

## Professor Josef Shinar 1932–2015

Josef Shinar, Professor Emeritus of Aerospace Engineering at the Technion—Israel Institute of Technology, passed away on August 13, 2015, in his hometown Haifa, Israel.



Prof. Shinar was born in Hungary in 1932. After the War of Independence in 1949, he immigrated to Israel. In the years 1950-1955 he served in the Israeli Air Force, during which (1953) he completed the navigators' course and served as a navigator and instructor in the Air Force Navigation School. In 1955 he began his studies with the second class of the Faculty of Aeronautic Engineering at the Technion, where he completed his studies with Honorary Distinction in 1959.

Upon completing his studies, he returned to the Israeli Air Force where he served as a research and development engineer. In 1961 he was sent by the Air Force to France, where he completed his Masters degree at the École Nationale Supérieure in Paris in 1962. From that year on, upon his return to Israel and to the Air Force, he continued strengthening the cooperation with Rafael and other organizations in the defense field. He dealt with initial design and feasibility of weapons (including the Shafrir 2 – Israel's first successful interceptor missile) as well as definition, trials, and evaluations of aircraft and airborne weapons systems. In 1971-1972 he served as the military-scientific attaché at the Israeli embassy in Washington D.C., U.S.A.

In 1973 he received his PhD at the Faculty of Aeronautic Engineering at the Technion. In 1974 – soon after the Yom Kippur War, and after 20 years of service in the Israeli Air Force – he joined the Faculty as Lecturer, and in 1983 was promoted to Full Professor. In 1993 he was awarded the Max and Lottie Dresner Chair in Aerospace Performance and Propulsion due to his scientific/engineering performance and achievements.

Prof. Shinar was a world-renowned leader in the guidance community. He was a prominent internationally recognized authority on missile guidance, on optimization and game theory for optimal guidance, on pursuit-evasion aerial combat, and on protection against ballistic missiles. He made seminal contributions and published pioneering works in these fields, e.g., his development in the early 70's of the optimal pilot evasion strategies from homing missiles. His expertise has involved him in important security related research consultations for the Ministry of Defense and other significant international organizations. He is considered by many as one of the founding fathers of Israel's successful line of Interceptor missiles.

Professor Shinar was a sought-after lecturer. Thirty three masters and doctoral students completed their studies under his supervision and now continue along his scientific legacy. Professor Shinar has been leading the instruction of "flight mechanics" in the Faculty of Aerospace Engineering for many years and left his mark teaching this subject. His experience as an Air Force crew member and as an Air Force engineer helped to establish him as a guiding light in other subjects taught in the Faculty. During 1990-1992 he served as the Dean of the Faculty and was active in various Technion and faculty committees.

Prof. Shinar was the author of many articles (more than 60) published in leading journals in his areas of expertise. He presented his work at many international conferences (more than 135) and his contribution and the depth of his work gained him international recognition. He organized international conferences and sessions and has regularly been a member of organizing committees of international conferences, where he also served as chairperson. He was also active as member of editorial boards of leading journals in his area, in addition to being a reviewer. He was a member of various organizations, including Fellow of the American Institute of Aeronautics and Astronautics.

Prof. Shinar is survived by his wife, Dwora, to whom he has been married for 61 years, by his daughter, Noa, and by his two grandchildren, Carmel and Elea. May his memory be blessed.