

# DEPARTMENT of PHYSICS and ASTRONOMY at HUNTER

BERNARD KRAMER, *Chairman*

The investigation of the physical world, from the constituents of the nucleus to the structure of stellar nebulae, is the domain of the physicist. The impact of the physicist's work is felt in numerous ways, both intellectually and materially, and an understanding of his methods and concepts is a vital part of a college education.

The tremendous growth in the understanding of the universe, starting with the study of relativity and atomic structure at the beginning of this century, has provided a fresh scientific impetus, not only in physics, but in biol-

ogy, chemistry, geology, and the other physical sciences. Thus, any physics department must provide the basic training for all scientists, in addition to those specializing in physics.

The Department of Physics and Astronomy has had to revise, expand, and develop courses so that Hunter students could obtain a firm grasp of the fundamental principles involved, and also be exposed to the new ideas in the field. As an example of new courses we may list Quantum Mechanics, Solid State Physics, Astrophysics,

*Professor Kennedy with physics students measuring infrared absorption of zinc sulfide phosphor.*





*Professor Bennick with group of astronomy students on roof of Gillet Hall.*

and Electronics.

Our introductory courses in physics now provide for either a survey course (one semester) intended mainly for non-science students, or a one-year course with or without calculus, depending on the depth required. Experiments in electronics, atomic physics, and radioactivity have been added to these elementary courses, and improved experiments in more "classical" topics such as electrical measurements, centripetal force, and momentum conservation have been introduced.

The basic Astronomy course has been expanded to a full-year sequence this year so that a complete semester can be devoted to the Solar System, with another semester covering the Stellar universe.

Following the recent renovation of Gillet Hall on Bronx Campus, adequate space for intermediate and advanced laboratories, as well as research facilities for faculty and advanced students, is now available. Modern equipment such as digital voltmeters and frequency meters, scalars, counters, monochromators and fast oscilloscopes has been obtained for the use of the students and faculty. In addition to the older physics experiments, new apparatus allows students to work in such fields as the photo-electric effect, Compton scattering,

photoconductivity, Hall effect, microwaves, and many others.

An outstanding group of science technicians, dividing their time between the Bronx campus and Park Avenue, has constantly assisted the teaching members. They have constructed new apparatus, modified older pieces of equipment, assisted in research activities, and maintained the complicated equipment in addition to their regular work of setting up laboratories and demonstrations in physics and astronomy.

A new workshop has been set up in the Gillet basement so that repair and construction of equipment for the use of all the science departments can be undertaken. The shop is equipped with a new lathe, drill press, miller, welding units, glass blowing apparatus, and other tools required in a science shop.

Two grants have been received to help our laboratory expansion. One, a matching grant from the National Science Foundation, is designed to expand the Astronomy equipment on the Bronx campus, and contains provisions for a number of new telescopes, a modern mount for our six-inch refractor, and other optical equipment. The other grant, from the Atomic Energy Commission, is to establish a modern nuclear physics lab-

oratory. It provides for a four hundred channel analyzer with associated counting and scaling devices together with the radioactive sources required.

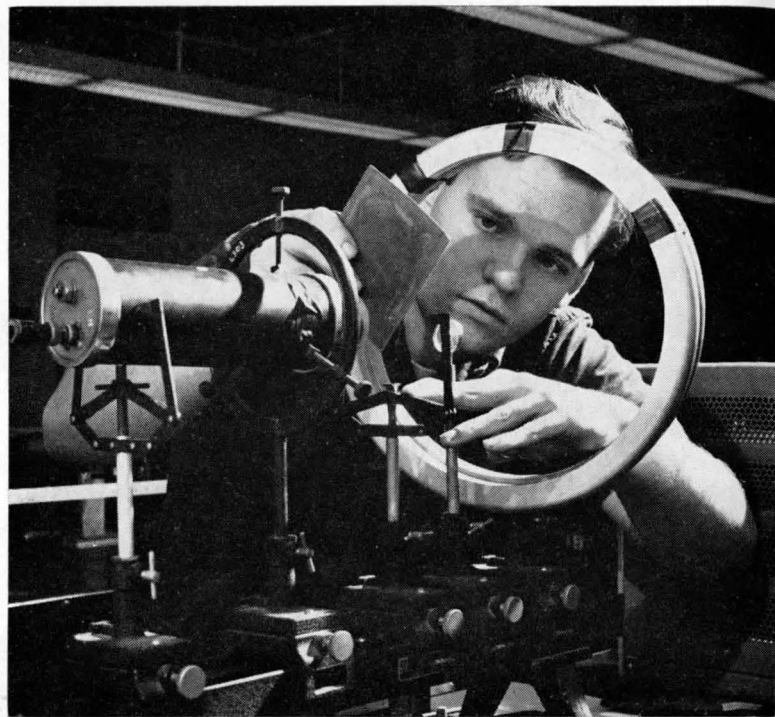
A number of the permanent faculty are now engaged in fundamental research. Professors Margaret Kennedy, Alva Turner and this writer are doing experimental work on luminescent and photoconductive materials. Professor Milton Furst does work in energy transfer of liquids; Professor Charles Engelke is engaged in low energy nuclear interactions; and Professor Alfred Bennick is doing theoretical calculations involving stellar interiors.

Professor Wilson Woodcock is the Bronx representative, and is working on new optical experiments for the intermediate laboratory. Professor Herbert Otis, the Pre-Engineering adviser, has expanded his activities to the Park Avenue building where Pre-Engineers were admitted for the first time this Fall. Professor Morton Fuchs, having recently developed a new potentiometer experiment, is working on improved laboratory experiments in dynamics.

The Department is now offering a Master's degree, and as part of the City University, is a participating member of a Ph.D. program begun this year. Except for the laboratory courses, these graduate offerings are scheduled in the evenings at Park Avenue, and offer those who have day positions an opportunity to continue their work in physics.

Because of its stress on logical thinking rather than rote memory, and its avoidance of vague generalities in

*Mr. Balkin, Science Technician, and physics student measuring the light emission of a zinc sulfide phosphor.*



*Physics student performing experiment on Compton scattering.*

favor of the experimental approach, physics has acquired the reputation of being a "tough" subject. To an increasing number of students, however, the study of physics, even on an elementary level, has been rewarded by a deeper understanding of the scientific world.

With new courses, modern equipment, and larger laboratory and research space, the Department of Physics and Astronomy looks forward to a steady growth in the study of physics at Hunter.

Faculty of Department of Physics and Astronomy:

Alfred H. Bennick, Assistant Professor (Ph.D. Columbia University)

Eugene Butkov, Assistant Professor (Ph.D. McGill University)

Charles E. Engelke, Assistant Professor (Ph.D. Columbia University)

Morton Fuchs, Associate Professor (Ph.D. University of Michigan)

Milton Furst, Associate Professor (Ph.D. New York University)

Margaret M. Kennedy, Assistant Professor (Ph.D. Fordham University)

Bernard Kramer, Associate Professor (Ph.D. New York University)

Herbert N. Otis, Professor (Ph.D. Yale University)

Alva Turner, Associate Professor (Ph.D. Columbia University)

Wilson W. Woodcock, Jr., Associate Professor (Sc. M. Vanderbilt University)