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February 13, 1991

Dr. Kenneth Stanfield, Assistant Director
Fermilab National Accelerator Laboratory
Batavia, Illinois

Dear Ken:

The SSCintCal collaboration would like to request time in the CDF test beam during the summer of 1991. We are building a full-scale scintillating fiber/lead alloy calorimeter prototype as part of our SSC research and development work. The prototype will consist of 4 projective hadronic towers, together weighing about 4 metric tons, as well as several smaller electromagnetic towers. Manufacture design work on the hadronic modules is well underway and several electromagnetic modules have already been built. We estimate that we will have finished fabrication by mid-April and will have completed tests in BNL's A3 test beam by mid-May. These beam tests would be followed by high-energy tests at Fermilab in June or July.

Fabrication will include preliminary tests on each module. Our corporate partners, Charles Draper Laboratory, will monitor carefully their structural integrity and stability. We will measure the detectors' response to radioactive sources and test the optical system with a combination of lasers and LED flashers. The complete prototype will then be thoroughly tested in the BNL beam to characterize the device uniformity, resolution, linearity, and compensation properties at intermediate energies.

We would like to determine the response of our detector to electrons and pions in a fairly large momentum range, from 100 GeV down to the beam's lower limit. To measure spatial uniformity we will also scan the beam across the face of each module and across the cracks between them. A multiwire proportional chamber just upstream of the calorimeter would be extremely useful in determining the precise incident position of incident particles. We estimate that 8 days of beam time will be necessary to complete the necessary measurements. The primary purpose of these tests will be to characterize the device resolution, uniformity, linearity, and compensation properties at high energies.

The detector prototype will be constructed of plastic scintillating fibers cast within a lead alloy, in the shape of a truncated square pyramid. The pyramid will be 70cm x 70cm at its large end and 30cm x 30cm at its small end, with a total length of 200cm - the total weight will be 4 metric tonnes. We will need some means to maneuver this rather heavy device, probably the table that was built for Adam Para. Our data acquisition needs are modest, a few hundred RABBIT channels should suffice for the EM and hadronic modules, and we have no objection to data tapes written in CDF format. We would ask that we not have to share the beam with any other calorimeters. Tracking experiments conducted upstream should pose us no special problems.

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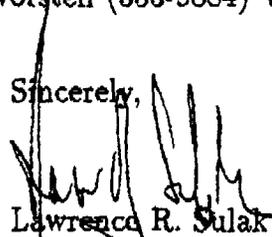
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For planning purposes, it is important to know by March 1 whether you will be able to accommodate us. Please call me or Professor Bill Worstell (353-9884) with any questions. Thank you in advance for your help.

Sincerely,



Lawrence R. Sulak
Co-Spokesman, SSCintCAL
Chairman and
David Myers Distinguished Professor

LRS/jr