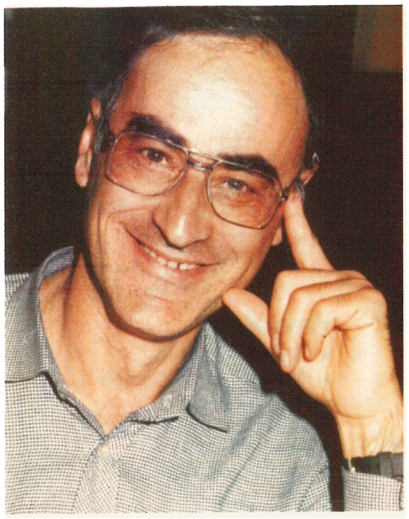

MICHAEL MARINOV

Soviet Union for himself and his family. In those days, such applications were considered high treason in the USSR. Denied permission for the visas, Marinov became a refusenik, with all the ensuing political consequences. The only "crime" committed by refuseniks was that they had applied for and and been denied exit visas for Israel. And yet the Soviet state treated them essentially as criminals—fired from jobs and blacklisted, with no access to work (except low-paid manual labor), constantly intimidated by the KGB, and on the verge of arrest. In fact, the most active refuseniks, those who tried to organize and fight to reclaim their rights, were imprisoned.

The subsequent eight years brought Marinov incredible hardships, and he struggled to survive with dignity. Resigning from his position at ITEP, he earned his living as an English translator and as a construction worker. Despite all the obstacles, he continued to do research in physics. In addition, he volunteered to teach physics at the unofficial university organized by refuseniks to educate Jewish students who were barred by authorities from regular universities. His family—wife Lilia and daughters Masha and Dina—gave him the strength to endure. Only in 1987, with the advent of *perestroika*, were the Marinovs allowed to leave the Soviet Union.

In 1988, Marinov joined the Technion–Israel Institute of Technology in Haifa. There, he launched a vigorous research program and also became an insightful teacher and an excellent thesis adviser to many students who are now scattered all over the world.

Marinov belonged to two cultures and two countries. His physics career began at ITEP, and he always had warm feelings for that period of his life. The note that concludes his 1980 review in *Physics Reports* reads, "Having left ITEP forever with the intention to settle in the Promised Land of my Forefathers, I would like to use this opportunity to acknowledge gratefully the possibility to work for many years at the Theory Division organized by the late Professor Isaac Pomeranchuk."

He will be missed greatly by all of us: his friends, colleagues, and students.

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Kandarpa Narahari Rao

Kandarpa Narahari Rao, an innovative spectroscopist and longtime editor of the *Journal of Molecular Spectroscopy*, died of prostate malignancy on 5 May in Madisonville, Kentucky.

Rao was born on 5 September 1921 in the village of Kovvuru in Andhra Pradesh, India. After attending Andhra University, where he earned a BSc in 1941 and an MSc in 1942, he worked for four years in the science office of India's meteorological service. He then continued his education at the University of Chicago, where he earned his PhD in physics in 1949 with a thesis on high-resolution molecular spectroscopy under the direction of Gerhard Herzberg.

From 1951 to 1952, Rao worked at the National Physical Laboratory in New Delhi, India. Returning to the US, he then held research associateships at Duke University, the University of Tennessee, and Ohio State University. He joined Ohio State's physics faculty in 1960, and was promoted to full professor in 1963. He became professor emeritus in 1993.

At Ohio State, Rao developed first-rate facilities for high-resolution spectroscopy. His pioneering research on wavenumber standards set the stage for subsequent research in the field, as did his molecular spectroscopy of ammonia, carbon monoxide, the carbon monoxide ion, and acetylene. He made major advances in understanding the effects of perturbations in the infrared spectrum of ammonia. In 1963, Rao and his associates first developed the use of a carbon rod furnace as a source of infrared radiation; many laboratories worldwide adopted this source for high-resolution spectroscopic work, and it was often referred to as the Rao source.

KANDARPA NARAHARI RAO

In later years, Rao and his associates demonstrated the usefulness of high-resolution techniques in the study of quantum crystals of molecular hydrogen species at liquid helium cryogenic temperatures, especially in clarifying the effects of hexadecapolar and higher multipolar induction mechanisms.

Rao was associated with the *Journal of Molecular Spectroscopy* from the journal's very first issue, which appeared in July 1957. Serving initially as an assistant editor to the editor Harald H. Nielsen, Rao became an associate editor in 1961, joint editor in 1968, and editor after Nielsen's death in January 1973. Rao stepped down from the editorship in 1995, but continued as a member of the editorial board until his death. Thanks to his efforts—over the years he processed more than 10 000 articles almost single-handedly—the journal became a leading medium for primary publication of extensive spectroscopic data and an important archival resource.

Rao chaired and organized the popular and successful Annual International Symposium on Molecular Spectroscopy at Ohio State. Year after year, this symposium attracts spectroscopists from around the world.

He will be missed by his students, friends, and colleagues and by spectroscopists worldwide, whose field he served with such dedication.

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