cc: D. Cossairt

University of Pittsburgh
FACULTY OF ARTS AND SCIENCES
Department of Physics and Astronomy

February 1, 1991

Professor Paul Slattery
Department of Physics and Astronomy
University of Rochester
Rochester, NY 14627-0011

Dear Paul:

Attached is a letter from Unil Perera of this department to me requesting that he be allowed to place some (about 10) silicon p-i-n diodes in and around the M-West beam dump prior to our next data run. The diodes would remain in place for the duration of the five-month run. Each diode is about the size of a 25¢-piece and would fit nicely into several crevices and on the surface of the present beam stop, with no modifications to the stop required. There are no read-out or support electronics involved. I have discussed this request with George Ginther and he suggests that I forward this request to you.

The ssensitivity of these diodes is currently 1 impurity charge per 10^{20} silicon atoms and so for the entire diode, 500 fractionally charged particles would be required to bring the signal above the noise. It's obviously a very long shot but Perera thinks its worth doing and has gotten some support from the DOE for this purpose.

I would appreciate your forwarding this request to the Fermilab management and please let me know if additional information is required.

Regards

Eugene Engels, Jr.

EE:mwg
Enclosure

PITTSBURGH, PA 15260 (412) 624-9000 FAX: (412) 624-9163

University of Pittsburgh
FACULTY OF ARTS AND SCIENCES
Department of Physics and Astronomy

January 21, 1991

Prof. E. Engels,
Department of Physics,
University Of Pittsburgh,
Pittsburgh,
PA 15260.

Dear Dr. Engels:

We are interested in placing some silicon p-i-n diode samples in (or behind) the beam dump at the MWEST beamline at Fermilab. Our goal is to expose these samples to the particles created at a high energy particle beam. At present we are engaged in an experiment for a "Search for fractional charge impurities" supported by the Department of Energy. Our method involves a combination of IR impurity level spectroscopy and field ionization at low temperatures suggested by Coon and co-workers in Phys. Rev. Letters in 1978. The method has been shown to be successful with integer charge impurities. We hope that if there are fractional charges created, a collision of a high energy beam will be an excellent place to look for them. Hence, by placing the samples at the beam dump, there might be a possibility of stopping the created fractional charges inside the silicon.

Thank you for considering this request. If I may be of any assistance, please feel free to contact me at the above address or at (412) 624-9082.

Sincerely yours,

Unil Perera
Res. Assistant Professor of
Physics

PITTSBURGH, PA 15260