

gun—that is, direct evidence for sub-nucleon degrees of freedom.

Häusser's ^3He target—acclaimed as a superb *neutron* target by his peers—was also used for pion and muon studies. In addition, its success led Häusser to initiate TRIUMF's involvement in the HERMES experiment in Hamburg.

In the recent post-KAON era at TRIUMF, Häusser changed fields again and started development of the neutral atom trap (the TRINAT project), in conjunction with TRIUMF's new radioactive beams, to pursue fundamental studies of weak interactions. Throughout his final illness, he drove himself relentlessly to make TRINAT a reality, and the project continues as one of his most promising legacies.

At Simon Fraser, he displayed remarkable flair for presentation in his lectures on physics, and few took more seriously than he the importance of communicating the results of scientific endeavors.

Everyone who interacted with Häusser was impressed by his intense personal drive, his high standards, and his extraordinary creativity. Not everyone could adjust easily to his intensity, but he drove himself even harder than those he led. All of his colleagues will never forget his passions—for physics, for playing his cello, and for life.

**K. PETER JACKSON
ERICH W. VOGT**
TRIUMF

Vancouver, British Columbia, Canada

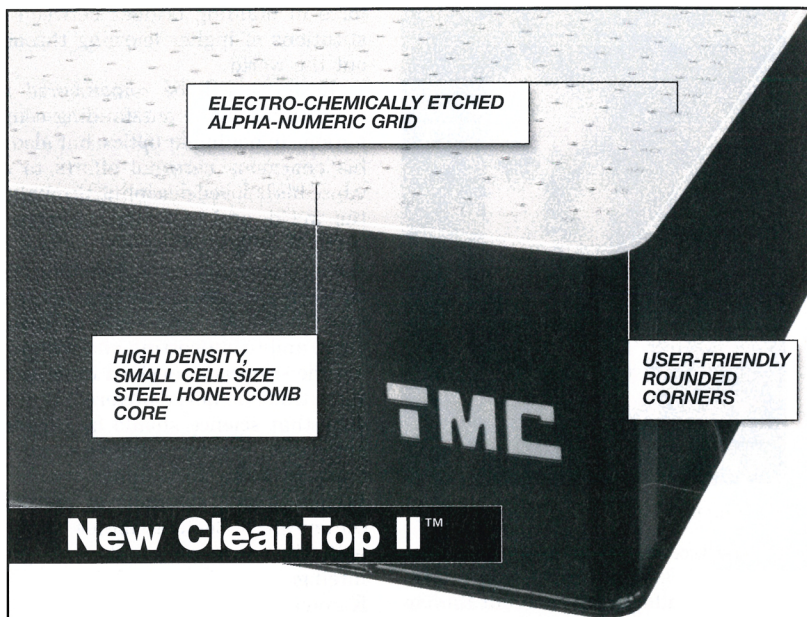
Nikolai Ivanovich Koroteev

Nikolai Ivanovich Koroteev, a Russian physicist internationally renowned for his contributions to nonlinear spectroscopy and its applications, died in Moscow on 4 December 1998.

Born in Stalingrad (now Volgograd) on 2 April 1947, Koroteev received his scientific training at M. V. Lomonosov Moscow State University. He earned his undergraduate degree in physics in 1971 and was awarded a PhD degree in the same field three years later. For his thesis work, which was guided by Sergey A. Akhmanov, Koroteev exploited the tunability of the optical parametric oscillator to develop the new technique of coherent anti-Stokes Raman spectroscopy (CARS).

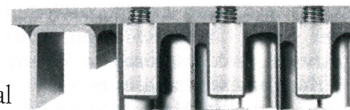
In 1978–79, Koroteev was a research fellow at Stanford University, where he pursued applications of the CARS technique. After returning to Moscow, Koroteev earned a DSc degree in physics from Moscow State University in 1983.

Nonlinear optics and nonlinear la-



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NIKOLAI IVANOVICH KOROTEEV

ser spectroscopy always lay at the core of Koroteev's wide-ranging scientific interests. In addition to coherent Raman spectroscopy, he worked vigorously on the generation and applications of ultrashort laser pulses, nonlinear optics of surfaces, and the application of laser techniques in the life sciences. His most recent research concerned nonlinear optics of chiral media and investigations of photochromic materials.

Findings from these and other research activities are documented in over 250 technical publications authored or co-authored by Koroteev.

Koroteev will always be very much associated with Moscow State University, where he held academic positions in the physics department from the time of his PhD degree until his untimely death. From 1992 on, he occupied the Chair of General Physics and Wave Processes, a position previously held by the founders of nonlinear optics in Russia, Rem V. Khokhlov and Akhmanov.

As an educator, Koroteev carried out several important initiatives in physics training and devised new lecture courses on the fundamental aspects of laser-matter interactions and other topics. Well-known as a gifted lecturer, he was an inspiration to his students.

Koroteev always viewed science and learning as international in scope. He was instrumental in founding the International Laser Center (ILC) of Moscow State University, and he served as its first director. Through Koroteev's guidance and tireless efforts, the ILC has developed into a major international organization in the field of laser physics and nonlinear optics. Koroteev also served for several years as the university's vice-rector for international relations. In that position, he was a leading scientific ambassador for his country and became a powerful

force in building bridges between institutions of higher learning throughout the world.

Koroteev will be remembered not only for his many outstanding contributions to nonlinear optics, but also for his enormous personal efforts to advance his beloved discipline throughout the world, and in Eastern Europe in particular. Through a very difficult period in Russian science, Koroteev dedicated himself to preserving his institute, university, and national science effort and to supporting and encouraging the scientists involved in it. At the same time, he never wavered from the view that science should be a shared enterprise, involving people of all nations. In doing such things, he set an extraordinary example of personal commitment. Such attributes, together with that rare combination of great intelligence and personal charm, made Koroteev both admired and loved by all who had the privilege to know him.

SERGEY N. BAGAYEV

*Institute of Laser Physics
Novosibirsk, Russia*

VICTOR N. ZADKOV

*M. V. Lomonosov Moscow State
University*

Moscow, Russia

TONY F. HEINZ

*Columbia University
New York, New York*

ERICH P. IPPEN

*Massachusetts Institute of Technology
Cambridge, Massachusetts*

John Marshall Jr

John Marshall Jr, a pioneer in nuclear reactors and a very early member of the Manhattan Project, died in Los Alamos, New Mexico, on 21 October 1997, after a long struggle with Parkinson's disease.

Born in Philadelphia on 12 April 1917, Marshall earned a BS in physics from Swarthmore College in 1938. While at Swarthmore, he worked summers at the Franklin Institute's Bartol Foundation, where he used early cyclotrons to study the properties of deuterons. Under the supervision of Lee DuBridge at the University of Rochester, he earned a PhD in physics in 1941. His thesis was entitled "The Inelastic Scattering of Protons."

Early in his career at Rochester, Marshall also worked with Robert Dicke on one of the original cyclotrons, with which they bombarded numerous elements with proton beams and thereby discovered a number of new isotopes.

Marshall's abilities were brought to the attention of Leo Szilard, the Hun-



JOHN MARSHALL JR

garian-born physicist who helped to initiate the Manhattan Project. In the fall of 1941, Szilard asked Marshall to come to Columbia University to help with the initial measurements on thermalization and absorption of neutrons in carbon stacks. These measurements provided the basis for understanding that a larger "pile" of carbon interspersed with uranium would lead to a self-sustaining nuclear reaction.

At Columbia, Marshall started a long-term collaboration with Enrico Fermi. When it was decided to build the first pile at the University of Chicago, Marshall went with Fermi to join the university's Metallurgical Laboratory, where he was assigned the task of smelting, casting, cutting, and shaping the pure uranium pieces needed for the pile.

After the first pile went critical, Marshall, Fermi, and Leona Woods worked quickly to build the next reactors at the Argonne Laboratory, and, by 1943-44, they were at the Hanford Works, near Richland, Washington, to bring the first production reactor into operation.

After World War II, Marshall continued to study the nature of reactors with Fermi.

In 1950, Marshall became the main designer and project manager for Chicago's synchro-cyclotron, which went into operation in 1952. By that time, Marshall was a professor of physics at Chicago. A large number of landmark papers about the nature of the neutron resulted from his collaboration with Fermi. Their close collaboration continued at Chicago until Fermi's death in 1955.

In 1957, Marshall moved to Los Alamos to work at the Los Alamos National Laboratory—20 years after he had first visited the area, on horseback, while on vacation with his father,