nection between the formation of this surface and the rarefaction jump propagating in the specimen behind the front of the compression shock wave.

In the opinion of the authors, these fracture phenomena serve as an experimental proof of the existence of rarefaction shock waves in substances that experience a polymorphic transition under shock loading.

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*Since the iron is not greatly heated by shock compression in the pressure interval under consideration,[2] it can be assumed that the expansion of the iron from the compressed state will follow a curve which differs only slightly from the shock adiabat.

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RECOMBINATION RADIATION FROM INDIUM ANTIMONIDE UNDER AVALANCHE BREAKDOWN

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A number of investigations of the behavior of indium antimonide crystals in strong electric fields have established that at field strengths of ~ 200 v/cm the carrier concentration starts to increase rapidly, owing to the impact ionization of valence band electrons (avalanche breakdown).[1-3]

We have observed infrared luminescence radiation from n type indium antimonide crystals with small impurity concentrations, when pulses with current densities of up to 100 amp/mm^2 were applied. At these current densities the resistance of the specimen was more than an order of magnitude smaller than the resistance at small currents (voltages), which can be ascribed to avalanche breakdown. To avoid heating the specimen, current pulses not more than 3 μsec long were used with repetition frequency 50 cps. The luminescent radiation was observed at a temperature of 78°K, and disappeared when the specimen was warmed up to 120 — 180°K. The rise and decay times of the light pulse did not exceed 1 μsec, so that the observed radiation was not associated with heating of the crystal lattice. The spectrum of the radiation, with a maximum at $\lambda = 5.3\mu$ and half-width 0.25μ, allows it to be assumed that it is recombination radiation.[4] The effective temperature at the maximum of the spectrum was evaluated by comparison with black body radiation, and was 500°K.

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