



FIG. 6. Intensity vs pressure ZnS:Cu (1020).

Some measurements were also made on an hexagonal ZnS:Cu phosphor (BS No. 1022). Since the decay is

not a simple exponential, no characteristic time can be given, but decay curves are shown in Fig. 6. The rate of decay was substantially independent of pressure to 35 000 atmospheres. In the neighborhood of 40 000 atmospheres there was an apparent abrupt increase in the decay rate accompanied by a large decrease in intensity. The rate at high pressure was difficult to reproduce because of low intensity. This change of decay rate was irreversible, as the rate changed only slightly upon returning to one atmosphere pressure. X-ray powder patterns of the material before and after pressurizing showed that the hexagonal crystal had been converted substantially completely to the cubic (zincblende form). A pressure induced transition of this kind would be expected as the stable low-temperature form is cubic. Some measurements were attempted on another cubic ZnS:Cu sample, but intensities were too low for good data. There seemed to be a measurable increase in decay rate with pressure.