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First-principles study on electronic structure of Ca-Fe-Pt-As-type iron-based superconductors HIROKI NAKAMURA, MASHIKO MACHIDA, Japan Atomic Energy Agency — Since the discovery of the iron-based superconductor, $LaFeAsO_{1-x}F_x$ whose Tc reached 26K, various types of iron-based superconductors have been fabricated to attain higher Tc. Recently, new Ca-Fe-Pt-As system of iron-based superconductors was discovered, and the highest Tc in this class becomes 38K. In this system, the crystal structure is different from those of well-known iron-based superconductors. In particular, the blocking layers of some materials in this system are expected to be metallic unlike the other types of iron-based superconductors. We perform first-principles calculations for Ca-Fe-Pt-As system and evaluate their electronic structure.

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