



JUDAH MOSHE EISENBERG

Nuclear Theory Institute, which has been held regularly since the 1980s at TRIUMF. Judah collaborated easily and communicated well. His close association with Walter Greiner included many visits to Frankfurt, where he received an honorary degree in 1985 and built strong connections between Tel Aviv and Frankfurt universities. His good sense, direct manner and natural ability to lead enabled him to build a theory group at Virginia and to chair the department with success, as well as to succeed later as an administrator at Tel Aviv.

Judah was broadly interested and erudite in many fields of science, history and literature—especially Jewish history and Hebrew literature. His culture and worldliness made him a natural choice for high administrative capacity, and he was elected dean and then vice rector at Tel Aviv. It was hoped that his breadth of perspective would bring luster and innovation to the management of the university. But this stage of his career—perhaps the most exciting—was cut short by his untimely death.

Judah will be missed by friends and colleagues around the world.

**DANIEL S. KOLTUN**  
*University of Rochester*  
*Rochester, New York*  
**BENJAMIN SVETITSKY**  
*Tel Aviv University*  
*Tel Aviv, Israel*

## Oleg Borisovich Firsov

Oleg Borisovich Firsov, a Russian theorist who is known for his work on atomic interactions, died in Moscow on 2 April after a long illness.

Born on 13 June 1915 in St. Petersburg,

Firsov graduated with an undergraduate degree in physics from Leningrad State University in 1938, and remained there until the end of World War II. Staying in the city, he then moved to the Ioffe Physical-Technical Institute, where he obtained his PhD degree in 1947 under Yacov I. Frenkel's supervision. In 1955, he moved to the I. V. Kurchatov Institute of Atomic Energy in Moscow and worked there until 1994, when he became severely ill.

Firsov's PhD thesis and first publications were devoted to gas discharges and yielded a model of spark formation and propagation, which is still used to describe both natural lightning and laboratory discharges. He returned to this topic in the 1970s to develop a more accurate theory.

Firsov is known among physicists for his studies of the quasimolecular approach in the quantum mechanical theory of atomic collisions. In a 1951 paper, he presented an elegant analytical solution to the complicated problem of resonant charge exchange during hydrogen-hydrogen collisions. Since then, the quasimolecular approach has been used in many other fields related to the physics of atomic collisions.

In 1953, Firsov devised the so-called inverse collision problem solution in which a scattering potential is inferred from known values of the scattering cross-section.

At the beginning of the 1950s, when work on controlled fusion reactions had just started at Kurchatov, solving the problem of charge exchange for the confinement of a plasma in a magnetic system was crucial. Accordingly, Firsov was invited to tackle the problem. Applying his gift for discerning the root of a problem, he considered plasma permeation through a picket fence magnetic system and, in 1957, was the first to theoretically determine the width of a magnetic gap for a cusp system. His approach is still used.

Around the same time, Firsov also carried out two of his best-known works. In 1957, he found the exact upper and lower limits of the interaction potential between two atoms in the Thomas-Fermi approximation. Since these limits turned out to be close to each other, the potential could be determined accurately. Firsov suggested a simple approximation of this potential that is convenient to use and is now referred to as the Firsov potential. In 1959, he proposed a formula for inelastic energy losses in an atomic collision on the basis of a very clear physical picture in which a number of electrons are exchanged between the colliding atoms. This formula has not only found a wide range of application in the physics of ion beams and radiation

effects, but has also stimulated considerable theoretical activity.

In 1966 and 1970, Firsov published two elegant papers on the reflection of particles from a solid surface.

During the last few years of his life, Firsov investigated one of the most fundamental cosmological problems—identifying the nature of dark matter. He proposed that the invisible mass in the universe is dust of ordinary matter.

Firsov's scientific heritage will be of use for a long time to come. Everybody who knew him will cherish the memory of this kind, compassionate and honest person and distinguished scientist.

**MIKHAIL CHIBISOV**  
**YURI MARTYNEKO**

*I. V. Kurchatov Institute of Atomic Energy*  
*Moscow, Russia*

**PETER SIGMUND**  
*Odense University*  
*Odense, Denmark*  
**VERA YURASOVA**

*Moscow State University*  
*Moscow, Russia*

## Glenn Lionel Dyer

Glenn Lionel Dyer, an industrial physicist who founded and ran Dyer Energy Systems Inc, died on 29 May following a long illness. He was 59.

As a New Brunswick farm boy, Glenn began his education in the proverbial one-room schoolhouse. He was able to attend university only through the generosity of Lord Beaverbrook, the press tycoon, who established a system of scholarships for outstanding high school graduates from his native province of New Brunswick. It was as a Beaverbrook scholar that Glenn attended Queen's University at Kingston, where he earned BSc and MSc degrees in physics in 1961 and 1962, respectively. In 1967, he earned a PhD in physics from McGill University with a thesis on nuclear magnetic resonance.

During his university education, Glenn also served in the Royal Canadian Naval Reserve from which he retired in 1967 as lieutenant. That same year, he went to the US to work at Technical Operations in Burlington, Massachusetts. He later worked at the US Air Force's Cambridge Research Laboratories in Bedford, Massachusetts.

Like many of his contemporary industrial physicists, Glenn worked effectively with a broad spectrum of technology applications. These included light, electron and ion beam optics, cathodes, exotic metals, short-pulse electron beams, scanning microscopes, lasers, combustion and heat engines and radar and communications electronics. He also analyzed chemical

release in rockets. Additionally, he managed projects and programs, completed contract negotiations and served as a financial manager.

Having acquired this wide range of scientific and business experience, Glenn founded Dyer Energy Systems in Bedford, Massachusetts, in 1974. The company moved to its present location in Tyngsboro, Massachusetts, in 1988, when it became an important manufacturer of high-energy microbeam equipment. It also manufactures and markets photon tunneling microscopes under license from the Polaroid Corp.

One of Glenn's early entrepreneurial ventures was the invention of a new heat engine for land



GLENN LIONEL DYER

vehicles. Its radical design included major changes to a Brayton cycle engine that resulted in a projected 100% improvement in road load efficiency, acceptable emissions, costs competitive with current engines, multifuel capability and low maintenance costs. The invention earned Glenn two patents.

Glenn's rural beginnings, which he would recall nostalgically, always seemed close in his thoughts. He never tired of looking at and talking about farm tractors. And, one birthday, he gave himself a horse-drawn wagon, in which he took kids for rides. He is buried in a county cemetery adjacent to his family farm in New Brunswick.

Glenn's kindness, generosity and wit will be long remembered by those who knew him even slightly. And his friendship will be long treasured by those who were fortunate enough to know him well. Glenn will be sorely missed.

GREYSON GILSON  
Nashua, New Hampshire ■

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