

Physikalisches Kolloquium Universität Kiel
Wintersemester 2013/2014

Dienstag, 10. Dezember 2013

Prof. Amand Lucas

(University of Namur, Belgium)

Niels Bohr, X-Rays and the Secret of Life

The discovery of Bohr's atomic model in 1913 coincided with several other breakthroughs in physics, notably the discovery of diffraction of X-Rays by an atomic lattice which revealed their electromagnetic nature and led to their use for the determination of atomic structures. The X-Ray diffraction method was soon applied to large biomolecules whose structure could hint at their function in life processes at the molecular level. With respect to the nature of life, Bohr defended strong views, inspired from the quantum complementarity concept, which although influential in creating a research legacy, would not be upheld by later discoveries in biology. The search for bio-molecular structures and functions triumphed in 1953 with the discovery of the DNA double helix boldly characterized by J. Watson and F. Crick as the "Secret of Life". I will explain just how X-Ray diffraction of DNA fibers, measured by M. Wilkins and R. Franklin, guided Crick and Watson to their great discovery. In view of making X-Ray fiber diffraction understandable to a broad public, I will present optical diffraction experiments to demonstrate visually which structural characteristic of the DNA conformations corresponds to each major feature of their X-Ray images. By the time of Bohr's death in 1962, a prosaic kind of chemical complementarity had been found to preside all over bio-molecular processes but had nothing in common with the complementarity envisaged by the great quantum creator.

Der Vortrag findet um **17:00 Uhr** im Hans-Geiger-Hörsaal (LS13-R.52) des Physikzentrums statt.
Ab **16:45 Uhr** werden **Kaffee** und **Tee** angeboten.

Bitte Becher mitbringen!

B. Heber
für die Dozenten der Physik

Gastgeber: Prof. Dr. B. Schattke, ITAP