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Descriptive Summary

Identifier        ICU.SPCL.BOHR
Title             Bohr, Niels. Collection
Date              1909-1963
Size              1.5 linear feet (3 boxes)
Repository        Special Collections Research Center
                  University of Chicago Library
                  1100 East 57th Street
                  Chicago, Illinois 60637 U.S.A.

Abstract          Niels Bohr, Physicist. This collection contains documents pertaining to Niels
                   Bohr, the Dutch physicist who made major contributions to understandings
                   of atomic structure, nuclear fission, and nuclear policy. The materials include
                   offprints of published writings by and about Bohr and his work. Some of
                   Bohr's writings are coauthored with other physicists. The writings about
                   Bohr both predate and postdate his death. The collection also includes
                   mimeographed copies of letters and the transcripts of lectures. There are also
                   photographs of Bohr and his laboratory staff and several printed brochures
                   pertaining to Bohr, his laboratory, and related events.

Information on Use

Access            No restrictions.

Citation          When quoting material from this collection, the preferred citation is: Bohr, Niels. Collection,
                   [Box #, Folder #], Special Collections Research Center, University of Chicago Library

Biographical Note

Niels Bohr was a Danish physicist who made tremendous contributions to his field, transforming
accepted notions of atomic structure, helping to develop nuclear fission, and advocating for
international cooperation in crafting responsible nuclear policy.

Bohr was born in Copenhagen in 1885 into a family that encouraged his academic pursuits.
Christian Bohr, his father, was professor of physiology at the University of Copenhagen. Bohr
credited his father for awakening his interest in physics at a young age. His mother, Ellen Adler
Bohr, came from a wealthy Jewish family that was prominent in the field of education. Bohr's
brother Harald was a mathematician and Olympic soccer player for the Danish national team.
Bohr graduated from Gammelholm Grammar School in 1903. He then entered Copenhagen University where he earned a Master’s degree in Physics in 1909 and a doctorate in 1911. His mentor there, Professor C. Christiansen, was an innovative and well-respected physicist. During graduate school, Bohr won a gold medal from the Academy of Sciences in Copenhagen for his experimental and theoretical exploration of liquids’ surface tensions using oscillating fluid jets. He performed the experiments in his father’s laboratory, the results of which were published in 1908 in the Transactions of the Royal Society. Following the receipt of this award, however, his work became increasingly theoretical in character. His doctor’s disputation, a theoretical explanation of the properties of metals that relied upon electron theory, remains a classic meditation on this subject.

Upon earning his doctorate, Bohr moved to Cambridge, where he pursued his own theoretical work while simultaneously observing the experimental work directed by Sir J.J. Thompson in the Cavendish Laboratory. In 1912 he moved to Manchester, where he worked in Professor Ernest Rutherford’s laboratory. Rutherford’s discovery of the atomic nucleus became the basis of Bohr’s investigation of atomic structure. In 1913, Bohr developed his model of atomic structure, which held that electrons travel in orbits around an atom’s nucleus. The chemical properties of the element, his theory held, were determined by the number of electrons in orbit. When an electron dropped from a high-energy orbit to a lower-energy orbit, it emitted a photon of discrete energy. This discovery was central to the development of quantum theory.

Bohr held the position of Lecturer in Physics at Copenhagen University from 1913-1914, and at Victoria University in Manchester from 1914-1916. In 1916, Bohr was appointed Professor of Theoretical Physics at Copenhagen University. From 1920 until his death in 1962, he led the Institute for Theoretical Physics, which was established for him and eventually named for him. In the 1920s and 1930s, Bohr’s laboratory hosted most of the world’s leading theoretical physicists.

In 1922, Bohr received the Nobel Prize in physics "for his services in the investigation of the structure of atoms and of the radiation emanating from them.” Following his receipt of the Nobel Prize, Bohr increasingly investigated the constitution of atomic nuclei, including their transformations and declensions. Bohr also invented the principle of complementarity, the notion that items could be understood as having contradictory properties. Albert Einstein was a vocal opponent of this principle, and he and Bohr had several famous arguments over its feasibility.

While the Nazis occupied Denmark during World War II, Werner Karl Heisenberg, a top German physicist and Director of the Kaiser Wilhelm Institute for Physics, visited Bohr. In 1943, just before he was to be arrested by Nazi police, Bohr escaped to Sweden. He spent the remaining years of the war in England and the United States. In America, Bohr worked at the secret Los Alamos Laboratory on the Manhattan Project, where his assumed name was Nicholas
Baker. The younger scientists on the project valued Bohr's contribution as a mentor and consultant. His concern about a nuclear arms race, he explained, was "why I went to America. They didn't need my help in making the atom bomb."

Bohr believed that atomic secrets should be shared by all in the international scientific community. Bohr visited President Roosevelt to convince him to share the Manhattan Project with the Russians for the purpose of speeding its progress. Upon Roosevelt's suggestion, Bohr took this idea to England, where Prime Minister Churchill completely opposed the idea. After the war, Bohr returned to Copenhagen. He spent his last decades developing and promoting the peaceful applications of atomic physics. His Open Letter to the United Nations, published on June 9, 1950, sets forth his views. In his lifetime, Bohr authored or co-authored more than 115 published works.

Bohr married Margrethe Norlund in 1912. They had six sons, of whom two died in childhood. The other four led successful lives.

**Scope Note**

The collection contains offprints of published writings by and about Bohr and his work. Some of Bohr's writings are coauthored with other physicists. The writings about Bohr both predate and postdate his death. The collection also includes mimeographed copies of letters and the transcripts of lectures and a debate between Bohr and Albert Einstein. There are also photographs of Bohr and his laboratory staff and several printed brochures pertaining to Bohr, his laboratory, and related events. The materials date from 1909 to 1963, the year after Bohr's death.

The collection is divided into three series. Series I, "Writings by Bohr," contains the page proofs and typescripts of several articles authored by Bohr. The series also includes a mimeographed copy of a letter from Bohr to fellow physicist Wolfgang Pauli and a mimeographed copy of an address given by Bohr at the Newton Tercentenary Celebration at the Royal Society of London.

Series II, "About Bohr," contains writings about the physicist. These include copies of speeches, letters and essays about Bohr, newspaper clippings about his accomplishments, and several booklets commemorating Bohr and his laboratory. There are also several photographs: one of Bohr, which contains his signature, and two others which are group shots of Bohr with his coworkers.

Series III, "Offprints," is divided into two subseries. The first, "Presentation Copies," consists of formal printed materials from which Bohr made presentations. The second, "Chronological List," contains all other offprints in the collection and is arranged by publication date. When a publication was co-authored, the other author or authors are listed.
Related Resources
The following related resources are located in the Department of Special Collections:

http://www.lib.uchicago.edu/e/spcl/select.html

Subject Headings

• Bohr, Niels Henrik David, 1885-1962
• Atomic Theory
• Atoms
• Complementarity
• Nuclear Reactions
• Physicists -- Denmark -- Biography
• Physics -- History
• Physicists -- History -- 20th Century
• Physics -- Nuclear Physics
• Physics -- Philosophy
• Quantum Theory
•
• Physicists -- Biography

INVENTORY

Series I: Writings by Bohr

Box 1
Folder 1
  Typescript of The Penetration of Atomic Particles Through Matter. Kobenhaven, Munksgaard, 144 pp., 1948. (Author’s copy, without corrections)

Box 1
Folder 2
  Initial page proof of The Penetration of Atomic Particles Through Matter. Kobenhaven, Munksgaard, 144 pp., 1948. (With corrections)

Box 1
Folder 3
  Final page proof of The Penetration of Atomic Particles Through Matter. Kobenhaven, Munksgaard, 144 pp., 1948. (With corrections)

Box 1
Folder 4

Box 1
Folder 5

Box 1
Folder 6
"Discussion with Einstein on Epistemological Problems in Atomic Physics."

Box 1
Folder 7
Carbon copy of a letter to Wolfgang Pauli (Nobel Prize 1945) dated May 16, 1947 and concerning the article: "Discussion with Einstein on Epistemological Problems in Atomic Physics."

Series II: About Bohr

Box 1
Folder 8

Box 1
Folder 9

Box 1
Folder 10
Aage Petersen, "Niels Bohr's Philosophy." Two talks given on the Danish Radio, April 1963, 20 pp. (Mimeographed)

Box 1
Folder 11

Box 1
Folder 12

Box 1
Folder 13
Collection of humorous material produced at the Institute in the late 1940s, including "Journal of Jocular Physics, Volume II, October 7, 1945" and a parody entitled "Faust, Eine Historie."

Box 1
Folder 14
Newspaper clippings and brief tributes to Bohr's achievements.

Box 1
Folder 15
Carbon copy of a letter dated 13 July 1947 to Dr. Jost from Bohr's son Aage Bohr.

Box 1
Folder 16
Postmarked envelope from S. Hellmann to Dr. Robert Platzman, Argonne National Laboratory, dated 21 November 1963.
Box 1
Folder 17
Signed portrait photograph of Bohr, 5 ¾'' x 4 ¼''

Box 1
Folder 18
Three group photos at Bohr's Institute, late 1940s.

Box 1
Folder 19
Booklet from "Physics in 1922 - An Exhibit."

**Series III: Offprints**

**Subseries 1: Presentation Copies**

Box 2
Folder 1

Box 2
Folder 2

Box 2
Folder 3

Box 2
Folder 4
"Das Quantenpostulat und due Neuere Entwicklung der Atomistik." Die Naturwissenschaften, 15, 18-257, 1928. Presentation copy to Prof. Dr. J. Franck.

**Subseries 2: Chronological List**

Box 2
Folder 5

Box 2
Folder 6

Box 2
Folder 7
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Folder 8

Box 2
Folder 9

Box 2
Folder 10
"Zur Frage der Polarisation der Strahlung in der Quantentheorie." Zeitschrift fur Physik, Band 6, Heft 1, 1-9, 1921.

Box 2
Folder 11

Box 2
Folder 12

Box 2
Folder 13

Box 2
Folder 14

Box 2
Folder 15

Box 2
Folder 16
"Uber die Anwendung der periodisches System der Elemente." Zeitschrift fur Physik, Band 34, Heft 2/3, 142-157, 1925.

Box 2
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Folder 19
"Uber die Wirkung von Atomen bei Stossen." Zeitschrift fur Physik, Band 34, Heft 2/3, 142-157, 1925.
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"Medical Research and Natural Philosophy." Acta Medica Scandinavica, Supplementum CCLXVI (266), (Accompanies Vol. CXLII (142)), 967-972, 1952.

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