

Electrical Characteristics and Microwave Properties of MgO Bicrystal Josephson Junction with Polyvinylidene Fluoride Gate and Bumper Layer CeO₂

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We have fabricated a high-T_c superconducting transistor was fabricated by spin coating method with polyvinylidene fluoride(PVDF) gate electrode on MgO bicrystal Josephson junction. PVDF ferroelectric material has not only small leakage current but also suitable dielectric constant at low temperatures. In this experiment, we have investigated if PVDF ferroelectric material is suitable to a gate electrode of the superconducting transistor and the millimeter wave properties (60GHz band) of the Josephson junction with PVDF gate electrode and used bumper layer CeO₂.

keywords : FET, Millimeter wave, Josephson junction, Bumper layer, YBCO, PVDF, CeO₂