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EPR studies of covalent bonding and hyperfine coupling in the complexes of ns 1 ions

Murav'ev V., Silkin N.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Covalent bonding in the complexes containing ns 1 ions of various metals was studied by EPR spectroscopy. Large series of octahedral, cubic, and cuboctahedral complexes of the $^{67}\text{Zn}+(4s\ 1)$, $^{111}\text{Cd}+(5s\ 1)$, $^{205}\text{Tl}_2+(6s\ 1)$, and $^{207}\text{Pb}\ 3+(6s\ 1)$ ions were analyzed in crystal structures like fluoroperovskite (KMgF_3), fluoroantiperovskite (LiBaF_3), fluorite (MF_2) (where $\text{M} = \text{Ca}, \text{Sr},$ and Ba), and alkali metal halides. The parameters of hyperfine couplings and ligand hyperfine couplings were interpreted with regard to bond covalence and spin polarization. © 2008 MAIK Nauka.

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