanced synchrotron radiation sources. This was recognized by a DOE award in 1987 for Energy Related Technology and in 1995 by the US Particle Accelerator School Prize for Achievement in Accelerator Physics and Technology. In 2000 he was awarded the US Department of Energy Distinguished Associate Award.

In 1992 he initiated studies, along with Claudio Pellegrini (UCLA), of the Linac Coherent Light Source (LCLS) Project to construct an x-ray laser using the SLAC linac. This fourth generation light source began operation in 2009, followed by similar projects in Europe and Japan.

He maintains contact with other accelerator laboratories around the world and has had extended stays as a Research Fellow at the University of Tokyo and on a Humboldt Senior Scientist Award in Hamburg at DESY/HASYLAB.

### **3. INTERNATIONAL ACTIVITIES AND SESAME**

Since the mid 1970's he has worked with scientists to develop synchrotron radiation research facilities in Armenia, Brazil, China, France, Germany, India, Italy, Japan, Korea, Pakistan, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, the UK, the USSR and many countries of the Middle East.

He was instrumental in initiating SESAME ([www.sesame.org.jo](http://www.sesame.org.jo)), a UNESCO-sponsored project which is now constructing a synchrotron radiation laboratory in Jordan, with nine countries in the Middle East participating.

<http://tanrojas.googlepages.com/Sesame-SSMSpring07.pdf>

<http://www.iaea.org/NewsCenter/News/2007/sesame.html>

<http://news-service.stanford.edu/news/2006/october25/sesame-102506.html>

<http://www.sciencemag.org/cgi/reprint/306/5701/1465.pdf>

Starting in 1998, he has made more than 20 trips to 10 countries in the Middle East, delivering lectures on SESAME and synchrotron radiation sources and research at universities and laboratories, participating in SESAME Council meetings, and also participating in, as well as organizing, workshops, schools, and Users' meetings. With funds provided by the US Department of Energy for the DOE Cooperative Research Program for SESAME, he has brought 25 Middle East scientists to the US for working visits at US synchrotron radiation laboratories for periods ranging from a few days to two years. As part of these activities he has promoted scientific collaborations of Middle

East scientists with each other and with scientists from outside the region. He has arranged for surplus equipment from SLAC and LBNL to be loaned to SESAME.

#### **4. HUMAN RIGHTS**

He has a strong interest in human rights. His activities include chairing the APS Committee on International Freedom of Scientists (CIFS) in 1992 and the APS Forum on International Physics (FIP) in 2007 and membership in the APS Committee on International Scientific Affairs (CISA) in 2007-8.

In 2005 he received the Heinz R. Pagels Human Rights of Scientists Award from the New York Academy of Sciences. In 2010 he received the Andrei Sakharov Human Rights Prize from the American Physical Society.

His recent activities include orchestrating campaigns to protest the expulsion of Iranians from the American Chemical Society (the expulsion was reversed in May, 2007) and to protest an incipient boycott of Israeli academics by the University and College Union in the UK. In 2007 he secured funding from the President of Stanford University to bring a scholar at risk to Stanford, and is working on a program to regularly bring such scholars to Stanford.

Since 2001 he has worked on behalf of a dissident Iranian physicist, Professor Hadi Hadizadeh, helping to have him released from prison in 2001 and bringing him to the US in 2003. See articles in Physics Today July, 2005 <http://www.physicstoday.org/vol-58/iss-7/p30.html> and October, 2001 <http://www.physicstoday.org/pt/vol-54/iss-10/p28.html>

#### **AWARDS**

1986: Received the ***Alexander von Humboldt Senior Scientist Award*** in recognition of contributions to the development of synchrotron radiation sources and facilities.

1987: Winner of the ***Significant Implication for Energy Related Technology*** in Solid State Physics category in the Department of Energy's 1987 Materials Sciences Research Competition. The award recognized contributions to the development of wiggler and undulator magnets as advanced radiation sources.

1987: Elected to ***Fellowship in the American Physical Society***. The certificate of Fellowship reads: "For pioneering the second generation use of synchrotron radiation, particularly for the instrumentation and design of wigglers and undulators for condensed matter and biological research."

1995: Elected to ***Fellowship in the AAAS***. The award letter reads: "You are being recognized for developing advanced sources of electromagnetic radiation and for assisting other laboratories in similar developments."

1995: ***US Particle Accelerator School Prize for Achievement in Accelerator Physics and Technology***. The award, shared with Dr. James Spencer of SLAC, was

given by the Division of the Physics of Beams of the American Physical Society "For implementing the first of the insertion devices that have had a major influence on synchrotron radiation based sciences".

2000; Received the ***US Department of Energy Distinguished Associate Award***. The citation reads: "For your many accomplishments, contributions, and leadership in the development of modern synchrotron radiation sources and insertion devices to make them even more effective as X-ray sources. This includes your exemplary service to the Department of Energy and the world community in promoting this technology across disciplinary and geographical boundaries over a period of many years."

2005; Received the ***New York Academy of Sciences Heinz R. Pagels Human Rights of Scientists Award***. The citation includes the following: "Herman Winick has been an extraordinarily effective and tireless scientist working on behalf of the Human Rights of Scientists for more than 25 years. He was one of the original supporters and founders of the Sakharov-Orlov-Scharansky (SOS) group in the 1980's. For the past three years he has worked on behalf of an Iranian dissident physicist, Professor Hadizadeh, who has been imprisoned for his pro-democracy activities. Due in large part to efforts by Winick, Professor Hadizadeh is now carrying out research in the United States."

Co-recipient of this award was chemist Zafra Lerman.

2009; Awarded the ***American Physical Society Andrei Sakharov Prize***. The Prize was established to recognize and encourage outstanding leadership and/or achievements of scientists in upholding human rights. The citation included: "For tireless and effective personal leadership in defense of human rights of scientists throughout the world."

Co-recipients were Drs. Joseph L. Birman, CCNY-CUNY and Morris Pripstein, National Science Foundation.