



Faculty of  
Science and  
Technology  
Tokushima University

# Generation, Diagnosis and Applications of Discharge Plasma

## Associate Professor Kenji Teranishi

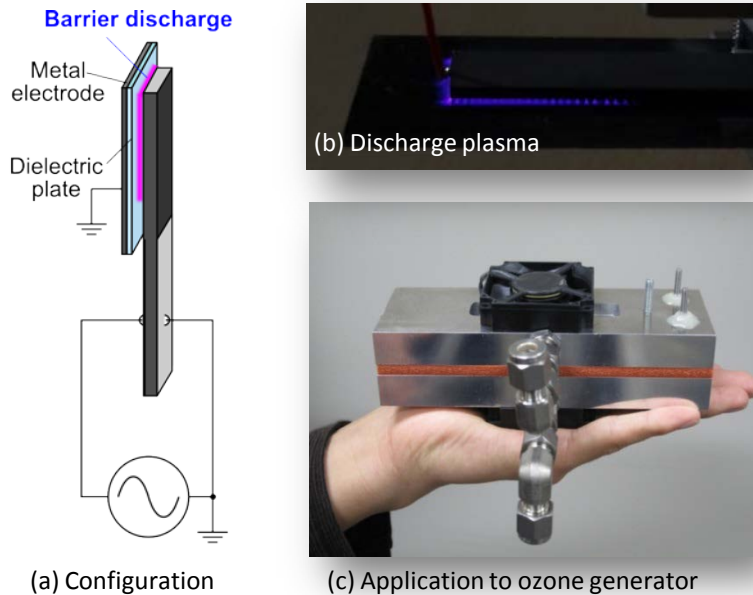


Fig. 1 Compact plasma reactor using piezoelectric device and its application

### Content:

Discharge plasma reactors consisting of a massive high voltage generator and discharge electrodes are more likely to become large-scale system. We have proposed and studied various types of compact plasma reactors using piezoelectric devices. Piezoelectric transformers (PTs) that act as compact high-voltage generator have been widely embedded in a backlight inverter for LCDs. Our proposed plasma reactors feature compact configurations because the devices serve as both high-voltage source and discharge electrode. Non-thermal plasmas, such as corona discharge, glow discharge and dielectric barrier discharge (Fig. 1(a)(b)) can be produced using the plasma reactors. Several applications of the plasma reactors to ozone generators (Fig. 1(c)) and vacuum ultraviolet light source have been demonstrated.

We have also promoted actively other research in generation, diagnosis and applications of non-thermal atmospheric pressure plasma, including *in-situ* measurement of ozone density inside DBD ozone generator (Fig. 2) and surrounding gas-fed (SGF) plasma jet (Fig. 3).

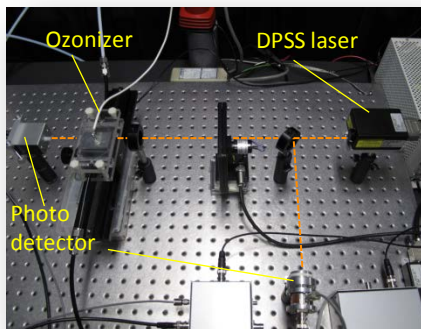


Fig. 2 *In-situ* O<sub>3</sub> measurement by laser optical absorption

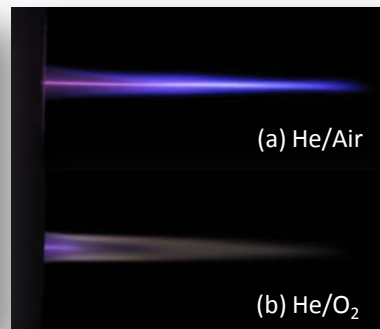


Fig. 3 SGF Plasma jet

Keywords : Dielectric barrier discharge, ozone, plasma jet

E-mail: [teranishi@ee.tokushima-u.ac.jp](mailto:teranishi@ee.tokushima-u.ac.jp)

Tel. +81-88-656-7454

Fax: +81-88-656-7454

<http://pub2.db.tokushima-u.ac.jp/ERD/person/155803/profile-ja.html>

