

${}^6\text{Li} + n \rightarrow t + {}^4\text{He} + 4.6 \text{ MeV}$  to produce tritium inside the device. Because his suggestion was potentially significant, Ginzburg's life became more safe. However, in 1952 he was removed from the project and denied the right even to read his own notes on the subject.

Ginzburg was an open and democratic person. In 1957 I applied the Ginzburg–Landau method to the shift of the transition temperature in thin films and to vortex lines. Because I concluded that the boundary conditions must be different from the ones in superconductors, I discussed the problem with Ginzburg. He said he had just had the same idea and, to my surprise, suggested that we work together. Ginzburg worked with great passion and care. It was strange for me that he began writing a paper on our first workday. But when the calculations were finished, we already had a complete article.

An important part of Ginzburg's life was the Wednesday seminars he organized at the Lebedev Institute—1700 in all. The subjects of the talks varied, and discussions were lively. The universality of Ginzburg's interests allowed him to compile in 1971 "What Problems of Physics and Astrophysics Seem Now to be Especially Important and Interesting?" (*Soviet Physics Uspekhi*, volume 14, page 21), which listed 17 problems. His revised version, which he expanded to 30 problems, was published in 2005 in his *About Science, Myself and Others* (Institute of Physics Publishing). It is terribly sad that Vitaly Ginzburg will not get to compose another list.

*I thank Robin Scott for help in writing this tribute.*

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## Ephraim Katchalski Katzir

Ephraim Katchalski Katzir was a brilliant intellectual, pioneer in protein sciences, inspirational mentor, icon of Israeli science, and lifelong patriot known for his vision, humanity, and humility. He died on 30 May 2009 at his home in Rehovot, Israel.

Born Ephraim Katchalski in Kiev, Russia, on 16 May 1916, he emigrated to Palestine in 1922 with his Polish Jewish parents and nine-year-old brother, Aharon. As related in his memoir, *A Life's Tale* (Carmel Publishing House, 2009), Katzir chose between either joining a kibbutz and fighting British rule

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**Ephraim Katchalski Katzir**

or pursuing a scientific career. As an undergraduate at the Hebrew University in Jerusalem, he contrasted the universal nature of mathematics and physics with the local relevance of microbiology and botany. He earned his PhD in theoretical and macromolecular chemistry with Max Frankel in 1941 on syntheses of polyaminoacids as models of natural proteins. He published his PhD work on poly-L-glycine and poly-L-alanine in back-to-back articles in the *Journal of the American Chemical Society* in 1942.

Katzir continued as a teaching assistant while rising to company commander in the Haganah self-defense forces. He published in *JACS* in 1947 a paper on exploitation of N-carboxyanhydride chemistry, epsilon-amino blocking groups, and unblocking reactions to make poly-L-lysine. That same year he went to the US for several months of postdoctoral studies at Columbia, Brooklyn Polytechnic, and Harvard universities. While in America, he helped arrange essential arms shipments to Israel.

From 1948 to 1973, Katzir established and led the biophysics department at the Weizmann Institute of Science, while Aharon chaired the polymer sciences department; they were recruited by Chaim Weizmann in 1947. Syntheses of polyaminoacid homopolymers, copolymers, and peptidyl-proteins became a fulcrum for Katzir and his group's seminal studies of physical and biological properties of those protein models. Their work contributed greatly to understanding helix-coil transitions, protein folding, and denaturation; x-ray diffraction, IR spectroscopy, and circular dichroism findings; and determinants of

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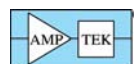
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immunogenicity of proteins. Those homopolymers were critical to Marshall Nirenberg's proof of the genetic triplet code. The insoluble product of cell-free synthesis from polyuridylylate as messenger RNA was recognized as poly-L-phenylalanine; similarly, polyadenylylate produced poly-L-lysine.

Katzir developed a parallel applied-science thrust through immobilization of enzymes on polypeptide scaffolds, starting with water-insoluble polytyrosyl-trypsin columns. That work led to major applications in the pharmaceutical, food, and chemical industries and to Katzir's being the first recipient of the Japan Prize in 1985.

For decades Katzir was a magnet for outstanding students at the Weizmann Institute. He was committed to attracting young people to science and passionate about bringing science and technology to important industrial, military, and social challenges. He launched the Chanukah Lectures for the nation's students; modeled on the Faraday Lectures in London, they continue as the Katzir Lectures.

His scientific career was interrupted for five years when Prime Minister Golda Meir nominated him and the Knesset elected him on 25 May 1973 as the fourth president of Israel. He took the name Katzir in honor of his brother, slain a year earlier by Japanese terrorists. It was a tumultuous time. On Yom Kippur, 6 October, Egyptian and Syrian armies coordinated surprise attacks and made deep incursions into Israel, before finally being driven out almost three weeks later. There was an abject failure of military intelligence. Three times Katzir presided over the tortuous formation of new governments from Israel's multiparty system. Throughout his presidency, however, he was an activist in support of children, families, and assimilation and an ambassador for the country and for science.

After leaving office in 1978, Katzir initiated a successful biotechnology center at Tel Aviv University. He renewed his laboratory research at the Weizmann Institute; up until his death, despite infirmity from a stroke, he published significant papers on computational models of protein docking and use of random peptide libraries to define binding of the nerve toxin bungaratoxin.

Throughout his career, Katzir bridged physical and life sciences. Many physicists worked with him as leader of the Army Science Corps during the War for Independence in 1948 and as longtime chief scientist for the

#### Recently posted notices at <http://www.physicstoday.org/obits>:

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19 August 1921 – 14 October 2009  
Thomas McGuire  
23 March 1919 – 14 August 2009  
Converse Herrick Blanchard  
25 September 1923 – 13 August 2009  
Franz Schwabl  
24 June 1938 – 4 August 2009  
Karl Casper  
4 December 1932 – 22 May 2009  
Walter Gibson  
11 November 1930 – 15 May 2009  
Gordon VanDalen  
19 September 1951 – 30 April 2009

Ministry of Defense.

I was a Harvard Medical School student in Katzir's laboratory in summer 1962; afterward he took a personal interest in my career, like countless others. Memorably, as a White House Fellow at the Atomic Energy Commission in 1974 on a mission to Paris and India, I stopped in Israel, where two weeks earlier President Richard Nixon had surprised the world by proposing to sell nuclear power reactors to Egypt and Israel. Katzir officially informed me, and I cabled the State Department, that Israel would like to explore such a path to cooperation with Egypt and had specific suggestions for safeguarding reactors. Nixon soon resigned, and the idea evaporated. Remarkably, Katzir welcomed Egyptian President Anwar el-Sadat to Jerusalem in 1977, and Prime Minister Menachem Begin, Sadat, and President Jimmy Carter signed the Camp David Accord in 1978. I believe Katzir's message contributed to those historic events.

His epitaph could be his statement upon taking office as president of Israel: "All my life I have worked to make science and research the foundation of our national enterprise, but I knew very well that above science, there are supreme values which are the sole cure for the ills of humanity—values of justice and integrity, peace and brotherhood." What a remarkable legacy.

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