Superconductivity in a two-orbital Hubbard model on a square lattice with Hund's rule coupling KATSUNORI KUBO, Advanced Science Research Center, Japan Atomic Energy Agency — It has been recognized that orbital degree of freedom plays important roles in determination of physical properties, in particular magnetism, of several materials. In recent years, effects of orbital degree of freedom on superconductivity have also been discussed. In this study, we investigate possible superconducting states of a two-orbital Hubbard model on a square lattice by applying fluctuation exchange approximation. We can classify superconducting states by spin states, orbital states, and representations of tetragonal symmetry. In particular, we focus on superconducting states peculiar to multi-orbital systems, such as a spin-triplet orbital-singlet s-wave state. We show that the Hund's rule coupling stabilizes such an exotic state.

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