



EINLADUNG ZUM KOLLOQUIUM

Prof. Ph.D. Allan Franklin

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Experiment, Then and Now

One interesting aspect of high-energy physics from the 1960s to the present has been the changes in the statistical criterion required for a discovery claim. In this talk I will discuss these changes as well as other changes in the reporting of experimental results, particularly those involving elementary particles from 1893, the publication date of Volume 1 of *Physical Review* to the present. Topics will include the problem of exclusion of data and the selection of data, the scale of experiments, the change in from a very realistic presentation of an experiment to a more schematic presentation, and the amount of historical detail presented. Examples will include Robert Millikan's oil drop experiments, Edwin Hall's experiments on falling bodies, and some recent experiments on the pentaquark.

Dr. Allan Franklin Professor Franklin's research is on the history and philosophy of science, with particular emphasis on the role of experiment in physics. He has done historical studies on parity conservation, CP-violation, and Millikan's oil drop experiment. On the philosophical side, he has worked on the Duhem-Quine problem, the question of how one can localize support or refutation, and on confirmation theory, using a Bayesian approach. He has also discussed an epistemology of experiment, a set of strategies that provide rational belief in experimental results. These strategies distinguish between a valid experimental result and an artifact created by the experimental apparatus. More recently he has worked on the fallibility and corrigibility of experimental results and the resolution of discordant results. He has also completed studies of the interaction of theory and experiment in the development of the theory of weak interactions from Fermi to V-A, a history of atomic parity violation experiments and their relation to the Weinberg-Salam unified theory of electroweak interactions. He has also worked on the history of the "Fifth Force" in gravity and a review of the history of the proposed 17-keV neutrino. He has written a history of the neutrino, from its proposal in 1931 to the present and his most recent book *Selectivity and Discord: Two Problems of Experiment* deals with the issues of experimenter bias and of the resolution of discordant experimental results. His most recent work, "Ending the Mendel-Fisher Controversy," is on the history of genetics.

Montag, 24.10.2011

18 c.t. Uhr

HS 04 (F.10.01)

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