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Se-NMR study of superconductor FeSe under pressure SATORU MASAKI, HISASHI KOTEGAWA, HIDEKI TOU, Department of Physics, Kobe University, YOSHIKAZU MIZUGUCHI, YOSHIHIKO TAKANO, National Institute for Materials Science — Binary FeSe with T_c=8 K shows the simplest crystal structure in iron-based superconductors recently reported. Moreover, FeSe is reported that T_c increases with applying pressure and the effect of pressure for T_c is attracted. Thus the study on FeSe is quite important to investigate the role of iron-network in Fe-based layer. We have carried out Se-NMR measurements under pressure in order to clarify the symmetry of superconducting gap, the magnetic properties of normal state and the origin of pressure dependence of T_c in FeSe. In the normal state, the nuclear spin-lattice relaxation rate $1/T_1$ is in proportion to temperature (Korringa relation) at absent pressure. The Korringa relation was also observed under pressure, 0.7 GPa, However the observed value of $1/T_1$ at 0.7 GPa is about twice as large as that at absent pressure. Since $1/(T_1T)$ is proportional to the square root of the density of state at Fermi energy $D(E_F)$, this increase of $1/T_1$ suggests the increase of $D(E_F)$ by the applying pressure. In the superconductor, $1/T_1$ abruptly decreases by superconducting transition and obeys the cube of T from 7 K to 1.5 K at 2 T. the reduction of $1/T_1$ was also observed below 10K under pressure. The increase of T_c by applying pressure is conformed from microscopic viewpoint.

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