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Molecular Crystals and Liquid Crystals

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Obituary

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Announcement

It is a great pleasure to announce that effective immediately Professor George W. Gray will join the editors of *Molecular Crystals and Liquid Crystals*. Manuscripts in any area of liquid crystal research may be submitted directly to him, as well as to Professors Brown and Labes. We trust that this addition will make it possible for us to serve the field more expeditiously, and that the location of Professor Gray will make submissions particularly convenient for our European colleagues.

Obituary

Vladimir L.
Broude



It is with great regret that we announce the death of our friend and distinguished colleague Professor Vladimir L. Broude (1924-1978). Professor Broude died on June 22, 1978, and is survived by his children and his wife Dr. Elena Sheka. His contributions to the scientific community were numerous and in 1966 he received the Lenin prize in physics for his work on excitons in molecular solids. In addition to Professor Broude's research activities, he served as a member of the Advisory Editorial Board of the Journal of "Molecular Crystals and Liquid Crystals."

It was Broude's pioneering work on the optical spectrum of solid benzene that first won him world recognition. His paper published in 1951 described the polarized optical spectra of single crystals of benzene at low temperatures, and reported the occurrence of a multiplet of three lines with polarizations corresponding to each of the three principal crystal axes. These experiments prompted the complete group theoretical analysis of crystal states and led to a thorough understanding of the Davydov splitting of molecular excitons. This work is all the more remarkable in that a low temperature polarization microscope was developed for the experiments, and the experiments themselves were amongst the earliest explorations into the spectra of molecular systems at temperatures below 77°K. In another series of experiments, Broude's work on isotopically mixed crystals revealed for the first time the enormous intensity enhancements occurring in the spectra of shallow traps. This effect, known as the Rashba effect, was thoroughly investigated both theoretically and experimentally in collaboration with his good personal friend and colleague Prof. E. I. Rashba. Prof. Broude's pioneering investigations have led to the development of many important experimental techniques for determining the dispersion relations for molecular exciton systems. The list of contributions by Broude and his co-workers to the field of molecular crystals is extensive. From among these many investigations we note especially the numerous papers on the low temperature spectroscopy of molecular crystals and isotopically mixed crystals, the effects of phase transitions and structural deformations on crystal optical spectra, and the study of multiparticle states. These studies have contributed substantially to the systematization of molecular spectra in solids, and have frequently stimulated new research activity throughout the world.

During the last few years Broude and his co-workers worked on the investigation of the effects of intense laser excitation on the spectra of molecular crystals. During the course of this research they discovered and investigated ballistic phonon propagation effects in anthracene crystals, and suggested the existence of a dense exciton phase in this material. These recent topics formed the subject of Professor Broude's lectures during his first visit to the U.S. in the fall of 1977.

Broude's scientific results strongly affected trends in the field of molecular solids, while his pioneering experimental style influenced the development of the field of large molecule spectroscopy. The influence of Broude's methods and results will be recognized for many years to come. Those of us who knew him personally will also remember his extraordinary outlook on life, his strength of character and the deep affection and love he had for his friends and family.