

Some Background Measurements on the MAX spectrometer at KENS

C.G. Windsor

AERE Harwell, and Tohoku University, Sendai

The figure shows some data taken in October 1980 on the background level from the 3 counters on MAX at 16°, 22° and 28° while they were set to analyse neutrons at the graphite 002 reflection with $\theta_A = 2\theta_S$. Generally the background is seen to be extremely low with only around 1 count per 1000 μs in 10 minutes. However at low flight times the background rises to appreciable values as shown.

- 1) The full circles show the normal operating background.
- 2) Open circles show the background with the beam shutter closed. Clearly all our background is generated by our own beam.
- 3) Crosses show the background with the graphite analysers offset by 5°. There is little change. We are clearly not seeing air scattering.
- 4) Cadmium either before our sample or before our collimators had negligible effect. We are seeing the effect of fast epi-cadmium neutrons.
- 5) Removing the upper shield and side shield reduced the $> 1 \text{ eV}$ background (squares). Thus we are seeing the effect of shielding moderating and emitting fast neutrons. Boron or cadmium lining of all shield surfaces is therefore suggested.

