A History of the Department of Physics

In 1939, at a time when Afro-American physicists were extremely rare, Dr. William H. Robinson began the department. He was the vibrant heart of the department until his death in 1961. After Dr. Robinson the department faltered under several interim leaders, until Dr. Angelaurelio Soldi undertook a renewal of the Department, beginning in 1965. He re-energized the program with the support of a National Science Foundation grant. Additional funds brought in new faculty who began developing the courses and initiated research programs.

At its inception the Physics Department occupied the entire second floor of the Science Building which later would be renamed the Robinson Science Building. The facilities comprised two classrooms, two laboratories, two small storage rooms, and two offices. The department had two tenure track positions.

Under Dr. Soldi’s leadership, the Physics Department undertook a series of course development initiatives, beginning with an extensive review and expansion of the curriculum for the B. S. in Physics, supported by a three-year NSF curriculum grant (1967-1970). This was followed by a Kenan Foundation grant (1970-1973) to support the development of a unique science course for Elementary Education majors, The Language of Science. Later the Department participated in the IDP grant (1973-1976), funded by the Department of Education, developing facilities and courses to teach computational physics and upgrading the laboratories for the service courses.

In 1970 the Physics program expanded and grew to occupy two floors, the third floor and the basement floor, in the renovated Robinson Science Building. During this period, the faculty grew to four positions (Drs. Albert Clark, Charles R. Jones, Ki-Hyon Kim, and Angelaurelio Soldi) and faculty members began to lay the foundation for their individual research projects. In 1970 The Research Corporation funded Dr. Soldi’s research on the decay of K mesons. In 1978, Drs. Dutta and Jones secured the first of many research grants for the support of experimental research in the area of millimeter waves. This particular research program has continued to be supported without interruption for thirty years, providing opportunities for students to participate in meaningful research efforts while also supporting them financially. Subsequently, other funded research programs in Nuclear and Computational Physics have offered opportunities as well (Dr. Kim, Dr. Soldi). In 1997, the Physics Department was invited to join a five-year partnership with Thomas Jefferson National Laboratory. This opened the opportunity for faculty and students to work at a major research facility and provided support for two new “bridge” faculty positions. This partnership has continued in various formats since that time.

From its foundation, the mission of the Physics program has been to educate physicists for careers in teaching, government, and industry and to prepare them to enter graduate programs and academic careers. The Physics program also has contributed to BS programs in Biology, Chemistry and Mathematics by offering Physics courses for those majors. In addition, the Program has provided courses specifically designed for science teachers and for the General Education Program.

In 2005, the Physics Program moved to new facilities in the Mary M. Townes Science Complex. The tenure track positions in the department grew to seven; the facilities grew to comprise five research laboratories and four student laboratories.

More recently, in 2007, a MS Degree in Physics has been added and the mission of the Physics program has expanded to provide world-class educational and research programs and prepare students for jobs in education, industry, and for further studies in physics and related areas.

Since its beginning, the Physics Department has led in academics and research. When first established by Dr. Robinson, the Physics program at North Carolina College was one of the few Physics programs offered at Black Colleges and from the beginning produced competent scientists. Notable among its early graduates is Dr. Wade Kornegay, who rose to lead the Radiation Laboratory at MIT. Since then graduates from the Physics program have distinguished themselves in research: Dr. James P. Lucas (Professor at Michigan State University), Dr. Mary Peters (Associate Professor at Appalachian State University), Renee Payne Baggott (Assistant Professor at Hampton University), Dr. Anderson Sunda Meya (Assistant Professor at Xavier University); in teaching; Albert Jones (High School Teacher, St. Petersburg, VA); and in business; Mr. Fred Mc Griff (IBM-RTP).

Over the years, the program has served foreign students from Botswana, Croatia, Ethiopia, Rumania, Malaysia, Trinidad, Jamaica, Niger, Nigeria, Germany, Pakistan, China, and South Africa. Some students have returned to their countries to teach
(Mr. A. Alexander, Mr. K Hannibal). Others have earned degrees in different fields and begun promising careers (Mr. Uzoka, BS, EE Duke, Mr. V. Knezevic, Ph D Biomedical Engineering, MIT and Columbia, Ibrahim Cessee in Ph.D. Physics Program University of Illinois-Urbana-Champaign, Mr. K. Ramkissoon, Ph.D. Genetics, UNC, Ms. M. Archibald, MS System Engineering, Georgia Tech).

During the seventies, eighties and nineties a succession of grants from NSF, The Research Corporation, The Kenan Foundation, The Department of Education, NASA, DOD, AFOSR, DOE, ARO, NREL, and TJNF supported research programs in millimeter-wave studies under the leadership of Dr. Jones and Dr. Dutta; in experimental nuclear physics under the leadership of Dr. Kim and Dr. Vlahovic; in theoretical nuclear physics and computational physics under the leadership of Dr. Soldi and Dr. Vlahovic, in semiconductors, photovoltaics, and nanotechnology under the leadership of Dr. Vlahovic and Dr. Dutta. Special facilities were developed, such as an electron gun by Dr. Jones and a polarimeter for high energy linearly polarized photons by Dr. Vlahovic.

More recently the mission of the Physics Program has expanded to include a masters degree program, and new research programs have been developed in low energy nuclear physics (Drs. Crowe, Markoff, Kim, Suslov, Filikhin, Vlahovic); in Neutrino physics (Dr. Markoff); in Nuclear intermediate physics and hypernuclear physics (Drs. Filikhin and Vlahovic); in Millimeter-Wave Physics (Dr. Dutta and Dr. Jones); in Nanotechnology (Drs. Wu, Bondarev, Filikhin, Vlahovic); and in Optics (Dr. Tang). The department is the most productive department at the university, publishing an average of 50 scientific, peer-reviewed papers per year.

The department is active internationally; it has strong international collaboration with University of St. Petersburg in Russia, University of Zagreb in Croatia, KamLAND and Spring-8 in Japan, CERN in Switzerland, Applied Physics Lab (RAS) in Russia, and University of Karlsruhe in Germany. Domestic collaborations include Jefferson National Laboratory, NASA-Glenn, NASA-Goddard, NASA-Ames, The National Renewable Energy Laboratory, Fermi lab, Duke University, Fisk University, Cornell University, N.C. State University, and SUNY, just to mention a few.

The department organized three international conferences - in 1998 and 2003 International Conferences on Nuclear and Particle Physics in Dubrovnik Croatia and in 1999 International Conference for High Energy Polarimetry at Jefferson Laboratory.

NCCU is the first ever HBCU institution, among the seventeen UNC-system institutions, whose science faculty member received the O. Max Gardner Award, Dr. Vlahovic in 2004. The same year a student, Mr. Cessee, was national finalist for the prestigious Apker undergraduate research award, organized by The American Physics Society. In 2008 Dr. Kim was awarded the prestigious Korean-American Scientists and Engineers Association award for contribution to science and international relations.

The department is being globally recognized for successful research. Physicists on its faculty are the only one who can perform a few body rigorous calculations with three particles when the interaction includes the Coulomb force (Dr. Suslov and Dr. Vlahovic) and four particles when three of them have different masses (Drs. Filikhin, Suslov, Vlahovic). These are very important, long standing problems approached worldwide by many research groups in the USA, Europe and Japan over the last five decades. The recently built computer code for calculations of nanostructure properties is also one of the most accurate ever developed (Drs. Filikhin, Vlahovic).

Several new state-of-the-art laboratories have been established: Laboratory for Terahertz Physics (Dr. Dutta, Dr. Jones), Laboratory for Semiconductors Characterization (Drs. Wu, Dutta, Vlahovic), Nanotechnology Laboratory for Pulsed Laser and Electron Beam Deposition of Nanostructures, which also includes factor 1000 clean room (Drs. Wu, Jones, Vlahovic), Laboratory for Optical Characterization (Dr. Tang, Dr. Vlahovic), Nuclear Laboratory (Dr. Kim).

A recently awarded NSF CREST proposal (2008) will allow the establishment of a Center of Excellence, the “Computational Center for Fundamental and Applied Science and Education at North Carolina Central University,” that will provide the framework required for the conception and execution of interdisciplinary research and education. The Center will establish cutting-edge research and novel cross-disciplinary undergraduate and graduate educational training programs at NCCU.

The goal is to further enhance and expand the degree programs and continues with quality improvement of physical facilities and equipment and the establishment of educational and research activities in physics. That will continue to make a significant contribution to the University's rigorous undergraduate and graduate studies and empower students to integrate theoretical and applied knowledge that are critical to their needs as they work toward achieving their personal, academic and career goals.
Leaders of the Physics Department from its inception in 1939 to the present have been the following:

- Dr. William H. Robinson, Chairman (1939-1961)
- Mr. Alexander B. Gardner, Acting Chairman (1961-1963)
- Dr. Paul T. Sikora, Acting Chairman (1963-1965)
- Dr. Angelaurelio Soldi, Acting Chairman (1965-1967)
- Dr. Angelaurelio Soldi, Chairman (1967-1974)
- Dr. Albert Clark, Chairman (1974-1976)
- Dr. Ki-Hyon Kim, Chairman (1976-1980)
- Dr. Charles R. Jones, Acting Chairman (1980-1982)
- Dr. Ki-Hyon Kim, Chairman (1982-1985)
- Dr. Charles R. Jones, Chairman (1985-1989)
- Dr. Angelaurelio Soldi, Chairman (1989-1998)
- Dr. Charles R. Jones, Chairman (1998-2001)
- Dr. Wendell W. Wilkerson, Chairman (2001-2003)
- Dr. Branislav Vlahovic, Chairman (2003-Present)

**Slogan:** From solid foundations to excellence and leadership

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Sources: Department of Physics Records

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