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Kazuaki Iwasa, Sunil K. Sinha, William Kamitakahara, Jaime Fernandez-Baca, Keisuke Tajima & Kazuhisa Kakurai

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In memoriam: Nobuyoshi Wakabayashi (1938–2017)

Professor Nobuyoshi Wakabayashi passed away on May 12, 2017, at the age of 79. He was a leading scientist in neutron scattering on condensed-matter physics at Oak Ridge National Laboratory (ORNL), USA, and supervised many students in the Department of Physics at Keio University, Japan.

After receiving his undergraduate degree from the University of Tokyo, he worked at Toshiba Corporation. Nobuyoshi (or Nobu, as he was known to his friends and colleagues in the US) moved to the United States in the 1960s to pursue graduate research work at Iowa State University, and received his PhD in 1969. He carried out inelastic neutron scattering studies on lattice dynamics at the Ames Laboratory Research Reactor at the Institute for Atomic Research together with his graduate advisor, Professor Sunil Sinha. He reported on the phonon spectrum of scandium metal in a well-cited paper and also measured the spin excitations in chromium alloys. In 1971, he joined the inelastic scattering group at Oak Ridge National Laboratory's Solid State Division. This group had been established in 1962 by Michael Wilkinson and Harold Smith to investigate the dynamical properties of atoms in solids using some of the first triple axis spectrometers in the US. Other members of this group included Robert Nicklow and Herbert Mook. While at ORNL, Nobuyoshi studied the phonon spectra and thermal diffuse scattering in disordered alloys and the spin waves in rare earth metals and alloys. In addition to many neutron-scattering studies, he also contributed to the initial stage of the US-Japan Cooperative Program on Neutron Scattering, an international collaboration that continues to be very productive after more than 30 years.

Nobuyoshi Wakabayashi

In 1981, Nobuyoshi moved to Keio University, Japan, where a new department of physics was being established. Profs. Hidetoshi Takahashi, Ryogo Kubo, Koichi Shimoda and Soshin Chikazumi, who were then among the top leaders in physics in Japan, planned the curriculum and the fields of research in the new department and Nobuyoshi assisted in the planning. In his laboratory, he set up a low-temperature X-ray apparatus, and various studies such as order-disorder phase transitions, heavy-fermion systems, molecular complex materials, transition-metal orbital-ordered systems, biological systems etc. were performed in collaboration with undergraduate students. To describe experimental data, he preferred rigorous interpretation rather than the more intuitive but less rigorous approach. He was one of few such experimental physicists. He was interested in discussions with students and proposed theoretical models for understanding experimental data, which attracted students to his world of physics (or sometimes students faced difficulty in following his ideas). He always kept such a way of teaching, which can be seen in his numerous published papers with students' names in the authors' list. He advocated that PhD course students be co-supervised by the professors at the pulsed-neutron and synchrotron-radiation facilities out of Keio University to enhance their exposure and interactions with many researchers. Although he had not often visited these facilities for his own research, he always considered how students could gain great career opportunities by studying the scientific trends being pursued at the large-scale beam facilities. He was good at mimicking students, and sometimes students tried to mimic Nobuyoshi's habits. Such communication made a warm atmosphere in his laboratory.

In 2003, Nobuyoshi retired from Keio University and continued to give lectures at Tokyo City University. Even after ending his activities at the University, he still had the energy for continuing research and making calculations mainly on phonons while his health allowed him to.

Nobuyoshi was a remarkable scientist who always maintained the highest standards of excellence and ethics in his science and his interactions with other scientists and stu-

dents. He will be remembered as a highly cultured person with whom a conversation about physics or any other topic was always illuminating. He was a kind, cultured, and generous person, a lover of classical music, who possessed a wide knowledge of areas beyond science. He was always willing to help others, in science as well as in everyday matters, and had a wonderful sense of humor. Nobuyoshi will be greatly missed by his colleagues and friends.

ORCID
Kazuhisa Kakurai
http://orcid.org/0000-0001-5899-7657

Kazuaki Iwasa
Ibaraki University, Tokai, Japan

Sunil K. Sinha
University of California San Diego, San Diego, CA, USA

William Kamitakahara
NIST Center for Neutron Research, Gaithersburg, MD, USA

Jaime Fernandez-Baca
Oak Ridge National Laboratory, Oak Ridge, TN, USA

Keisuke Tajima
Keio University, Yokohama, Japan

Kazuhisa Kakurai
Comprehensive Research Organization for Science and Society, Tokai, Japan