RESOLUTION ON THE DEATH OF GEORGE BEKEFI

For Presentation at the Meeting of the Faculty of MIT
October 18, 1995

George Bekefi, Professor of Physics and member of the faculty of MIT since 1961, died on August 17, 1995 at the age of seventy, following a battle with leukemia.

George was born in 1925 to an artistic family in Prague, Czechoslovakia. When the German occupation occurred, George made his way to England under the aegis of the British government in its effort to rescue Jewish children. There he received a B.Sc. in physics from the University of London. In 1948, George, seeking adventures in the New World, departed for Montreal where he studied at McGill University. He received the Ph.D. in 1952 and continued at McGill as lecturer and assistant professor until 1957. His research interests then were in electromagnetism, particularly the effects of wave diffraction on aberrations of optical systems. This was an active research area in the 1950's when exact solutions of Maxwell's equations were scarce and experiments were sorely needed.

In 1957 George joined Sandy Brown and Will Allis at MIT's renowned Center of Gaseous Electronics in the Research Laboratory of Electronics. Gaseous electronics soon began to play an important role in the operation of the newly discovered laser where the ionized gas became the lasing medium. These MIT studies were eventually incorporated in a book edited by George, titled *Principles of Laser Plasmas* (J.Wiley, 1976).

At the Second Conference on the Peaceful Uses of Atomic Energy, held in 1958 in Geneva, controlled thermonuclear fusion was declassified, opening new research vistas for many young scientists. George and his students began to explore linear and nonlinear wave propagation in hot plasmas and the various emission processes from this novel medium. The work culminated in his classic monograph *Radiation Processes in Plasmas* (J. Wiley, 1966).

In the mid-1970's, George was ready to explore new fields. Earlier, during a 1966 Ford Foundation Visiting Fellowship at Oxford University he had the good fortune of working with Hans Motz, the pioneer of free-electron lasers. Thus began George's love affair with relativistic electron beams, an affair that flourished until his very last days. In addition to his research at MIT in RLE and the Plasma Fusion Center, he was an active participant at the Brookhaven National Laboratory and CERN-CLIC.

In the 1970's, George, together with Miklos Porkolab, also conceived the highly original Versator II tokamak research program at RLE. This was the first tokamak to demonstrate the feasibility of driving substantial plasma current with plasma waves, a step that was crucial to the development of the steady state tokamak reactor concept. Under the supervision of George and Miklos, a dozen Ph.D. students were trained on Versator II.

George authored and co-authored 180 scientific papers and was the recipient of seven patents. In 1972-73 he traveled on a Guggenheim Fellowship to Orsay, France and to the Hebrew University of Jerusalem. In 1989 he received the IEEE Plasma Science and Applications Award, and in 1993 the Gold Medal for Merit in the Field of Physical Sciences from the Academy of Sciences of the Czech Republic. He was a fellow of the American Physical Society and the 1978 Chairman of its Division of Plasma Physics.

George was an enthusiastic and popular teacher with a particular love for Physics 8.02 and Physics 8.03. He and Alan Barret were co-authors of the text *Electromagnetic Vibrations, Waves and Radiation* (MIT Press, 1977). In 1976, with Abe Bers, George restructured the interdepartmental graduate plasma physics course which has been successfully taught since them.

George was much loved for his ready wit and engaging manner. No matter what the subject, a conversation with George was always interesting and joyful. His early life experience, his broad education and his love of physics combined to create a personality that was thoughtful and sympathetic. His passing leaves a great void among his colleagues and many friends.

Be it resolved that the Faculty of the Massachusetts Institute of Technology, at its meeting of October 18, 1995, record its deep sense of loss on the death of our special friend and colleague, George Bekefi, and that our heartfelt sympathy be expressed to his wife Chaia and their children Ariel and Tamara.

Respectfully submitted,

Abraham Bers
Daniel Kleppner
Miklos Porkolab