

THEORY OF ELECTRICALLY DETECTED
MAGNETIC RESONANCE OF TRIPLET
CENTERS IN SILICON

A. V. Barabanov, R. A. Horoshok

Taras Shevchenko Kyiv National University
(64, Volodymyrska Str., Kyiv 01033, Ukraine;
e-mail: shura@univ.kiev.ua)

S u m m a r y

A theoretical model of spin-dependent recombination through excited triplet states of defects in the forbidden band of a semiconductor is proposed. The theory is developed on the basis of quantum equations for the density operator in the space of spin states of a two-electron system. With the help of these equations, the position and form of experimental resonance peaks of nonequilibrium conductivity are analyzed. The consideration is carried out taking into account the Zeeman and hyperfine interactions, crystalline anisotropy, and the processes of generation, recombination, dissociation, and spin relaxation of localized electrons. The comparison of the theoretical and experimental results is performed.