

# World First

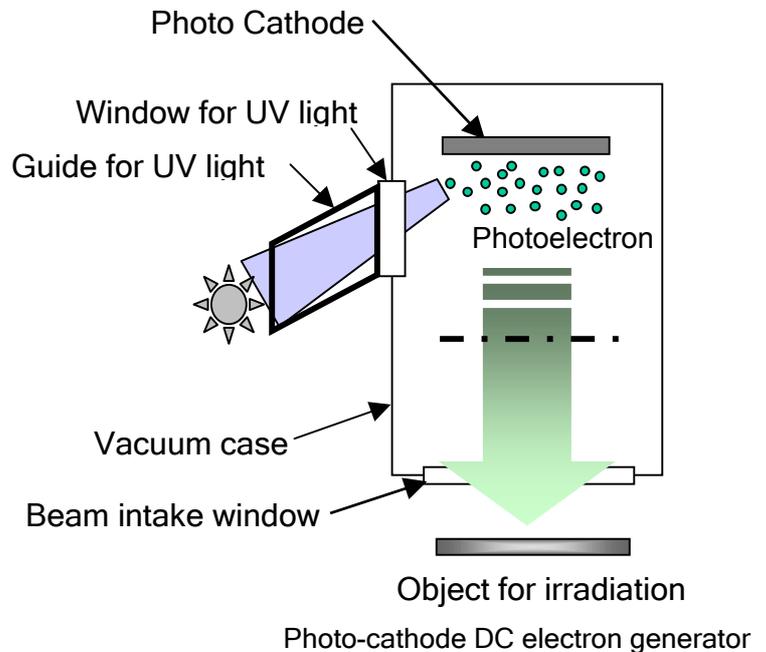
## *The Electron Beam Implement using by UV irradiation developed for practical use*

### 1. Introduction

Electron Beam is artificially-accelerated electron. This technology using by high Electron Beam energy is used for not only industrial equipment, kitchen equipment, household products, but also in a wide range of areas, such as printing and medical services and so on.

Traditional Electron Beam has had challenges to become widely used. Because it is needed to have a particular and technical knowledge for operation and maintenance. In addition a wide space is also needed for installation due to large-size implement.

We have developed Electron Beam implement using by photo cathode which developed WASEDA University (WASHIO laboratory office). Now Electron Beam implement using by UV irradiation was developed for practical use with optimized High Power Microwave-excited Electrode-less UV Lamp and Photo-cathode materials. It is the first implement in the world. It doesn't need high-temperature heating and direct control system. So operation and maintenance are easy because experienced technique is not needed. It can be used not only plant but also office and shop targeted on demand service.



### 2. Outcome

#### A) Electron Beam control using by external light source without direct control circuit

External light source generates an electron. Conditioning doesn't need start of operation and particular circuit doesn't need for operation.

#### B) Maintenance can be minimized by using Photo-cathode system. Unneeded high-temperature heating

Photo-cathode system is very few wear damage. Because it is not needed high-temperature heating. So exchange frequency of cathode can be minimized or nothing. In addition maintenance can be minimized due to cathode metal doesn't become gas and degree of vacuum is maintained.

#### C) Compact size and low cost due to simple structure (Parts quantity: 1/10)

Electron Beam implements by using UV irradiation is quite simple principle. Parts quantity is 1/10 compare to Thermionic cathode system. Thus control and maintenance are easy and also downsizing and low cost are also possible.



Prototype EB implement

### 3. Future

Firstly we will sell this product as a laboratory practical machine, next step, sell into industrial and medical market.