AMERICAN ASSOCIATION OF PHYSICISTS IN MEDICINE
THE MIDWEST CHAPTER
Created in 1956

Midwest Chapter Officers 2015
President: John Roeske, President-Elect: Mark Pankuch, Secretary: John Fan, Treasurer: John Matthai, Immediate Past President: Plato Lee

About the AAPM Midwest Chapter

The first organization was called "The Radiation and Medical Physics Society of Chicago" which had its first meeting on September 17, 1956 in Chicago, IL.

The original Charter Members were the following:
Louis Chandler, Don Charleston, Robert K. Clark, Ted Fields, P.F. Gustafson, F. Heinments, R.S. Landauer Sr., L.H. Lanzl, Alice McCrea, Walter S. Moos, Daniel G. Oldifeld, Jacques Ovadia, William T. Powers, Martin Rosenfeld, Glen Sandberg, Lester S. Skaggs, and G. Theodore Wood.

By May 20, 1957 the organization had a total of twenty (20) full members and eight (8) associate members. The annual dues for the organization were one dollar the first year and 2 dollars the following year.

The name of the organization was later changed to "The Radiation and Medical Physics Society of Illinois". In 1959 the organization created the Illinois Board of Radiation Physics which was responsible for certifying individuals as Radiation Hazard Control Experts. The Board was composed of the following individuals:
Robert Landauer, Lester Skaggs and Surain Sidhu.

After a lengthy discussion, in May 6th of 1965 the Radiation and Medical Physics Society of Illinois finalized its previous discussions about affiliating with the American Association of Physicist in Medicine. The proposed Constitution for the Midwest Chapter of the American Association of Physicist in Medicine was drafted on May 17, 1965.

Honorable MCAAPM Members

THE UNIVERSITY OF CHICAGO

Dr. Kuchnir was born in Bulgaria where she spent her childhood. After WW2 and 4 years under communist regime, she lived in Italy and Brazil before coming to the US to work towards a Ph. D. in Nuclear Physics under the direction of Alfred O. Hanson at the University of Illinois, Champaign-Urbana. Upon graduation, she spent 5 years at Argonne National Laboratory working on experimental Nuclear Physics applying neutron time-of-flight techniques.

In 1971, Dr. Kuchnir joined the University of Chicago. Her first responsibility as a Post-Doctoral Fellow was to develop a hospital based Neutron Therapy Facility, which operated successfully for over 10 years. During this period, she made significant contributions to research and development in neutron dosimetry. Over the years, Dr. Kuchnir has been actively involved in all aspects of research and development in clinical radiation physics as well as in the implementation of new techniques and programs. She has also made significant contributions to education, teaching undergraduate and graduate students as well as technical and medical staff. Most recently, Dr. Kuchnir initiated a residency Program in Medical Physics, which she directed up to her retirement in January 2001.

Dr. Kuchnir is fluent in five languages, has traveled extensively and with her husband, also a physicist, raised two successful children. She has mentored both professionally and personally a large number of young people with whom she keeps in touch.

http://radonc.sites.uchicago.edu/page/franca-kuchnir-phd

Dr. Donald Kerst

Physics in the 1940s: The Betatron
Professor Donald Kerst built the world's first magnetic induction accelerator at the University of Illinois in 1940. After the new machine was referred to variously as a "rheotron," an "inductron," a "Super-X-Ray Machine," and a "cosmic ray machine" in early press releases, a departmental contest was held to name it.

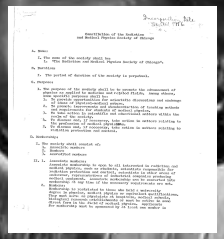
"*Ausserordentlichhochgeschwindigkeitelektronenentwickelndenschwerarbeitsbeigollitron*" was one of the more original entries. Kerst settled on "betatron." The original betatron is now on display at the Smithsonian Institution. In 1950, a 300-MeV betatron, more powerful than that called for in the original design, goes online in its own new building on the corner of Stadium Drive and Oak Street. New staff members are recruited to exploit this major new facility, including Giulio Ascoli, Gilberto Bernardini, and Edwin Goldwasser.

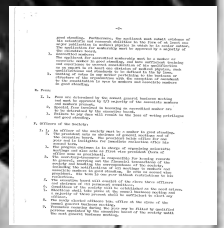
http://physics.illinois.edu/history/Betatron.asp

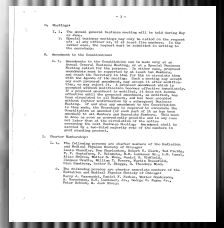
Donald Kerst with the first betatron, invented at the University of Illinois in 1940

A larger push-button 25-MeV device, shown behind Kerst in the photo above, was built by the Allis-Chalmers Company and was used as an x-ray lithography device for detecting flaws in metals or other materials for the war effort.

The Original Constitution-1956







NEW ELECTRON BEAM DEVELOPED AT UI. A 22 million volt beam of electrons, which can smash into the atom in entirely new ways, has been produced from a betatron equipped with this new vacuum tube developed at the University of Illinois. In the projection is a "peeler" which deflects electrons from inside the tube and shoots them out in a free beam. The device, a long-desired tool for atomic physics, was developed by, left to right, Doctor Lester S. Skaggs of Michael Reese hospital, Chicago, and Professor Gerald M. Almy, L. H. Lanzl, and Professor Donald W. Kerst of the University.

View of the Lineac treatment room. Dr. Lanzl is controlling the gantry.

FERMILAB

1st NAL Proton Beam

It was at 1:45 p.m. on April 17, 1969 that members of the NAL Linac Section obtained a beam of protons from the preaccelerator, the first and smallest of four cascaded accelerators which will comprise the complete 200 BeV accelerator.
The preaccelerator includes an ion source to produce the protons, and an accelerating column to give the protons a speed of four percent of the speed of light and a kinetic energy of 750,000 electron volts. The interior of the column under vacuum, one foot in length, withstands a voltage of 750,000 volts across it and operates in principle like the accelerating portion of an electron gun in a television picture tube.
Design, fabrication and testing of the preaccelerator to the present time has been primarily the responsibility of Cyril Curtis, physicist; Glenn Lee, mechanical engineer; and Charles Sharp, Gregory Urban, Raymond Hren and James Wendt, technicians. Many other persons in the Linac Section and elsewhere have made important contributions in bringing the system to its present stage of completion. A part of the construction was accomplished in the Physical Science Laboratory of the University of Wisconsin. The assistance of Argonne National Laboratory in the loan of their high voltage supply, while the NAL supply is under construction, made the early testing of the preaccelerator possible.
Protons are produced in the ion source by striking an arc discharge in hydrogen gas. The single negative electron is thereby stripped from the hydrogen atom leaving the positive nucleus, a proton, to float freely in the resulting plasma. Application of an electric force field extracts protons from the surface of the plasma and sends them' on their way as a stream of positive particles.
Operation of the ion source first occurred m January 20. Bean currents up to 300 milliamperes were obtained. To elate a current of approximately 50 milliamperes has been accelerated through the column to 745,000 electron volts of energy during initial testing The goal is a beam current of 225 milliamperes with highly directive properties for injection into the Linear Accelerator (Linac).
The properties of the beam from the preaccelerator are important in influencing the "quality" of the beam at all later staves of acceleration in the Linac, Booster, and Main Ring. At the highest energy there is a memory of the beam properties from the preaccelerator, with little that can be done to improve, albeit much that can be done to degrade, the initial beam quality. Effort therefore, will be devoted during the coming months to beam measurements and ion source adjustments for achieving the best beam quality.

Source: The Village Crier Vol. 1 No. 2, April, 1969

A glimpse of MCAAPM

Kerst and Skaggs with the doughnut. Skaggs oints at the electron beam exit port. Med. Phys. 2, p297.1975

MCAAPM April 19, 2008 spring meeting at Alexian Brothers Hospital

Plato Lee and Mary Ellen Smajo
Midwest Chapter 2013

Franca T. Kuchnir
Midwest Chapter 2013