

Diamond side resonances: influence of isotopic substitution of carbon

Alexander A. Ivanov, author

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Abstrak

ABSTRAK

We discuss the side resonances of the optically detected magnetic resonance in a diamond crystal and propose a new approach to the calculation of the hyperfine interaction in a composed system consisting of a negatively charged nitrogen vacancy NV center and a nearby ^{13}C nuclear spin. The energy levels, rule selection and radiative transitions are obtained by a new method. The base of this method is the use of a complete set of commuting operators and entangled spin states. An estimation of the carbon hyperfine splitting parameters in the diamond NV center from side resonance frequencies is obtained in the frame of this method.