



Faculty of
Science and
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Pulsed Power Application on Environment Engineering and Bioengineering

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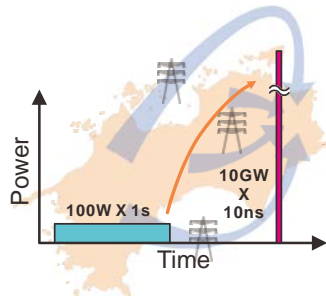


Fig.1 What is pulsed power

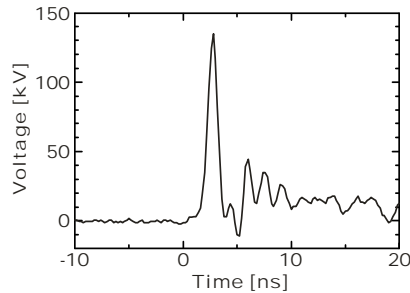


Fig.2 Ns voltage pulse

Environment

Ozone Production

NOx Treatment

Water Treatment

Biomass Fuel Production

Growth Control on Plants

Stress Response of ER

Cancer Therapy by nsPEFs

Bioelectrics

Fig.3 Pulsed power application

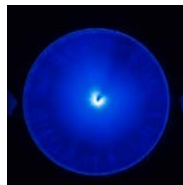


Fig.4 Steamer discharges

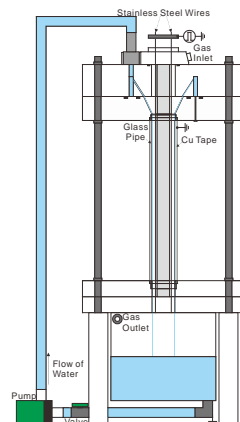


Fig. 5 Water Treatment



Fig.6 Cancer therapy

Content:

Pulse power is the technology of utilizing high power pulses obtained by compressing energy. We focus on green technologies and applications in bioengineering.

Nanosecond pulsed power has been applied on environmental protection technology. It can efficiently produce streamer discharges as which were suitable for discharge-chemical processing. There are the high-efficient ozone production, the exhaust gas treatment of nitrogen oxide (NOx), and the water treatment for persistent substances.

Applications in bioengineering utilize the influence of electric pulses and discharges on biological body. The influences can be controlled by the pulse width (spectrum), various applications can be expected. There are the production technology of micro algae biomass fuel and growth control of plants. We are developing the new cancer therapy and the control method of endoplasmic-reticulum-stress response aiming at prevention of disease, using nanosecond pulsed powers.

Keywords : pulsed power, bioelectrics, pulse electric field

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