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October 11, 1982

Dr. Leon Lederman, Director  
Fermi National Accelerator Laboratory  
P.O. Box 500  
Batavia, Illinois 60510  
U.S.A.

Dear Leon,

I am spending the 1982-83 year in Cambridge, following up our existing FNAL-based collaboration with the Cavendish HEP physicists while learning something about the physics and techniques of Collider experiments. As you know, John Rushbrooke of this laboratory is the spokesman for the UA5 collaboration at the CERN SPS Collider. Notre Dame plans to participate in the next phase of the UA5 work.

The UA5 experiment was conceived originally as being complimentary to the UA1 and UA2 experiments, using proven techniques to provide early answers regarding the physics of a new energy regime. There has been extensive publication in Physics Letters and in conference reports of results from the first UA5 running in October-December 1981, particularly as regards charged particle production (multiplicities, pseudorapidity distributions, correlations) and the production of photons and of strange particles. The lack of evidence as yet for Centauro-like events at  $\sqrt{s} = 540$  GeV, and the indications in the strangeness production of the onset of new mechanisms producing strange particles of high  $\langle p_T \rangle$ , I find especially interesting. New data from a second UA5 run in September 1982 is now undergoing intensive analysis. The UA5 collaboration will shortly be proposing an extension of their program to  $\sqrt{s} = 800-900$  GeV by ramping the SPS magnets in such a way that the integrated power consumption is not significantly increased.

It seems evident that it would be advantageous to FNAL to have a UA5-equivalent experiment at the Tevatron collider, to complement the CDF program. As I read the sense of the collaboration, UA5 is very much interested in the option of transferring their apparatus to FNAL, assuming appropriate funding mechanisms can be devised, but feels that the timing of the current call for D0 letters-of-intent and proposals is, from their point of view, premature. Nevertheless I will be attending the Nov. 19-20 FNAL workshop, representing Cambridge as well as Notre Dame interests, and I would be happy to report on UA5 progress to date if the workshop organizers so wish.

Sincerely,

*Paul*

V. Paul Kenney

copy: J. Rushbrooke