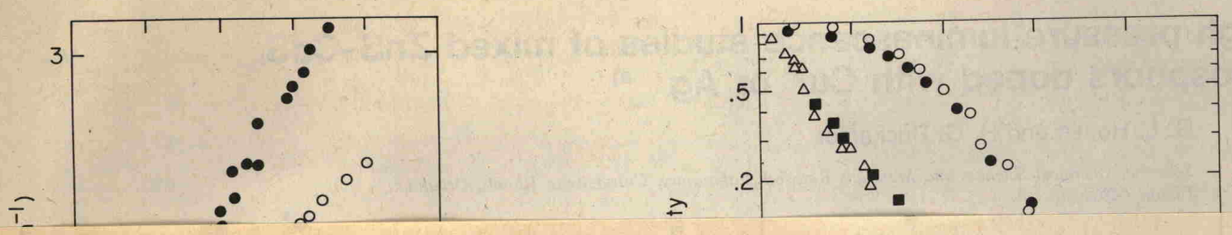
of the mixed crystals have pressure coefficients measurably less than the respective band gap. As concluded previously[1] this fact makes it unlikely that the luminescent transition originates directly from the conduction band. Apparently, donor–acceptor luminescence is the dominant mode of radiative recombination.

A qualitative understanding of the observed intensity changes with pressure for the mixed crystals can be achieved through a donor–acceptor model. As has been stated the donor depth becomes shallower as the cadmium concentration is increased. The acceptor level is unaffected. Experimental results presented for the ZnS phosphors have shown the effect of pressure to be to increase the ionization energy of the chlorine donor (~32 cm^{-1}/kbar). Experimental data from Böer *et al.* have indicated that donor ionization energies in CdS increase by roughly 64 cm^{-1}/kbar.[8] These observations make it likely that the donor pressure coefficient in a zinc–cadmium sulfide mixed crystal will be somewhere between these limits. If this is the case, then it is expected that pressure will decrease the emission intensity to a greater extent as the Cd^{2+} concentration is increased. This argument follows from the overlap considerations presented in the previous paper[1] for the ZnS donor–acceptor type emissions. The data for the silver-doped sample at all pressures and the copper-doped sample at pressures greater than 20 kbar bear this out. The anomalous behavior in the copper-doped sample below 20 kbar is not understood.

[1]G. L. House and H. G. Drickamer, J. Chem. Phys. **67**, 3221 (1977).
[2]W. Hoogenstraaten, Philips Res. Rep. **13**, 515 (1958).
[3]H. W. Leverenz, *An Introduction to Luminescence of Solids* (Dover, New York, 1968).
[4]S. T. Henderson, P. W. Ranby, and M. B. Halstead, J. Electrochem. Soc. **106**, 27 (1959).
[5]S. Rothschild, J. Electrochem. Soc. **110**, 28 (1963).
[6]E. B. Fehr, A. I. Friedman, F. J. Studer, and G. R. Fonda, J. Opt. Soc. Am. **42**, 917 (1952).
[7]G. A. Samara and A. A. Giardini, Phys. Rev. **140**, 388 (1965).
[8]K. W. Boer, E. Gutsche, and E. Jahne, Phys. Status Solidi **3**, 922 (1963).


3
1
.5
.2