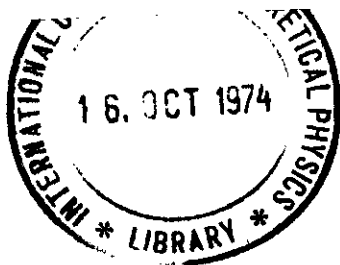


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INTERNAL REPORT
(Limited distribution)

International Atomic Energy Agency

and

United Nations Educational Scientific and Cultural Organization

INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS

TOPICAL MEETING
ON THE PHYSICS OF COLLIDING BEAMS

20 - 22 June 1974

(SUMMARIES AND CONTRIBUTIONS)

MIRAMARE - TRIESTE

July 1974

PHYSICS WITH HIGH-ENERGY e^+e^-p COLLIDING BEAMS

M. Chanowitz

SLAC, Stanford, Cal., USA.

The new data on $e^+e^- \rightarrow$ hadrons seems to have annihilated theoretical expectations, which were motivated by the deep inelastic scattering at SLAC. At the moment it is unclear whether this is just a reflection of our own ineptness or if it reflects exciting new phenomena for which we have had no previous hints. In the latter case, it will be essential to study e^+e^- and ep scattering at higher energies. I will discuss the physics which it will be possible to investigate at the generation of e^+e^- and $e^\pm p$ colliding beam facilities now on the drawing board. I wish to emphasize especially the fundamental importance of testing QED at smaller distances - because we then probe the structure of space-time itself and because what we learn may be of value in the effort to understand hadrons in field theoretical terms. Other topics are: hadronic cross-sections, weak interactions, new particle searches and photon studies complementary to hadronic studies at NAL and ISR.