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to-Induced Electron Paramagnetic Resonance of $^2S_{1/2}$-State Impurity Centres in CdS and CdSe Single Crystals

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Recently $^2S_{1/2}$-state impurities with $(ns)^1$-configuration have become an inter- g object of EPR investigations in II-VI compounds. Räuber and Schneider (1) erved spectra of Group-III elements, Sugibuchi and Mita (2, 3) the spectra of up-IV elements in ZnS, and Suto and Aoki (4, 5) found spectra of Pb-associated res in ZnTe. From the extremely large hyperfine splitting by the nuclear spins me isotopes of the impurity centres, Räuber and Schneider, and also Sugibuchi Mita concluded that the unpaired spin is strongly localized in the (ns)-orbital e impurity ion. In contrast to the observations in ZnS, the investigations in :Pb and ZnTe:Ge (6) show large g-shifts to values greater than the free-spin and an additional superhyperfine structure, caused by the interaction with . Suto and Aoki (7), and Iida and Watanabe, who calculated the probability d the unpaired spin in the (ns)-orbital of only 0.23 for Ge and 0.19 for Pb (8), ned that the paramagnetic centre is a hole, localized mainly on the four Te around the Ge or Pb ion.

o get further information about the nature of these centres we extended the urements to single crystals of CdS and CdSe with wurtzite structure.

he EPR measurements were performed with an X-band rf-modulated JEOL- rometer JES-3BQ. The samples were prepared by two methods. Either by ling single crystals of CdS and CdSe with the doping material or by growing e crystals from highly purified CdS and CdSe powder with an admixture of the g material. In both cases strong EPR-spectra were observed at 77 °K after iation with light in the visible range from an ordinary prism monochromator