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Examination of optimum conditions of stretching, polarization and annealing when producing piezoelectric PVDF film

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Abstract. The piezoelectric element can generate voltage from the applied force. PZT is a major piezoelectric material, but it contains lead and has no flexibility. On the other hand, PVDF has low environmental impact and good flexibility, but is has low power generation ability. Thus, the improvement of the power generation ability is important, in order to use the PVDF as the power generator. Making process of PVDF film is complex and has many parameters. These parameters are related to the power generation ability. In this paper, we focus on the stretching, the polarization and the annealing processes. The various PVDF films with the various parameters are made and measured power generation ability by the impact test in order to obtain the optimum parameters.