

Fig.1 What is pulsed power

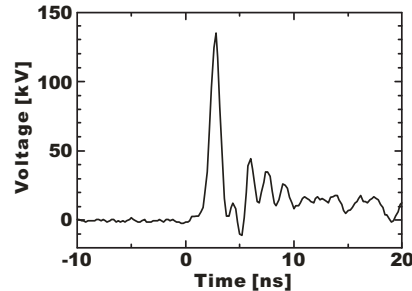
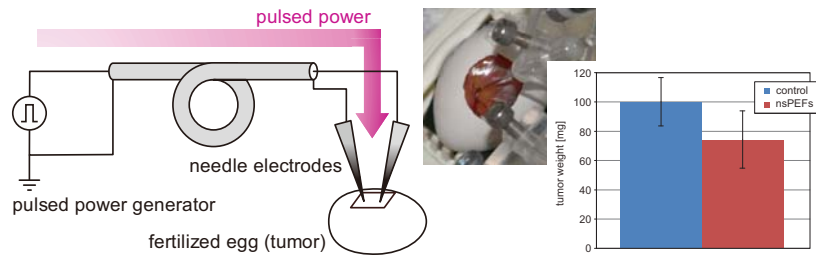
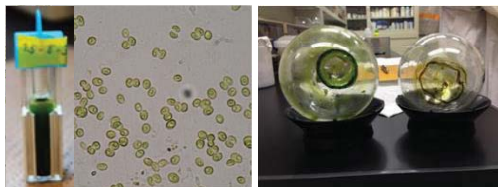


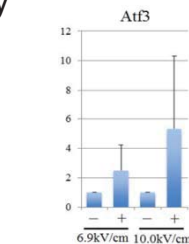
Fig.2 Ns voltage pulse



(a) New cancer therapy



(b) Production of biomass fuel



(c) Control of gene expression

Fig.3 Studies of application of electric pulses

Content:

There must be some electrical and magnetical influences in biological body and bioelectrics is a field of pulsed power applications recently. Pulsed power is technology of applying high compressive power pulse and according to the electric magnetism and we have focused on green technology and bioelectrics in applications of pulsed power. Some applied researches for effects of electrical pulses on biological body are introduced here.

Different parameters of electric pulses as spectrum would bring different actions and responses on biological body or cells. The control of the parameters and responses will introduce new biological applied-technologies. The responses and their mechanisms, however, have not been still clear. The effects of electric pulses on various object and their mechanisms have been studied and gene expression level as a response has been particularly considered. Some examples of applied study using electric pulses are as follows: new cancer therapy, production of biomass fuel from micro algae, and effects on endoplasmic reticulum stress responses for pulsed electric fields for prevention or therapy of disorders.

Keywords: pulsed power, bioelectrics, pulse electric field

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