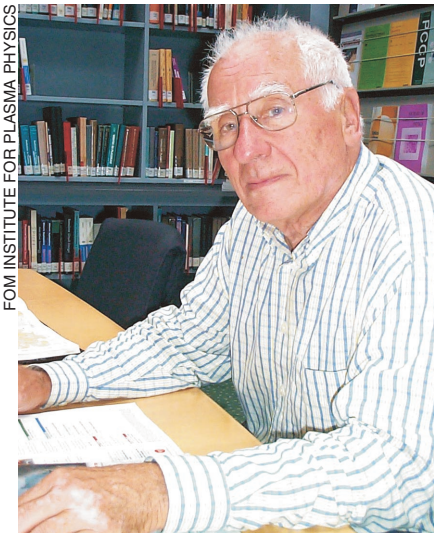
FOM INSTITUTE FOR PLASMA PHYSICS

Cornelis Marius Braams

ing a heart attack. For three decades, Braams was the personification of fusion research in the Netherlands: He was a founder and the first director of the Foundation for Fundamental Research on Matter (FOM) Institute for Plasma Physics "Rijnhuizen."

Braams was born in 's Hertogenbosch, the Netherlands, on 5 July 1925. Following World War II, he studied physics and mathematics at Utrecht, where he graduated in 1952 with a master's degree in physics. In that same year, *Nature* published his explanation of the phenomenon of the so-called Tippe Top, a toy that spontaneously turns itself upside down when spinning. He conducted part of his thesis studies at MIT from 1952 to 1954. In 1956, he received his PhD from Utrecht for his thesis, entitled "Energy Levels of Calcium Isotopes," under the guidance of Pieter Endt.

In the following years, Braams was actively involved in the foundation of Rijnhuizen, for which he was the director from 1959 until his retirement in 1987. His scientific interests in fusion research were concentrated mainly on the transition regime from gas discharges to plasmas. He tried to answer questions such as, Can a rotating gas blanket be used to stabilize a toroidal arc? And can the combustion process in a reactor be maintained by removing the ashes by means of diffusion to and from a cold-gas blanket?

In 1962, Braams became a professor of plasma physics at Utrecht and mentored a large number of doctoral students, whom he taught to be critical and independent scientists. During the year 1963–64, he worked at the Boeing Scientific Research Laboratories in Seattle, Washington, in the Plasma Physics Laboratory.

Braams was very active in building the joint European fusion research network. He was a member of numerous national and international committees and councils, very often in the role of chairman. He was especially instrumental in the realization of the Joint European Torus, or JET, project and, in 1979, became the first chairman of its scientific council. In the Netherlands, he reanimated the Dutch Physical Society during his chairmanship in the 1970s. During all those public activities, he managed to find time for his other passions. With his sons, he designed and handcrafted a seaworthy yacht. His beautiful collection of exotic trees on the park grounds surrounding Rijnhuizen is a living testimony to his strong love for nature.

At his retirement, Braams was awarded a royal decoration by Queen Beatrix of the Netherlands. He later saw it as his duty to record the scientific history of fusion research of magnetically confined plasmas. He did this in his own style, by checking all the facts, preferably by contacting the main characters directly. The result is a book he wrote with Peter Stott, entitled *Nuclear Fusion, Half a Century of Magnetic Confinement Research* (Institute of Physics, 2002). Braams was a passionate physicist, ever ready to fight pseudoscience, especially if fusion was involved. Whether it was ball lightning or cold fusion, he built his criticisms on a solid and thorough scientific analysis.

Until his death, Braams worked a few days a week in "his" institute, where he still had an office. He remained especially active in engaging public interest in fusion research, for which he had always been an untiring and well-spoken advocate.

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Allen Lewis King

Allen Lewis King, a member of the physics faculty at Dartmouth College for more than 60 years, died on 11 December 2003 in Lebanon, New Hampshire, of age-related complications. During his active years, his physical research interests were chiefly in optics, thermal physics, and biophysics. In later years, he became engrossed in the history of physics as revealed in physical apparatus.

Allen was born on 27 March 1910


FERN MEYERS

Allen Lewis King

in Rochester, New York. He received his BA, with a major in chemistry and a minor in physics, in 1932 and his MA in physics the following year, both from the University of Rochester. In 1934, he began research at Rochester under Lee DuBridge on photoelectric and thermionic properties of thoriated tungsten surfaces. He received his PhD in physics in 1937.

Beginning his professional career at Rensselaer Polytechnic Institute, Allen remained there from 1937 until the US entered World War II. His research on the temperature dependence of elastic constants of alloys and a fledgling consultancy with industry had to be deferred "for the duration." Early in 1942, Allen was called to Dartmouth to help establish what later would become the US Navy V-12 program, the largest program for training naval officers. Every recruit was required to take two terms of physics. In the winter of 1944, that requirement led to the largest class in basic physics held anywhere up to that time. Allen taught the course with the help of more than 40 hastily trained professors from other departments of the college. Many of them never got over their hectic foray into physics.

The tectonic shifts in US education that were produced by the war precluded a return to the old educational patterns, although many longed to go back to using those traditional approaches. Allen was eager to resume his prewar research and to begin work in biophysics and medical physics. His insistence on the importance of research to support effective teaching was critical at that time: He secured support in the Dartmouth administration for the changes that enabled it

to create a graduate program in physics and astronomy in 1966. During that protracted process, Allen's persistence was as important as the strength of his arguments.

Following the launch of *Sputnik* in 1957, interest in the quality of science education and the problem of attracting young students to physics became national priorities fostered by NSF. State academies of science were invited to operate visiting scientist programs for schools, and colleges were asked to conduct workshops for science teachers. Allen took on both tasks. Through the Northern New England Academy of Science, he organized an NSF visiting scientist program that arranged for professors from most of the colleges and universities of the three northern New England states to make visits to high schools. That valuable program also gave the visitors an insight into the difficulties that high-school teachers faced daily.

During his first year at Dartmouth, Allen explored out-of-the-way places throughout Wilder Laboratory and found a variety of early scientific instruments, some dating back to before the founding of the college in 1769. Delving into their history, he came to appreciate their value and began to look for better ways to protect Dartmouth's legacy. Lack of suitable space, money, and administrative interest promised to make it a long and difficult task until Allen had the idea of making the instrument collection the centerpiece of the science division's contribution to the Dartmouth bicentennial celebration in 1969–70, with a major exhibition in the art gallery on campus. Somehow, he convinced the artists on the committee that science belonged in the gallery and that the instrument exhibit would be a three-dimensional work of art. The future of the collection was assured when the exhibit proved to be a major success, attracting more visitors per week than any previous exhibit in the gallery. The history of science as revealed in scientific instruments became one of Allen's major interests.

After his retirement in 1975, Allen remained active as curator of Dartmouth's collection of historical scientific apparatus. He also continued his many services to the community at large. In 1997, he was named Hanover Citizen of the Year for his "many years of service to advance the quality of life in the community."

William T. Doyle
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Ian Ilyich Kogan

Ian Ilyich Kogan, reader in theoretical physics at the University of Oxford and a fellow of Balliol College, died of a heart attack in Trieste, Italy, on 4 June 2003. Ian was a greatly talented physicist of boundless energy and enthusiasm with a legion of close friends and collaborators. He made major contributions to physics, including being codiscoverer of phase transitions in strings, of logarithmic conformal field theory, and of the theory of multigravity. It is fair to say that Ian's impact shaped the direction of research in those areas.

Ian was born into a Jewish family on 14 September 1958 in Glazov, a small town in the Northern Urals, far away from all the cultural centers of what was then the Soviet Union. All life in that town revolved around a uranium plant, where Ian's parents worked for 41 years. At age 16, Ian began his life's journey; accompanied by his father, he went to Moscow to sit the entrance examinations at the Moscow Institute of Physics and Technology (MIPT).

Despite the then common prejudice against Jews, Ian obtained admission to the MIPT. In 1981, he graduated with an MS in theoretical and mathematical physics. He then moved to the Institute for Theoretical and Experimental Physics (ITEP) for his doctoral studies in theoretical physics under the supervision of Boris Ioffe and Karen Ter-Martirosyan. He received his PhD in 1985 for his studies on hadronic form factors and the coupling constants from the quantum chromodynamic sum rules.

Ian stayed on at the ITEP in a junior staff position. He began his professional career studying QCD, the theory of hadronic physics. Although he always retained his interest in QCD, his scientific horizons rapidly expanded. He started to branch out into string theory, believed by many to be the most fundamental theory of nature capable of unifying all the fundamental interactions. While at the ITEP, Ian made major contributions to the understanding of the behavior of strings at high temperatures and became an early explorer of Chern–Simons electrodynamics.

Leaving Russia in 1991, Ian went to the University of British Columbia and then to Princeton University as a visiting professor, before moving in October 1994 to Oxford as a university lecturer in theoretical physics and fellow of Balliol College. In 2001, he became a British citizen. Ian's span of interests was phenomenal, and he made significant contributions across a wide range of fields. He made notable advances in Liouville theory, extra-dimension scenarios, black holes, anyons, chiral condensates, and high-temperature field and string theory. His interests extended beyond physics, too, to the application of the techniques of theoretical physics to the analysis of risk assessment in the financial markets.

Ian Ilyich Kogan

Ian's knowledge of his subject was encyclopedic. By the time he arrived in Oxford, his command of physics was such that undergraduate and graduate students and his colleagues were invariably treated to a spontaneous solution to a problem or explanation of a perplexing matter. In seminars covering almost any subject, he would engage the speaker in a lively and focused debate. His presence at Oxford added immeasurably to the intellectual activity.

Ian circumnavigated theoretical physics. And everywhere, he left his imprint. He had the spirit of a pioneer and a scout—always at the front line of research and quite often ahead of the front line. He generously shared his ideas, which were stimulating and encouraging, with students and collaborators. He published some 200 scientific papers with nearly 60 collaborators around the globe. Ian's death is a tragedy for the entire physics community, but his many friends and colleagues treasure the privilege it has been to know such a vibrant spirit.

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