Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Diagnostics Development for the Ignition Experiment Ignitor[1]
G. PIZZICAROLI, F. BOMBARDA, ENEA, Italy, A. LICCIULLI, M. FERSINI, Università di Lecce, Italy, D. DISO, SALENTEC, Lecce, Italy, H. KROEGLER
— The Ignitor experiment is designed to reach ignition conditions. The short, but intense neutron flux will pose challenging conditions for diagnostics, such as magnetic sensors or bolometers, in direct proximity, or in direct view, of the plasma. An R&D program is in progress to manufacture mineral insulated magnetic coils with a reduced sensitivity to radiation effects. A double layer, MgO insulated Ni coil has been produced and tested. The wire is wound on an alumina core and the coil is housed in an alumina box for high refractoriness and minimum vacuum degassing. A lanthanide glass ceramic has been used as sealant for the box. At the same time, alternative methods to provide critical plasma position information during the high performance discharges in Ignitor are being explored. For example, the radiation emitted at the plasma edge by Mo^{+14} can be monitored by means of a soft X- ray spectrometer equipped with a GEM detector, which allows high counting rates (> 1 MHz) and provides good energy resolution and flexibility of design. A 10×10 cm^2 multichannel prototype with its associated fast read-out system is being assembled. A layout of the complete spectrometer compatible with the Ignitor port design has been carried out, and the bolometer system design has been updated.

[1]Sponsored in part by ENEA of Italy and by the U.S. D.O.E.

Francesca Bombarda
ENEA/MIT

Date submitted: 14 Aug 2008 Electronic form version 1.4