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Radioluminescent Properties of CdS(Ag) Crystals

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Abstract: The radioluminescent properties of silver-doped cadmium sulphide, CdS(Ag), crystals excited by 5.5 MeV α -particles from an ^{241}Am radioactive source have been investigated. The emission spectra, decay profiles and thermal quenching curves were obtained accurately at temperatures between 80 K and 300 K. Two main radioluminescent emission bands centered at about 5760 Å and 5940 Å were observed. Their decay curves were found to be fast and nonexponential. From the thermal quenching of radioluminescence, the activation energies of centers responsible for these emissions were determined. The results are interpreted as the radioluminescence is possibly due to donor-acceptor pair recombinations.

Key Words: Radioluminescence, CdS(Ag), Recombination.

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